

# DOCUMENTATION OF JEAN-PAUL BIBERIAN'S RESEARCH AND OTHER CONTRIBUTIONS TO THE COLD FUSION FIELD

*A PROJECT OF THE LENR RESEARCH  
DOCUMENTATION INITIATIVE*

## Second Draft Report

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# 1 Introduction

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Cold fusion (CF) was announced on March 23, 1989, by Dr. Martin Fleischman and Dr. Stanley Pons. The immense potential energy benefits of CF (also referred to as Low Energy Nuclear Reactions, LENR) were well recognized at the time. Humankind's need for a source of cheap, clean, inexhaustible, and safe energy seemed to be permanently satisfied. However, cold fusion was rejected by mainstream science within a year or so, and it remains highly marginalized to this day. On the other hand, the phenomenon has continued to be rigorously pursued by many investigators in several countries. The mounting evidence for the reality of cold fusion shows that its potential benefits may yet be realized.

Because it is a “pariah” science, cold fusion has attracted relatively few new investigators to the field. Many of the researchers became active in the early months and years after the 1989 announcement. Now more than 30 years later many of these investigators are leaving the field for retirement or health reasons. The results of their many years of cold fusion investigation are at risk of being lost, which would be extremely unfortunate not only for the field, but also potentially for humanity.

An initiative is underway by Dr. Thomas Grimshaw's LENRGY LLC to mitigate the risk of loss of research records of cold fusion investigators. Its objectives are to collect, organize, document, and archive these records. The LENR Research Documentation Initiative (LRDI) helps researchers ensure that their efforts are preserved and keep the records available for additional analysis and interpretation. The LRDI is described in article in *Infinite Energy*<sup>1</sup> and the LENRGY website<sup>2</sup>.

Dr. Jean-Paul Biberian has been one of the foremost contributors to cold fusion for almost the entire life of the field. Because he did not feel qualified to do experiments with electrolytic cells of the type used by Fleischmann and Pons, he did not do experiments in the earliest years. But when methods using the gas phase were introduced by 1993, he initiated an active experimental

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<sup>1</sup> Grimshaw, T., 2020. Documenting Cold Fusion Research: Preserving a Vital Asset for Humankind. *Infinite Energy*, Issue 150, March/April 2020, p. 9-13.

<sup>2</sup> LENRGY: Pursuing the Benefits of Cold Fusion Realization. <http://lenrgyllc.com/documenting-research/>.

effort that continues to this day. Not only has he conducted many experiments, but he has also contributed to the LENR field in several other ways as well.

A project is being performed with Dr. Biberian (Figure 1-1) under the umbrella of the LRDI to document his cold fusion contributions. The first phase of the Biberian LENR Research Documentation Project (BLRDP) was based primarily on information readily available in the public realm. It resulted in a draft report dated June 7, 2022. Since then, a site visit to Dr. Biberian's home and LENR laboratory has been accomplished to acquire additional information. The visit took place on two days in October 2022.



*Figure 1-1*

*Dr. Biberian at ICCF-24, July 25 to 28, 2022, Mountain View, CA*

This second draft report adds to (and reorganizes) the first draft with the findings of the site visit. The report includes transcripts of several interviews. A photo of Dr. Biberian with Dr. Grimshaw is in Figure 1-2. Dr. Biberian's home, located in the southern outskirts of Avignon, France, is shown in Figure 1-3.



*Figure 1-2*  
*Dr. Biberian (Right) and Dr. Grimshaw*  
*Taken Near Dr. Biberian's Home, October 2022*



*Figure 1-3*  
*Dr. Biberian's Home in the Outskirts of Avignon, France*

Dr. Biberian was awarded the Preparata medal, one of the most prestigious awards in the LENR field, at ICCF-19 in 2015<sup>3</sup>. A photo of him with this metal is shown in Figure 11-4.

*Figure 1-4*

*Dr. Biberian with His Preparata Medal  
Taken during Site Visit, October 2022*



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<sup>3</sup> Frazier, C., 2015, Biberian Awarded Preparata Medal. Infinite Energy, Issue 122, July/August.

## 2 Publications and Presentations

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Dr. Biberian has published many papers on his cold fusion research going back to 1995. He provided a list of his cold fusion and other publications on one of his websites<sup>4</sup>. The papers specifically on cold fusion are shown in Table 2-1. The papers that are included on Jed Rothwell's LENR-CANR.org library website<sup>5</sup> are listed in Table 2-2. All but three of these entries (shown in italics in Table 2-2) have been downloaded from the website for the BLRDP.

Table 2-1.

*Dr. Biberian's Cold Fusion Publications as Listed on the "Jean-Paul Biberian" Website*

J.-P. BIBERIAN	"Excess Heat Measurement in AlLaO <sub>3</sub> Doped with Deuterium"	Fifth International Conference on Cold Fusion, Monte Carlo, Monaco, 1995
G. LONCHAMPT, J.-P. BIBERIAN, L. BONNETAIN, and J. DELEPINE	"Excess Heat Measurement with Pons and Fleischmann Type Cells".	The Seventh International Conference on Cold Fusion. 1998. Vancouver,
G. LONCHAMPT, J.-P. BIBERIAN, L. BONNETAIN, and J. DELEPINE	"Excess Heat Measurement with Patterson Type Cells".	The Seventh International Conference on Cold Fusion. 1998. Vancouver,
J.-P. BIBERIAN, G. LONCHAMPT, L. BONNETAIN, and J. DELEPINE	"Electrolysis of LaAlO <sub>3</sub> single crystals and ceramics in a deuterium atmosphere".	The Seventh International Conference on Cold Fusion. 1998. Vancouver,
J.P. BIBERIAN et G. LONCHAMPT,	"Deuterium gas loading of palladium using a solid state electrolyte"	Proceedings of ICCF9, Beijing, 2002
J.P. BIBERIAN,	"Condensed Matter Nuclear Science: Cold Fusion"	Ann. Fond. L. de Broglie, 29(2004)1095
J.P. BIBERIAN,	"Condensed Matter Nuclear Science (Cold Fusion) an update"	Int. J. Nuclear Energy Science and Technology 3(2007)31-43
P. Tripodi, N. Armanet, V. Asarisi, A. Avveduto, A. Marmigi, J.D. Vinko, J.P. Biberian,	'The effect of hydrogenation/dehydrogenation cycles on palladium physical properties'	Physics Letters A 373 35 3101-3108 (2009)
J.P. Biberian,	'Low Energy Nuclear Reactions in Gas Phase: an update'	ACS Source Book(2009)
J.P. Biberian,	'Cold Fusion by Gas Loading'	ICCF14 proceedings (2009)
H Jamgotchian <sup>1</sup> , Y Colignon, N Hamzaoui, B Ealet, J Y Hoarau, B Aufray and J P Biberian	'Growth of silicene layers on Ag(111): unexpected effect of the substrate temperature '	Journal of Physics: Condensed Matter 24(2012) 172001

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<sup>4</sup> Scientific Articles. <http://www.jeanpaulbiberian.net/>

<sup>5</sup> A Library of Papers about Cold Fusion. <https://lenr-canr.org/>

P.Tripodi, N. Armanet, V. Asarisi, A. Avveduto, A. Marmigi, J;-p; Biberian, J; Darja Vinko      The effect of hydrogen stoichiometry on palladium strain and resistivity      Physics Letters A 373 (2009) 4301–4306

Table 2-2.

*Dr. Biberian's Publications Included in the LENR-CANR.org Website*

<u>No</u>	<u>First Author</u>	<u>Year</u>	<u>Description</u>
1	Biberian, J. P.	1995	Biberian, J.P. Excess Heat Measurement in AlLaO <sub>3</sub> Doped with Deuterium. in 5th International Conference on Cold Fusion. 1995. Monte-Carlo, Monaco: IMRA Europe, Sophia Antipolis Cedex, France.
2	Biberian, J. P.	1998	Biberian, J.P., et al. Electrolysis of LaAlO <sub>3</sub> Single Crystals and Ceramics in a Deuteriated Atmosphere. in The Seventh International Conference on Cold Fusion. 1998. Vancouver, Canada: ENECO, Inc., Salt Lake City, UT.
3	Lonchamp, G.	1998	Lonchamp, G., et al. Excess Heat Measurement with Patterson Type Cells. in The Seventh International Conference on Cold Fusion. 1998. Vancouver, Canada: ENECO, Inc., Salt Lake City, UT.
4	Lonchamp, G.	1998	Lonchamp, G., et al. Excess Heat Measurement with Pons and Fleischmann Type Cells. in The Seventh International Conference on Cold Fusion. 1998. Vancouver, Canada: ENECO, Inc., Salt Lake City, UT.
5	Biberian, J. P.	2002	Biberian, J.P., Rapport sur L'International Conference on Cold Fusion ICCF9 Pekin, Chine, 20-24 mai 2002. 2002, CRMC2-CNRS.
6	Biberian, J. P.	2002	Biberian, J.P. and G. Lonchamp. Deuterium Gas Loading of Palladium Using a Solid State Electrolyte. in The 9th International Conference on Cold Fusion, Condensed Matter Nuclear Science. 2002. Beijing, China: Tsinghua Univ. Press.
7	Biberian, J. P.	2004	Biberian, J.P., Condensed Matter Nuclear Science: Cold Fusion. Ann. Fond. Louis de Broglie, 2004. 29(3): p. 1095.
8	<i>Biberian, J. P.</i>	<i>2005</i>	<i>Biberian, J.P. and G. Lonchamp. Excess heat observed during electrolysis of deuterated phosphoric acid with palladium electrodes and a solid state electrolyte in deuterium gas. in The 12th International Conference on Condensed Matter Nuclear Science. 2005. Yokohama, Japan.</i>
9	<i>Biberian, J. P.</i>	<i>2005</i>	<i>Biberian, J.P. and G. Lonchamp. Excess heat observed during electrolysis of deuterated phosphoric acid with palladium electrodes and a solid state electrolyte in deuterium gas (PowerPoint slides). in The 12th International Conference on Condensed Matter Nuclear Science. 2005. Yokohama, Japan.</i>
10	Biberian, J. P.	2007	Biberian, J.P. and N. Armanet. Excess Heat Production During Diffusion Of Deuterium Through Palladium Tubes. in Proceedings of the 8th International Workshop on Anomalies in Hydrogen / Deuterium Loaded Metals. 2007. Sicily, Italy.
11	Biberian, J. P.	2007	Biberian, J.P. and N. Armanet. Excess Heat During Diffusion of Deuterium Through Palladium. in The 13th International Conference on Condensed Matter Nuclear Science. 2007. Sochi, Russia.
12	Biberian, J. P.	2007	Biberian, J.P., Condensed matter nuclear science (cold fusion): an update. Int. J. Nucl. Energy Sci. Technol., 2007. 3(1): p. 31.
13	Bottollier-Curtet, H.	2007	Bottollier-Curtet, H., et al., Search for Isotopic Anomalies in Alchemical Silver Coins from the Germanischen National Museum in Nuremberg. J. Condensed Matter Nucl. Sci., 2007. 1: p. 148-154.

14 Biberian, J. P. 2008 Biberian, J.P. Cold Fusion by Gas Loading: A Review. in ICCF-14 International Conference on Condensed Matter Nuclear Science. 2008. Washington, DC.

15 Biberian, J. P. 2008 Biberian, J.P. and N. Armanet, An update on Condensed Matter Nuclear Science (cold fusion). Ann. Fond. Louis de Broglie, 2008. 33(1).

16 Biberian, J. P. 2009 Biberian, J.P., *Low Energy Nuclear Reactions in Gas Phase: A Comprehensive Review, in Low-Energy Nuclear Reactions and New Energy Technologies Sourcebook Volume 2. 2009, American Chemical Society: Washington DC. p. 9-34.*

17 Biberian, J. P. 2009 Biberian, J.P., Unexplained Explosion During an Electrolysis Experiment in an Open Cell Mass Flow Calorimeter. J. Condensed Matter Nucl. Sci., 2009. 2.

18 Tripodi, P. 2009 Tripodi, P., et al., The effect of hydrogen stoichiometry on palladium strain and resistivity. Phys. Lett. A, 2009. 373(47).

19 Tripodi, P. 2009 Tripodi, P., et al., The effect of hydrogenation/dehydrogenation cycles on palladium physical properties. Phys. Lett. A, 2009. 373(35).

20 Biberian, J. P. 2012 Biberian, J.P., Biological Transmutations: Historical Perspective. J. Condensed Matter Nucl. Sci., 2012. 7.

21 Biberian, J. P. 2013 Biberian, J.P., Comments Regarding the Storms Paper. Infinite Energy, 2013(108): p. 36.

22 Biberian, J. P. 2014 Biberian, J.P., Cold Fusion. J. Condensed Matter Nucl. Sci., 2014. 13.

23 Biberian, J. P. 2014 Biberian, J.P., I. Parchamazad, and M. Miles, Possible Role of Oxides in the Fleischmann-Pons Effect. J. Condensed Matter Nucl. Sci., 2014. 13.

24 Biberian, J. P. 2015 Biberian, J.P., et al., Pressurized Plasma Electrolysis Experiments. J. Condensed Matter Nucl. Sci., 2015. 15.

25 Biberian, J. P. 2015 Biberian, J.P., Preface. J. Condensed Matter Nucl. Sci., 2015. 16.

26 Biberian, J. P. 2015 Biberian, J.P., Biological transmutations. Curr. Sci., 2015. 108(4).

27 Biberian, J. P. 2016 Biberian, J.P., A Tribute to Georges Lonchamp. J. Condensed Matter Nucl. Sci., 2016. 21: p. 1-6.

28 Ruer, J. 2018 Ruer, J. and J.P. Biberian, Reanalysis of an Explosion in a cold fusion Experiment. J. Condensed Matter Nucl. Sci., 2018. 26: p. 76-97.

29 Biberian, J. P. 2019 Biberian, J.P., Biological Transmutations. J. Condensed Matter Nucl. Sci., 2019. 28: p. 21-27.

30 Biberian, J. P. 2019 Biberian, J.P., Anomalous Isotopic Distribution of Silver in a Palladium Cathode. J. Condensed Matter Nucl. Sci., 2019. 29: p. 211-218.

### 3 Cold Fusion Books

Two of Dr. Biberian's most important contributions to the cold fusion field are his two books on the topic (Figure 3-1). The books are quite different. The earlier book<sup>6</sup> covers a broad range of topics on cold fusion, including a description of Dr. Biberian's work in the field and a preface by Dr. Pons<sup>7</sup>. The second book<sup>8</sup>, for which he was editor, consists of 17 papers by some of the most prominent researchers in the field.



Figure 3-1.

*Covers of Two Books by Jean-Paul Biberian*

#### 3.1 ***Fusion in All Its Forms: Cold Fusion, ITER, Alchemy, Biological Transmutations***

The earlier book is described as follows on one of Dr. Biberian's websites<sup>9</sup>.

When the discovery of cold fusion was announced in 1989, the whole scientific world was in turmoil. So it would be possible to produce unlimited energy at a lower cost? In many laboratories, known or unknown, reputable or not, everyone tries to reproduce the experiment that everyone is talking about. I was one of these pioneers, of this extraordinary promising adventure. But cold fusion didn't happen overnight.

<sup>6</sup> Biberian, J-P., *Fusion in All Its Forms – Cold Fusion, ITER, Alchemy, Biological Transmutations*. Infinite Energy Press, 2015.

<sup>7</sup> Frazier, C., 2013, *New Cold Fusion Book by Jean-Paul Biberian Includes Preface by Stanley Pos*. Infinite Energy, Issue 110, July/August 2013.

<sup>8</sup> Biberian, J-P., *Cold Fusion – Advances in Condensed Matter Nuclear Science*. Elsevier. 2020.

<sup>9</sup> "Jean-Paul Biberian" Website. <http://www.jeanpaulbiberian.net/>. (Described in Section 10 of this report.)

Let me tell you the big and small story, human and scientific, alchemical and biological, of cold fusion. A story that fascinates me and which continues today...

The book covers many relevant aspects of cold fusion in three Parts. The 12 chapters and three parts are listed below. Chapters 2 and 3 are particularly important in developing a timeline for Dr. Biberian's cold fusion research (Section 12).

- Preface
- Introduction
- Part 1: At the Beginning
  - 1. The Birth of Cold Fusion
  - 2. My Own Story
- Part 2: Does Cold Fusion Produce Heat? My Experiments with Cold Fusion
  - 3. My Work on Cold Fusion
  - 4. Cold Fusion: Heat Production
  - 5. Cold Fusion, Nuclear Transmutations
  - 6. Cold Fusion Theories
- Part 3: What Does the Future Hold for Cold Fusion?
  - 7. ITER
  - 8. Biological Transmutations
  - 9. Alchemy
  - 10. Cold Fusion in Different Countries
  - 11. The Scientific Truth in Question

### 3.2 Cold Fusion: Advances in Condensed Matter Nuclear Science

The later book features 17 papers on the four most significant aspects of the field. The contents are shown below.

<u>Chapter Titles</u>	<u>Contributor(s)</u>
Contributors	
Preface	
Part 1. Electrochemistry	
1. Production of Helium in Cold Fusion Experiments	Miles, M.
2 Review of Pd/D Codeposition	Mossier-Boss, P., and L. Forsley
3. Electrochemical Loading to Produce the Fleischmann-Pons Heat Effect (FPHE)	McKubre, M.
4. Fundamentals of Isoparabolic Calorimetric for Cold Fusion Experiments	Miles, M.
5 Can Clean and Stable Deuterium Loading and Well-Tailored Microstructure Improve Reproducibility?	Numata, H.
6. Gas Phase	Biberian, J-P.
7. Electrically Induced Anomalous Thermal Phenomena in Nano-Structured Wires	Celani, F, and C. Lorenzetti
8. Experimental Procedures for Excess Heat Generation from Cold Fusion Reactions	Mizuno, T., and J. Rothwell
9. Heat Generation Heat Generation Experiments Using Nano-Sized Metal Composite and Hydrogen Gas	Iwamura, Y.
10. Screening Energy for Low Energy Nuclear Reactions in Condensed Matter	Kasagi, J., Y. Honda, K. Fang

Part 3. Transmutations

11. Review of Permeation-Induced Nuclear Transmutation Reactions

Iwamura, Y.

12. Effective LENR and Transmutation of Stable and radioactive Isotopes in Growing Biological Systems

Vysotskii, V., A. Kornilova

13. Transmutations and Isotopic Shifts in LENR Experiments

Srinivasan, M., K. Rajeev

Part 4. Models and Theories

14. The Basic Nature of the Cold Fusion Effect

Storms, E.

15. Models Based on Phonon – Nuclear Coupling

Hagelstein, P.

16. A Study on Electron Deep Orbits by Quantum Relativistic Methods

Paillet, J., A. Muelenberg

17. Universal Mechanism of LENR in Physical and Biological Systems on the Base of Coherent Correlated States of Interacting Particles

Vysotskii, V., Vysotsky, M.

## 5 Editor of the Journal of Condensed Matter Nuclear Science

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Dr. Biberian has served as editor of the Journal of Condensed Matter Nuclear Science (JCMNS), since its beginnings in 2007. The scope of the JCMNS is shown on the International Society of Condensed Matter Nuclear Science (ICMNS) website. The bibliographic listing of the JCMNS volumes from LENR-CANR.org is shown in Table 5-1.

### JOURNAL SCOPE

The Journal of Condensed Matter Nuclear Science is an open-access electronic journal that accepts scientific papers of high quality concerned with subjects relating to nuclear processes in condensed matter. Papers may focus on the results of experimental studies, theoretical studies, or a combination of these. Topics to which the journal is addressed include:-

- Calorimetry, energy production in metal hydrides and deuterides;
- Correlations, or lack of correlations, between energy production and possible nuclear products
- Materials science issues that are important for the development of nuclear effects in condensed matter
- Electrochemical issues concerning loading, surface chemistry, resistance diagnostics and other issues concerning metal hydrides and metal deuterides
- Observations of nuclear products, charged particles, neutrons, tritium, X-ray and gamma emission in metal hydrides
- Production of new elements or isotopes in metal hydrides and metal deuterides; and modification of isotopic distributions
- Induced radioactivity in metal deuterides and metal hydrides
- Accelerator experiments on metal deuterides and metal hydrides
- Models for nuclear processes in the condensed matter

### PAPERS

Papers must be written in good English. Most papers will be in the range of 3-15 published pages. The journal also accepts longer review papers, which may focus on a particular general topic, or on the work of group(s). The journal may also invite submissions. Experimental papers must include enough technical description to allow for replication of the experiment. Papers reporting only a single observation of an effect are usually not acceptable. An exception can be made under conditions in which the effect is particularly well diagnosed, or is of exceptional significance. In the event that the origin of the experimental effect is not known, authors are encouraged not to engage in extended speculations on its origin.

Theoretical papers must include a clear description of the model under discussion as well as what experimental result(s) the model is intended to address, and what novel predictions are made. The goal of a theoretical paper should be to make progress on the evaluation of a model, to understand its strengths and weaknesses as it applies to observable phenomena. As some phenomena are not fully understood at present, it would be natural for there to be speculation as to the nature of the effects under discussion. For speculation to be acceptable, it must be identified clearly as such, it must not be obviously in error, and it must be brief.

Papers may be submitted in the appropriate format to [CMNSEditor@iscmns.org](mailto:CMNSEditor@iscmns.org). Please use the last name of the (first) author as part of the filename (i.e. hagelstein01a.doc). A completed copyright form is required.

### PEER REVIEW PROCESS

Submitted papers will be forwarded to an Editor who will supervise the peer review process, and contact the authors in the course of the review process. Papers submitted to Condensed Matter Nuclear Science will be reviewed under the rules and guidelines associated with the review and appeals process adopted by the American Physical Review journals. Authors will work with the assigned Editor on the review process. Accepted manuscripts will be forwarded to the Editor in Chief with documentation of the review process and may be amended for consistency of journal format.

Table 5-1.

*Bibliographic Listings of JCMNS Volumes (From LENR-CANR.org)*

10	Biberian, J. P.	2007	Biberian, J.P., ed. J. Condensed Matter Nucl. Sci. Vol. 1. 2007.
15	Biberian, J. P.	2009	Biberian, J.P., ed. J. Condensed Matter Nucl. Sci. Vol. 2. 2009.
17	Biberian, J. P.	2010	Biberian, J.P., ed. J. Condensed Matter Nucl. Sci. Vol. 3. 2010.
18	Biberian, J. P.	2011	Biberian, J.P., ed. J. Condensed Matter Nucl. Sci. Vol. 4. 2011.
19	Biberian, J. P.	2011	Biberian, J.P., ed. J. Condensed Matter Nucl. Sci. Vol. 5. 2011.
20	Biberian, J. P.	2012	Biberian, J.P., ed. J. Condensed Matter Nucl. Sci. Vol. 6. 2012.
21	Biberian, J. P.	2012	Biberian, J.P., ed. J. Condensed Matter Nucl. Sci. Vol. 7. 2012.
23	Biberian, J. P.	2012	Biberian, J.P., ed. J. Condensed Matter Nucl. Sci. Vol. 8. 2012.
24	Biberian, J. P.	2012	Biberian, J.P., ed. J. Condensed Matter Nucl. Sci. Vol. 9. 2012.
26	Biberian, J. P.	2013	Biberian, J.P., ed. J. Condensed Matter Nucl. Sci. Vol. 10. 2013.
27	Biberian, J. P.	2013	Biberian, J.P., ed. J. Condensed Matter Nucl. Sci. Vol. 11. 2013.
28	Biberian, J. P.	2013	Biberian, J.P., ed. J. Condensed Matter Nucl. Sci. Vol. 12. 2013.
29	Biberian, J. P.	2014	Biberian, J.P., ed. J. Condensed Matter Nucl. Sci. Vol. 13. 2014.
32	Biberian, J. P.	2014	Biberian, J.P., ed. J. Condensed Matter Nucl. Sci. Vol. 14. 2014.
33	Biberian, J. P.	2015	Biberian, J.P., ed. J. Condensed Matter Nucl. Sci. Vol. 15. 2015.
36	Biberian, J. P.	2015	Biberian, J.P., ed. J. Condensed Matter Nucl. Sci. Vol. 16. 2015.
37	Biberian, J. P.	2015	Biberian, J.P., ed. J. Condensed Matter Nucl. Sci. Vol. 17. 2015.
38	Biberian, J. P.	2015	Biberian, J.P., ed. J. Condensed Matter Nucl. Sci. Vol. 18. 2015.
40	Biberian, J. P.	2016	Biberian, J.P., ed. J. Condensed Matter Nucl. Sci. Vol. 19. 2016.
41	Biberian, J. P.	2016	Biberian, J.P., ed. J. Condensed Matter Nucl. Sci. Vol. 20. 2016.
42	Biberian, J. P.	2016	Biberian, J.P., ed. J. Condensed Matter Nucl. Sci. Vol. 21. 2016.
44	Biberian, J. P.	2017	Biberian, J.P., ed. J. Condensed Matter Nucl. Sci. Vol. 22. 2017.
45	Biberian, J. P.	2017	Biberian, J.P., ed. J. Condensed Matter Nucl. Sci. Vol. 23. 2017.
46	Biberian, J. P.	2017	Biberian, J.P., ed. J. Condensed Matter Nucl. Sci. Vol. 24. 2017.
47	Biberian, J. P.	2017	Biberian, J.P., ed. J. Condensed Matter Nucl. Sci. Vol. 25. 2017.
48	Biberian, J. P.	2018	Biberian, J.P., ed. J. Condensed Matter Nucl. Sci. Vol. 26. 2018.
49	Biberian, J. P.	2018	Biberian, J.P., ed. J. Condensed Matter Nucl. Sci. Vol. 27. 2018.
50	Biberian, J. P.	2019	Biberian, J.P., ed. J. Condensed Matter Nucl. Sci. Vol. 28. 2019.
53	Biberian, J. P.	2019	Biberian, J.P., ed. J. Condensed Matter Nucl. Sci. Vol. 29. 2019.
54	Biberian, J. P.	2020	Biberian, J.P., ed. J. Condensed Matter Nucl. Sci. Vol. 30. 2020.
55	Biberian, J. P.	2020	Biberian, J.P., ed. J. Condensed Matter Nucl. Sci. Vol. 31. 2020.
56	Biberian, J. P.	2020	Biberian, J.P., ed. J. Condensed Matter Nucl. Sci. Vol. 32. 2020.
57	Biberian, J. P.	2020	Biberian, J.P., ed. J. Condensed Matter Nucl. Sci. Vol. 33. 2020.

## 6 Laboratory

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Dr. Biberian maintains a very active LENR laboratory. It is in a stand-alone building located about 100 yards from his home in the outskirts of Avignon. Exterior views of the lab are shown in Figures 6-1 and 6-2.



*Figure 6-1*

*Exterior View of Dr. Biberian's LENR Laboratory*



*Figure 6-2*

*Dr. Biberian at the Entrance to His Lab*

## 6.1 Facility and Equipment

The lab building is full of equipment and experimental apparatus for LENR research. Photos of the interior, taken from near the entrance, are shown in three directions in Figures 6-3 to 6-5.

They show a number of work surfaces for setting up and running experiments as well as several cabinets and other storage areas that hold a large collection of components for experiments. Dr. Biberian's office, including a desk, printer, whiteboard, and bookshelf is shown in the back of Figure 6-5.



*Figure 6-3*

*Interior of Dr. Biberian's Lab from Entrance: Left Side*



*Figure 6-4*

*Interior of Dr. Biberian's Lab from Entrance: Middle View*



*Figure 6-5*

*Interior of Dr. Biberian's Lab from Entrance: Right Side*

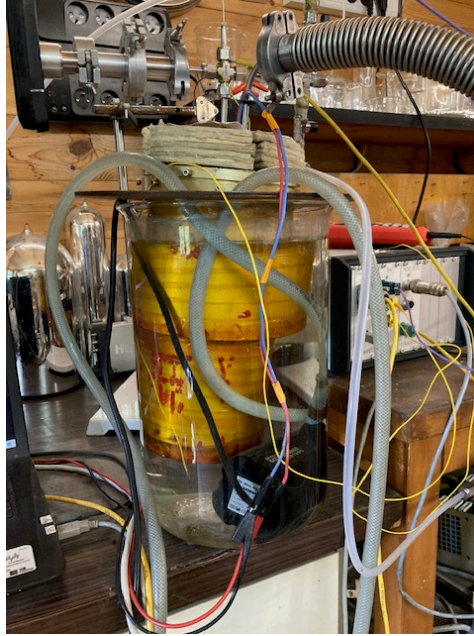
## **6.2 Active Experiments**

At the time of the site visit in October 2022, Dr. Biberian had two long-term experiments underway in his lab. One appears to be an electrolytic cell. It is located in the main room of the lab (Figures 6-6 and 6-7). The other experiment is in a closet-like space within the lab (Figures 6-8 and 6-9). Its primary feature is the use of rotating magnets. More complete descriptions of these experiments may be provided in a future version of this report.



*Figure 6-6*

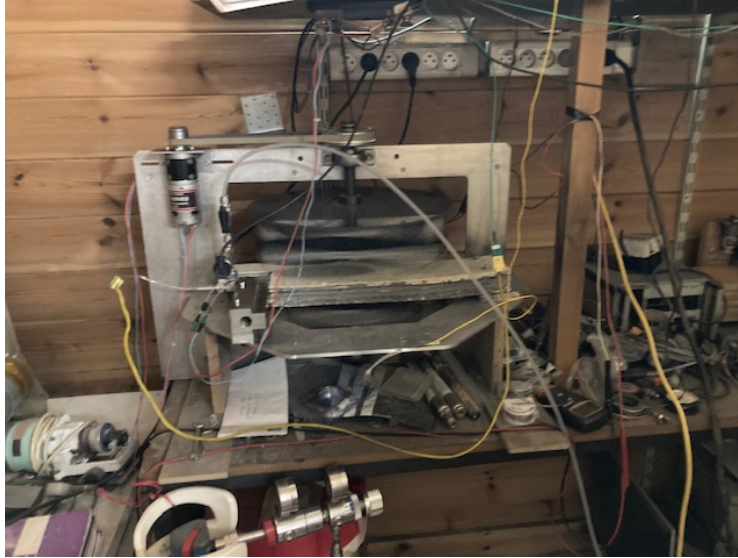
*Electrolytic Cell Setup in Main Lab*



*Figure 6-7*  
*Closeup View of Electrolytic Cell*



*Figure 6-8*  
*Rotating Magnet Experiment in Closet within the Main Lab*



*Figure 6-9*

*Closeup View of the Rotating Magnet Experiment*

### **6.3 ICARUS Cells**

During their research at Technova in France, Fleischmann and Pons developed an experiment methodology<sup>10</sup> referred to as ICARUS (Isoperibolic Calorimetry: Acquisition, Research, and Utilities System). Dr. Biberian conducted similar experiments, some in collaboration with Dr. Pons, using the design and methods specified in ICARUS. Five of Dr. Biberian's lab notebooks are named ICARUS. A collection of ICARUS cells is in Dr. Biberian's laboratory (Figure 6-10). He loaned one of the cells for experiments by Rob Christiansen and Fran Tanzella in California. It was being transported to the US by Tom Grimshaw, but it was unfortunately broken during a luggage theft in Marseille.

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<sup>10</sup> Pons, S. and M. Fleischmann, *The ICARUS Systems, Isoperibolic Calorimetry: Acquisition, Research, and Utilities System*. 1995, Tokyo, Japan: Technova, Inc.



*Figure 6-9.*  
*Collection of ICARUS Cells in Dr. Biberian's Lab*

#### **6.4 Aluminum Lanthanate Crystals**

One of the earliest LENR experimental methods tried by Dr. Biberian was with aluminum lanthanate crystals. These experiments were run with Dr. Lonchamptin Grenoble, France. Dr. Biberian still has several samples of the crystals in his lab (figure 6- 10).

*Figure 6-10*  
*Samples of Aluminum Lanthanate Crystals*



## 7 Lab Notebooks

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Dr. Biberian has an almost complete set of lab notebooks going back to his initial LENR experiments, in 1993-94, when he was on assignment at Lawrence Livermore National Laboratory. He is shown entering data into a notebook in Figure 7-1. The collection includes about 78 notebooks. An inventory has been accomplished in four batches (Table 7-1). It is organized generally in the order of the dates the notebooks were started.



*Figure 7-1*

*Dr. Biberian Making Entries in His Lab Notebook*

Table 7-1.

*Inventory of Dr. Biberian's Lab Notebook*

Note: The notebooks are generally in order of start date.

**Batch 1. "Fusion Freude. Experiences Berkeley"**

Part 1	Manila Folder au 1993-1994. "Cold Fusion Experiments"
Part 2	Loose Lab Data Sheets. ca. 2/94-11/94. With 2 data plots
Part 3	Blue Spiral Bound Notebook. 8/7/94 to 31/8/94. "Cahier de labo". 8 Jullet 1994
Part 4	Red Spiral Bound Notebook. "Cold Fusion Experiments". "Berkeley: 1993" 27 October 93 to 13 March 94. (Front Half). Second Half (Back to Front). ICCF-4, Maui, Notes. December 6, 1993. Fleischman, Gozzi, Kunimatsu, Bertalot, McKubre, Matsui, Bush, Ohmani, San Karanarayam..., Lipscomb, Mills, Oyama, +33 Others
Part 5	11x17 Manual Data Plots. 18/7/94 (II). 8 Sheets
Part 6	Manila Envelope. "Article Fusion Freude". "Solid State Electrolysis of a LaAlO <sub>3</sub> . Doped with D <sup>+</sup> and H <sup>+</sup> : Anomalous Excess Heat Measurements by J-P Biberian. Draft undated manuscript with figures attached. Unpublished. Reviewed by Longchamps. Started Joint Work

**Batch 2. 8/89-11/99**

1	8/89 to 11/94	[No Title].
2	11/89 to 11/91	[No Title].
3	7/92 to 2/02	[No Title].
4	12/92 to 1/95	[No Title].
5	3/94 to 12/96	[No Title].
6	1/95 to 5/96	[No Title].
7	3/96 to 6/97	[No Title].
8	4/96 to 1/98	Cahier de Labo.
9	5/96 to 10/97	[No Title].
10	11/96 to 4/99	[Patterson III?].
11	10/97 to 11/97	[No Title].
12	1/98 to 11/99	Electrolytic Solids.
13	1/98 to 11/99	Ha...? RIFEX 2.
14	2/98 to 11/99	P&F A.
15	2/98 to 1/00	Icarus 9A.
16	2/98 to 11/99	P&F B.
17	3/99 to 3/00	CAHIER DE LABO.
18	8/99 to 3/00	CAHIER DE LABO (General Measurements).
19	8/99 to 11/00	Icarus 9B.
20	11/99 to 6/00	Electrolytic Solids.

**Batch 3. 2000 to 2015**

1	3/00 to 5/01	Cahier de Labo. "Jean-Paul Biberian". "du 4/3/2000 au 10/5/2001".
2	6/00 to 12/00	Electrolytic Solids(?). June 2000.
3	3/01 to 4/04	[No Title]. "J-P B". "Debut 10/5/01".
4	2/02 to 9/02	Cahier de Labo. Kanip PoE.
5	5/02 to 3/06	Cahier de Labo. "Icarus M1".
6	6/02 to 3/10	Cahier de Manipulations. "Kevram. Mg+O --> Ca)".
7	9/02 to 1/04	Cahier de Labo. "Manip POE".
8	1/04 to 1/06	"POE" (Proton Conductor Experiment).
9	1/04 to 4/09	[No Title].
10	1/05 to 4/14	Cahier de Labo. "Source X".
11	1/06 to 9/06	Cahier de Labo. POE.

12	3/06 to 3/07	CAHIER MANIP. "Diffusion Deuterium".
13	3/07 to 4/08	CHIER MANIP. "Diffusion Deuterium".
14	4/08 to 2/09	Cahier de Labo. "Manip. Norvege".
15	4/08 to 2/09	Cahier de Manip. "Diffusion Deuterium".
16	2/09 to 9/09	[No Title].
17	2/04 to 12/04	[No Title].
18	10/09 to 5/11	"CMNS – 89".
19	3/10 to 5/14	[No Title].
20	1/12 to 12/18	"Icarus 9. Pons". "Cahier #2 du 12/1/17 au 29/12/18".
21	2/13 to 12/13	CMNS-89.
22	5/13 to 9/17	Microwaves.
23	5/14 to 6/14	"Experiences di demonstration".
24	6/14 to 11/14	"Experiences di Diffusion di le chalur".
25	11/14 to 3/15	[No Title].
26	4/15 to 11/15	"Many Charge Tournnant". Cahier #1 du 11/4/2015 au 23/11/2015.
27	4/15 to 7/17	"ManyCondudas pohoings (?)".
28	11/15 to 7/16	"Many chays tournnant". Cahier #1 du 23/11/2015 au 09/7/2016.

**Batch 4. 2016 to ?**

1	1/16 to 1/17	"Icarus 9. Pons". Cahier #1 du 11/1/16 au 9/1/17..
2	7/16 to 1/17	"Nanip Chargs Tournant". Cahier #3 du 9/7/16 au 20/1/17.
3	1/17 to 4/17	"Champ tournant" du 2011/1/17 au 17/4/2017. Cahier #4.
4	4/17 to 10/17	"Champ tournant" du 18/4/17 au 12/10/17. Cahier #5.
5	7/17 to 4/19	"Conduction Rolonequis".
6	10/17 to 4/18	"Champ tournant" du 12/10/17 au 29/4/18. Cahier #6.
7	1/18 to 5/18	"Calorimitri Renault (CR) du 8/1/18 au 12/5/18. Cahier #1. CRI a CR9.
8	3/18 to 10/18	"CMT B" du 3/3/1809/10/18. Cahier #1.
9	4/18 to 3/19	"Champ tournant" du 09/04/18 au 12/03/19. Cahier #7.
10	5/18 to 12/18	"Calorimitri Renault CR" du 21/5/18 au 12/12/18. Cahier #2.
11	10/18 to 3/20	"CMTB" du 10/10/18 au 8/3/20. Cahier #2.
12	12/18 to 4/19	"Calorimitri Renault CR" du 12/12/18 au 26/4/19. Cahier #3.
13	12/18 to 12/19	"ICARUS 9 – Pons". Cahier #3 du 30/12/18 au 31/12/19.
14	3/17 to 3/19	"Champ tournant" du 13/03/19 au 14/3/19. Cahier #8.
15	4/19 to 12/19	"Calorimetry Renault CR" du 12/4/19 au 04/12/19. Cahier #4.
16	12/19 to 5/20	"Calorimitri Renault, CR" du 4/12/19 au 10/5/21. Cahier # 5.
17	4/20 to 8/20	"CMTB " du 8/9/20 to 9/8/20. Cahier #3.
18	4/20 to 8/21	"Experiences Mizuno". Cahier #2 dubor: 9/4/20 tan 17/8/21.
19	5/20 to 12/20	"Calorimitri Renault, CR" du 10/5/20 au 12/10/20. Cahier #6.
20	8/20 to 1/21	"CMTB" du 5/8/20 au 19/1/21. Cahier #4.
21	10/20 to 10/22	"Calorimitri Renault CR" du 12/10/20 au 23/2/21. Cahier #7.
22	10/22,10/22	"Experiences Couraw Direct". "Frank Gordon" du 3/10/20 au ____.
23	1/21 to 10/21	"CMTB" du 19/1/21 au 24/10/21. Cahier #8.
24	2/21 to 7/21	"Calorimitri Renault CR du 23/2/21 au 10/7/21. Cahier #8.
25	7/21 to 12/21	"Calorimitri Renault CM". Cahier #9 du 10/7/21 au 8/12/21.
26	8/21 to 2/22	"Experiences Mizuno". Cahier #3. debut: 18/8/21 fin: ____.
27	11/21 to 5/22	"CMTB" du 9/11/21 au 10/5/22. Cahier #6.
28	12/21 to 4/22	"Calorimitri Renault CR". Cahier #10 du 9/12/21 au 16/4/22.
29	5/22 to 10/22	"CMTB" du 11/5/22 au ____ . Cahier #7.

Most of the 78 notebooks are spiral bound (Figure 7-2). Photos have been taken of the cover and first page of each notebook. An example (#9 in Batch 2) is shown in Figure 7-3.

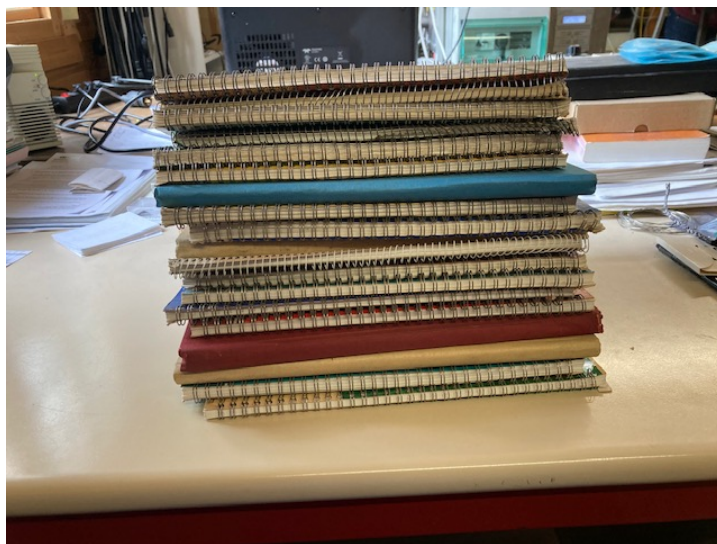


Figure 7-2

Example from Dr. Biberian's Lab Notebooks

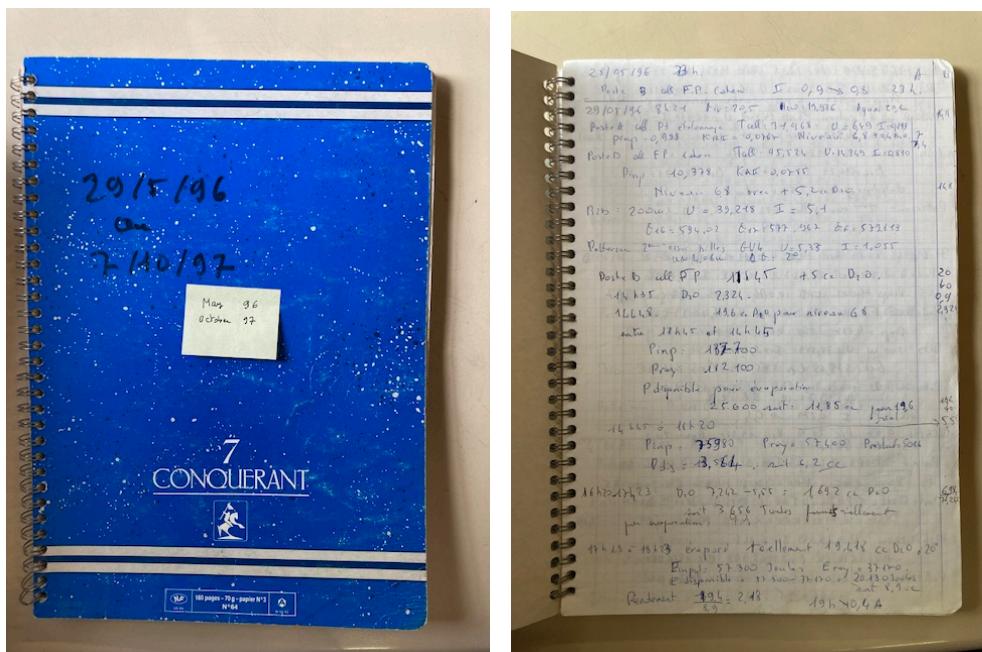
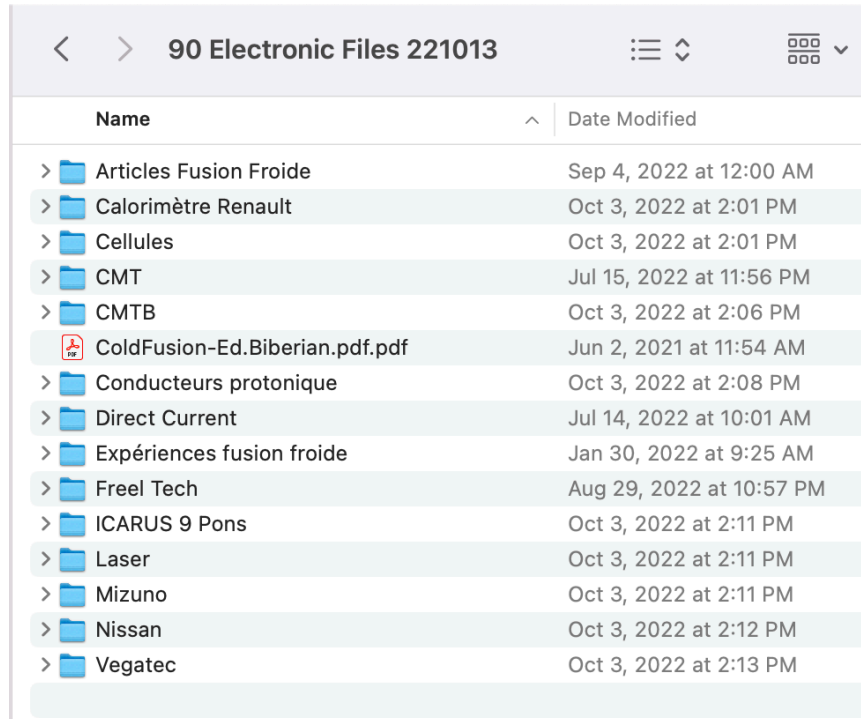


Figure 7-3

Example Lab Notebook Showing Cover and Front Page

## 8 Electronic Files

Dr. Biberian has made his LENR-related electronic files available to the BLRDP. The files are organized in 14 folders as shown in Figure 8-1. The total number of files is 2911. One of the 14 folders, “Experiences Fusion Froide”, has within it many subfolders that are very similar to the other 13 folders. These subfolders contain 1731 (59%) of the files. They are shown in Figure 8.2.



Name	Date Modified
> Articles Fusion Froide	Sep 4, 2022 at 12:00 AM
> Calorimètre Renault	Oct 3, 2022 at 2:01 PM
> Cellules	Oct 3, 2022 at 2:01 PM
> CMT	Jul 15, 2022 at 11:56 PM
> CMTB	Oct 3, 2022 at 2:06 PM
> ColdFusion-Ed.Biberian.pdf.pdf	Jun 2, 2021 at 11:54 AM
> Conducteurs protonique	Oct 3, 2022 at 2:08 PM
> Direct Current	Jul 14, 2022 at 10:01 AM
> Expériences fusion froide	Jan 30, 2022 at 9:25 AM
> Freel Tech	Aug 29, 2022 at 10:57 PM
> ICARUS 9 Pons	Oct 3, 2022 at 2:11 PM
> Laser	Oct 3, 2022 at 2:11 PM
> Mizuno	Oct 3, 2022 at 2:11 PM
> Nissan	Oct 3, 2022 at 2:12 PM
> Vegatec	Oct 3, 2022 at 2:13 PM

*Figure 8-1*

*Fourteen Folders (Plus One File) Containing Dr. Biberian’s Electronic Files*

< > Expériences fusion froide

Name	Date Modified
Article le Monde.doc	Aug 20, 2011 at 3:03 PM
Australie	Oct 3, 2022 at 12:28 PM
Autocuiseur	Oct 3, 2022 at 12:29 PM
Biological transmutations	Jun 3, 2021 at 11:02 PM
Cadarache	Oct 3, 2022 at 12:25 PM
Calorimètre démonstration	Oct 3, 2022 at 1:30 PM
Calorimètre Flux de Chaleur	Oct 3, 2022 at 12:27 PM
Case	Oct 3, 2022 at 12:50 PM
Champ pulsé	Oct 3, 2022 at 12:27 PM
Chava	Oct 3, 2022 at 12:20 PM
Cincinnati	Oct 3, 2022 at 12:49 PM
Clauzon	Nov 25, 2014 at 2:46 PM
Clauzon Paris	Oct 3, 2022 at 1:30 PM
COEHN	May 30, 2020 at 10:50 PM
Condensateur	Oct 3, 2022 at 12:50 PM
David	Jul 14, 2011 at 12:31 AM
Diffusion Deutérium	Oct 3, 2022 at 1:28 PM
Eau-Gaz	Jan 30, 2022 at 9:23 AM
Electrolytes Solides	Aug 24, 2014 at 11:05 PM
Expériences Boujon	Mar 23, 2008 at 9:57 PM
Flux de Chaleur	Jun 30, 2013 at 12:38 AM
Forrat	Oct 3, 2022 at 12:29 PM
Gaillac	Aug 29, 2013 at 11:52 PM
Hollande	Oct 3, 2022 at 12:29 PM
Icarus 9	Oct 3, 2022 at 1:28 PM
ICARUS 9 marseille	Jan 31, 2016 at 2:53 PM
ICARUS 9 Ni-H2O	Nov 25, 2008 at 7:59 AM
Icarus 9A	Oct 3, 2022 at 1:30 PM
Icarus 9B	Mar 23, 2008 at 9:53 PM
ICARUS II	Jan 30, 2022 at 9:18 AM
ICP-MS 14-12-98	Dec 26, 2016 at 6:20 PM
ICP-MS18-11-98	Sep 3, 2010 at 11:32 AM
Isothermes d'absorption	Oct 3, 2022 at 12:49 PM
ITALIE	Jun 17, 2009 at 10:45 PM
J-C Dumas	May 22, 2017 at 11:29 PM
LaAIO3 synthesis papers	May 27, 2017 at 11:13 AM
Le monde 2.doc	Aug 7, 2012 at 10:58 PM
Lehn	Oct 3, 2022 at 12:48 PM
Lumière.pdf	May 9, 2017 at 6:05 PM
<b>Manip Berkeley 1993</b>	<b>Oct 3, 2022 at 12:50 PM</b>
Manip Sicile	Nov 20, 2008 at 3:43 PM
manuels d'utilisation	May 30, 2020 at 10:49 PM
MARGOTdanse 3 ans	Today at 4:44 PM
Mizuno (Mathieu)	Nov 20, 2015 at 3:06 PM
NF4B.xls	Sep 3, 2008 at 11:22 AM
Norvège France	Apr 4, 2012 at 11:43 AM
Oxalic acid	Oct 3, 2022 at 12:28 PM
Photos Manips	Aug 17, 2016 at 5:11 PM
Pièces Alchimiques	Mar 21, 2009 at 12:53 PM
POE	Dec 26, 2016 at 6:20 PM
Poste A	Dec 26, 2016 at 6:20 PM
Poste B	Dec 26, 2016 at 6:20 PM
Résistance constantan	May 30, 2020 at 10:49 PM
Rifex 2	Oct 3, 2022 at 12:25 PM
Solides	Dec 26, 2016 at 6:20 PM
Telouk	Mar 23, 2008 at 7:58 PM
transfert	Sep 3, 2010 at 11:51 AM
Transmutations Rifex	Oct 3, 2022 at 1:30 PM

Figure 8-2

Subfolders and Files in the Folder “Expériences Fusion Froide”

## 9 LENR Library

Dr. Biberian's library of LENR books is located in the bookshelf in his LENR library (Figure 9-1) along with many other items. A full inventory has not yet been completed for these books, but many of them may be identified in close up pictures of some of the bookshelf compartments (Table 9-1). A full inventory may be accomplished in the future.



*Figure 9-1  
Upper and Lower Portions of Dr. Biberian's Bookshelves in His Lab*

Table 9-1

*Partial List of Dr. Biberian's Books in His LENR Library*

ICCF-8	
ICCF-10	Hagelstein and Chubb
ICCF-11	Biberian
ICCF-12	Takahashi et al.
Cold Fusion	Second Book by Biberian
ICCF-13	Yuri Bazhutov 2007
ICCF-14,	Volumes 1 and 2, Melich and Nagel
Progress in New Hydrogen Energy (Unknown ICCF)	
Condensed Matter Nuclear Science	Author Unknown
ICCF-4	
Eighth International Workshop on Anomalous Hydrogen	
ICCF-17	EEWS, 2012
ICCF Proceedings (unknown)	Condensed Matter Nuclear Science
ICCF Proceedings (unknown)	Not Legible
Alexander Pakhomov	Space. Earth. Human.
Fire from Ice	Mallove
Nuclear Transmutation: The Reality of Cold Fusion	Mizuno
Nuclear Transmutation of...	Vladimir Vystovskii
Nuclear Transmutation	Kervran
Cold Fusion – The History of Research in Italy	ENEA
Pulled fusion	Huizenga
A Dialogue on Chemically Induced Nuclear Effects	Hoffman
The Rebirth of Cold Fusion	Krivit and Winocur
Lost History	Krivit
Fusion Fiasco	Krivit
Hacking the Atom	Krivit
The Explanation of low Energy Nuclear Reaction	Edmund Storms
Fusion in All Its Forms (in English)	Biberian (Several Copies)
Fusion in All Its Forms (in French)	Biberian (Several Copies)

## 10 Websites

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Dr. Biberian has developed three websites to describe his cold fusion work and present other relevant information. They are the “Jean-Paul Biberian” site<sup>11</sup>, the “Cryofusion” site<sup>12</sup>, and the “Jean-Paul Biberian blog<sup>13</sup>”. The three sites are described in this section. More detailed descriptions are in Appendices A, B and C.

### 10.1 “Jean-Paul Biberian” Website

This website appears to be the earliest and most comprehensive of Biberian’s websites. It contains a great deal of information about cold fusion generally and about Biberian’s work in the field specifically. Its homepage has two lists of links to subsidiary pages, “Jean-Paul Biberian” and “News”, which are listed in Table 9-1, followed by brief descriptions of each topic.

*Table 10-1*

*Links to Webpages in Jean-Paul Biberian Website*

<u>Jean- Paul Biberian</u>	<u>News</u>
Presentation	A New Website
Agenda	A Book: “Fusion in All of Its States”
Research	A DVD on Cold Fusion
Education	A Film about Cold Fusion: knowledge-tv
Popularization	The Cold Fusion Danced
Conferences	Articles on Nuclear: lemonde.fr atlantico
Articles	A Film about Cold Fusion
Patents	A TV Series about Laboratory Research
Curriculum Vitae	A Blog to Know my Opinions on the News
Staff	
Contact	

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<sup>11</sup> <http://www.jeanpaulbiberian.net/>

<sup>12</sup> <http://www.cryofusion.org/>

<sup>13</sup> <https://blogde-jeanpaulbiberian.blogspot.com/>

## “Webpages for “Jean-Paul Biberian” List

Presentation. Homepage of this website. The lower part is a narrative on Dr. Biberian’s background and interests as shown below.

Engineer in nuclear and electronic physics, doctor-engineer and doctor of science, Jean-Paul Biberian worked for many years on the physico-chemical properties of surfaces of metals and semiconductors in France and the United States.

In 1977 he was shortlisted for the choice of the first European astronaut.

In 1982 he founded the company Luminy-Instruments which develops surface analysis instrumentation. It was during this period that he filed three patents, two of which were on micro-tip flat screens.

Since 1993 he has been passionate about the fields of Cold Fusion and biological transmutations. In 2004, he organized the international conference in Marseille, where 170 researchers from 20 countries participated.

Eager to make science known to a large audience, he gives lectures and interviews. Since 2001 he has regularly hosted a scientific café at 19 place Gouffé in Marseille.

.....

I am interested in science within its limits, trying to discover the laws of nature that govern us. There is still a lot of science to be discovered, and not just through big telescopes or giant accelerators. Small, well-thought-out experiments should give us a better understanding of nature.

Science is an exciting field and I would like to pass this passion on to other young and old. Physics, especially at the atomic and nucleus level, is a fascinating subject that brings us to the very sources of science.

The opinions which are developed in this site represent only my personal convictions and, in no way bind the University of the Mediterranean (Aix-Marseille II) or the CNRS to which I am attached for my teaching and research work. research.

Agenda. Three entries for 2017 as follows: 1) February 9 – “La Fusion Froide”; April 1 – “The Couple, a Planned Obsolescence”; and July 5 – “La Fusion Froide”

Research. Dr. Biberian's description of cold fusion. Describes the announcement of cold fusion with discussion of preceding and subsequent events.

Education. Links to sections of three courses taught by Dr. Biberian: General Physics, Hands-on Electronics, and Statistical Physics

Popularization. List of Dr. Biberian’s work in two categories – “Extension Activities” and “Popularization Activities”.

Conferences. List of 158 Presentations by Biberian from 1973 to 2016.

Articles. Citations for Dr. Biberian’s masters and doctoral theses, followed by 69 articles authored or co-authored by him from 1970 to 2012. The titles of Biberian ‘s masters and doctoral theses are:

1971. Doctor-Engineer thesis, University of Aix-Marseille II. “Theoretical Study of the Mean Square Deviation of the Surface and Volume Atoms of Graphite”

1975. PhD thesis, University of Paris VI. “Study of Electron Diffraction and Auger Electron Spectroscopy of the Adsorption of Lead on Gold”

Patents. Titles of three patents obtained by Dr. Biberian, which are related to flat screens and mass spectrometry analysis.

Curriculum Vitae. Dr. Biberian’s CV, as shown below.

Jean-Paul Biberian

Born June 26, 1946 in Marseille

Diplomas

Engineer National School of Electricity and Mechanics of Nancy. 1969

Diploma of Advanced Studies in Crystallography. 1970

Doctor of Engineering, University of Aix-Marseille II. 1971

Doctor of Science, ENSCP, University of Paris VI. 1975

Jobs

Physics Assistant Faculty of Sciences of Luminy. 1969-1975

Lecturer, Faculty of Sciences of Luminy. Since 1975

Post-doctoral stay at University of California at Berkeley. 1976-1978

Consultant to the SARL Surface Study Laboratory. 1982-1985

Chairman and CEO of Luminy-Instruments SA. 1985-1987

Consultant to Cybernétix SA. 1987-1989

Consultant to International-Consultant. Since 1989

Expertise

Expert with ANVAR

Member of the Advisory Committee of the International Conference on Cold Fusion

Editor-in-Chief of the Journal of Condensed Matter Nuclear Science

Member of the Scientific Council of the Fluvio Frizone Foundation

Staff. Includes a brief description of Dr. Biberian's background and family history. His family of origin was from Turkey.

Contact. Dr. Biberian’s Address, Phone Number and Email Address

### **“News” Webpages**

A New Website. Link to second website of Jean-Paul Biberian, Cryofusion, at cryofusion.org.

<http://www.cryofusion.org/>.

A Book: “Fusion in All of Its States”. Page offering Biberian’s book for sale. More detail on this book appears in Section 3 of this report. Includes narrative describing the book shown below followed by an image of the book’s cover. See Section 3 of this report. <https://www.editions-tredaniel.com/la-fusion-dans-tous-ses-etats-p-5204.html>.

A DVD on Cold Fusion. Webpage offering for sale a DVD by Biberian: “Biological Transmutations and Other Reflections on Science”. Includes personal observations by Dr.

Biberian, followed by an image of the DVD container. [https://www.filmsdocumentaires.com/portail/fusion\\_froide.html](https://www.filmsdocumentaires.com/portail/fusion_froide.html).

A Film about Cold Fusion: knowledge-tv. Link to YouTube, “Cold Fusion: Interview with Jean Paul BIBERIAN”. In French. October 4, 2011. 1 hour, 5 minutes. A screenshot from the interview is shown in Figure 10-1. <https://www.youtube.com/watch?v=Cu8H1JNJLa0>.



*Figure 10-1*

*Dr. Biberian in 2011 YouTube Video*

The Cold Fusion Danced. Inactive Link.

Articles on Nuclear: lemonde.fr atlantico. Provides links to two newspaper articles by Biberian in Le Monde and Atlantico.

A Film about Cold Fusion. Inactive Link.

A TV Series about Laboratory Research. Inactive Link.

A Blog to Know my Opinions on the News. Link to Biberian’s second website, Cryofusion. Described in Section 3 of this report. <https://blogde-jeanpaulbiberian.blogspot.com/>.

## **10.2 Cryofusion Website**

The primary emphasis of this website is on biological transmutation. The home page is a matrix consisting of 20 (4x5) panels (actually 17, because three of them are combined). The following panels have been linked to subpages that our most relevant to the BLRDP.

Agenda. Calendar showing ICCF conferences in 2014 and 2015.

Biberian Blog. Link to “Jean-Paul Biberian blog”. Described in Section 4.3.

JPBiberian.net. Link to “Jean-Paul Biberian website”. (Described in Section 4.1)

Unnamed Lab Glassware Image. Inactive Link

Jean-Paul Biberian Photos with Date and Time. Inactive Link

Why This Site? Description of the purpose of the Cryofusion.org website as shown below.

Includes a link to “Seeds of Science”, which is the webpage presented under “Association” (next category).

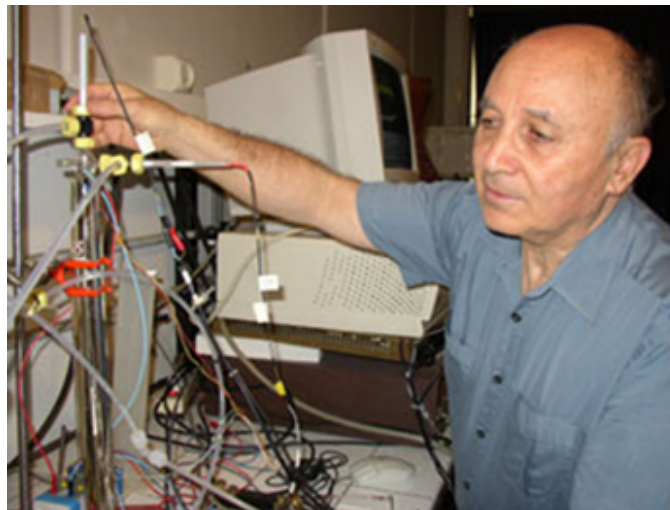
This site is intended for people interested in cold fusion and biological transmutations.

It recalls some of the important work produced by researchers in these fields as well as my own accomplishments. These two areas are of paramount importance for science and technology. Unfortunately they are not yet accepted by official science, and few researchers are working on them.

This site will provide useful information to those who follow these subjects through landmark scientific articles, as well as the latest national and international news.

Navigate to the " Seeds of Science " page

The webpage includes a photo of Dr. Biberian in his lab (Figure 10- 2 ).



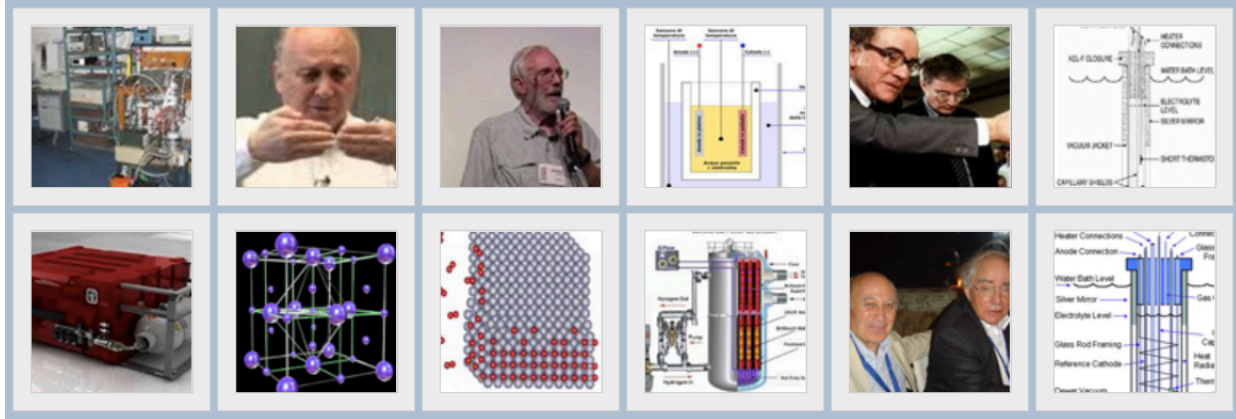
*Figure 10-2*

*Dr. Biberian in His Lab, As Shown in Cryofusion Website*

Association. Description of “Grains of Science” association as shown below.

The "Graines de Science" association was created in March 2000 in Grenoble, and its purpose is to scientifically demonstrate low-temperature nuclear reactions in various situations. In plants and seeds during their germination and growth. In bacteria and other living organisms during their development. In certain chemical, electrochemical or physical reactions.

Photo Gallery. Begins with 12-cell panel with photos and diagrams (Figure 10-3) that enlarge when clicked on. One of the six photos in the panel – of Dr. Biberian with Martin Fleischmann at an ICCF meeting – is presented in Figure 10-4.



*Figure 10-3*

*Twelve-Cell Panel with Six Photos and Six Diagrams*



*Figure 10-4*

*Photo from “Photo Gallery” Webpage. With Martin Fleischmann at an ICCF Meeting*

To Log In. Instructions on how to become a member of Dr. Biberian’s initiative.

Contact Me. Provides methods of contacting Dr. Biberian by email or phone. Includes three images – Dr. Biberian with Martin Fleischmann, Dr Biberian and Stanley Pons, and an article with the title “The world celebrates physics in 2005” (in French). The article references ICCF-11, which was held under Dr. Biberian’s leadership in 2005 in Marseilles, France. It includes a photo of Dr. Biberian with Dr. Stanley Pons (Figure 10-5)



*Figure 10-5*

*Drs. Stanley Pons and Jean-Paul Biberian*

Unnamed Glass Containers Image. Inactive Link

Websites. Link to webpage entitled “Connections”, which in turn includes links to many websites related to cold fusion.

Resources. List of 14 important papers in the cold fusion field, with links to PDFs of the papers.

News. Description of the International Society of Condensed Matter Nuclear Science (ISCMNS) and its associated Journal of Condensed Matter Nuclear Science as shown below.

The International Society of Condensed Matter Nuclear Science was created in 2004 as a result of the need for researchers in the field of cold fusion to have an organization that represents them. It is based in the UK, and has “Charirity” status.

[www.iscmns.org](http://www.iscmns.org)

One of the important activities of this organization is the publication of the “Journal of Condensed Matter Nuclear Science”. It is the only journal dedicated exclusively to cold fusion. It is published free of charge, electronically on the association's website at [www.iscmns.org/CMNS/publications.htm](http://www.iscmns.org/CMNS/publications.htm).

Bookstore. Shows 12 major books of the cold fusion field, emphasizing biological transmutation.

Biological Transmutations. Description of this subfield within cold fusion and one of Dr. Biberian’s primary interests in the field. Includes links to PDFs of two seminal papers by Vauquilan, 1799, and Baranger, 1970.

Cold Fusion. A description of the cold fusion field by Dr. Biberian. Includes two links to the “Websites” (Connections) webpage described above.

Lab Photo with Technicians. Inactive Link

Videos. Includes Dr. Biberian's presentation entitled "Cold Fusion" (in French). It is a film documentary by Jacques-Yves Billen. Also includes link offering the DVD for sale as well as a link to a YouTube clip entitled "The Forgotten Archives: The Cold Fusion War". Cold fusion films. [www.filmsdocumentaires.com](http://www.filmsdocumentaires.com)

### ***10.3 Biberian Blogsite***

The two main entries on this blogsite are "Presentations and Studies" and "Blog Archives".

Presentation and Studies. The blogsite presents brief biographical information on Dr. Biberian.

Blog Archives. The blog archives extend from June 2009 to June 2021, a total of 12 years. About 160 posts were found for that period.

## 11 Interviews for Cold Fusion Contributions

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Two interviews have been conducted with Dr. Biberian on his history of LENR contributions. They were conducted at ICCF-22 at Assisi, Italy in September 2019 and at his LENR laboratory in Avignon in October 2022. In February 2018 he was also interviewed by Ruby Carat for her “Cold Fusion Now” website<sup>14</sup>, and he was also interviewed by Stephen Krivit in 2013<sup>15</sup>. Transcripts of the 2022, 2019 and 2018 interviews are in Appendix B. The interviews are primary sources for developing a timeline for Dr. Biberian's cold fusion research (Section 12). The transcripts of have been annotated as shown below.

### 11.1 2022 Interview (Biberian Lab)

(In preparation.)

### 11.2 2019 Interview (ICCF-22)

During the ICCF-22, an interviews with two parts was conducted with Dr. Biberian. Both of them covered his research from its beginnings to the present. Annotations of the transcripts are shown below.

#### Part 1

Dr. Biberian is a friend of Stan Pons, who lives in France, and maintains contact, primarily through email. He visited the Technova laboratory with Pons not long before it closed. According to Stan Pons, the hole created in the concrete below the lab table at the University of Utah was about 40 cm x 50 cm x 15 cm deep.

Dr. Biberian worked with Georges Lonchampt at Grenoble until about 2000, when Lonchampt had to retire because of mandatory retirement age in France.

At that time Dr. Biberian moved back to Marseilles and started his own lab. He brought the lab equipment with him and opened his lab at the University in Marseilles.

When Dr. Biberian reached age 66, he too was forced to retire for the same reason. He then moved to Avignon with his family in 2012.

Dr. Biberian created his home laboratory in Avignon. The drive for cold fusion experiments was like an addiction to a drug.

At the time of the interview in 2019, Dr. Biberian’s lab in Avignon had been an operation for seven years.

When he was still at Grenoble, Dr. Biberian conducted analyses with ICPMS. During this time he worked with the “Cincinnati group”, who were looking at cold fusion for transmutation for nuclear waste remediation.

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<sup>14</sup> Cold Fusion Now! podcast with Jean-Paul Biberian. February 14, 2018. <https://coldfusionnow.org/tag/jean-paul-biberian/>

<sup>15</sup> LENR Researcher Biberian Has Limited Answers About Cold Fusion. March 22, 2013. <http://news.newenergytimes.net/2013/03/22/lenr-researcher-biberian-has-limited-answers-for-cold-fusion/>

Also while still at Grenoble, Dr. Biberian did experiments with biochemical transmutation with bacteria, particularly the increase of calcium and decrease of silicon in the experiments.

Dr. Biberian published 20 years of research on biological transmutation.

While at the University in Marseille, Dr. Biberian had the idea of experiments with palladium with gas on one side and vacuum on the other side. Electrons played a role in overcoming the Coulomb barrier.

Cold fusion occurs when the deuterons pass through the palladium and exit, where there is interaction with the electrons.

Gold is plated on that exit surface to inhibit recombination of deuterium atoms, which enhances the cold fusion reaction.

During this time he was assisted Dr. Biberian was assisted by a young man named Nicolas Armanet on a voluntary basis. Armanet presented their work at the ICCF conference in Russia.

In one of his contacts with Stan Pons, Dr. Biberian received the equipment previously used at Technova, including chemicals and the data acquisition system.

In another experiment while still at Grenoble, Dr. Biberian used gold rather than platinum on the anode of the electrolytic cell. The palladium on the cathode side became gold plated. Excess heat was observed. The gold apparently sealed the surface of the palladium.

Dr. Biberian did similar work of depositing gold on the palladium in the gas phase.

While at Grenoble, Dr. Biberian worked with Lonchampt on another cell design, which was larger. Subsequently at the University, Dr. Biberian ran several experiments to continue this work.

As he was organizing for ICCF11 in 2004, Dr. Biberian ran an experiment that apparently had exploded and broken up. The event was apparently observed on a computer screen. He decided not to try to repeat the experiment because of the danger involved.

When asked when he was most certain that he had observed cold fusion, Dr. Biberian indicated that he hated the question. He responded by noting there were two levels. When working with Lonchampt they had good results but at low power. In the experiments with diffusion of hydrogen in palladium using gold a lot of excess heat was observed.

Dr. Biberian discussed with Stan Pons the issue of electrolytic cell blanks producing excess heat, including with platinum.

Despite the high levels of excess heat with palladium and gold, the experiment is not repeatable.

Dr. Biberian collaborated with Nissan in which they provided the powder and bought the equipment. He worked with an engineer from Renault who was able to make high quality drawings.

One of the main issues with gas experiments is the high temperature: the metal tends to leak out hydrogen, especially stainless steel.

Dr. Biberian received a powder sample from the Japanese (Nissan) and ran experiments with quartz cells to address the problem of hydrogen leakage in steel. Nissan visited Dr. Biberian's laboratory two times.

Dr. Biberian has not yet found an experiment that can be repeated every time; he has not been able to come up with a "lab rat".

## Part 2

When the announcement came on March 23, 1989, Dr. Biberian was working as a professor at the University of Marseille, where he was teaching physics and his research was on surface science.

Dr. Biberian began working in cold fusion in 1993. He was working on surface science in California with Gabor Somorjai, who is not that interested in cold fusion.

Dr. Biberian then worked with Lonchampt in Grenoble, where he learned to do electrochemistry experiments.

In about 1996, CETI developed beads about 1 mm in diameter and covered with nickel and palladium. Dr. Biberian was able to observe a demonstration in Los Angeles.

At CETI, Dennis Cravens built a three-stage cell. Dr. Biberian and Lonchampt decided to duplicate this experiment and bought a set of beads.

Subsequently, Dr. Biberian and Lonchampt decided to make their own beads and found a company in Toulouse who is capable of making something similar.

They observed a small amount of excess heat, in the milliwatt range, rather than the 500 W seen at the Los Angeles demonstration.

After Lonchampt was no longer involved, Dr. Biberian did a long-term experiment which included two identical cells with the beads they had. One was with light water and the other with heavy water. The experiment was run for six months continuously. Dr. Biberian was looking for transmutation rather than excess heat. These experiments did not yield any good results.

Dr. Biberian did not have good results with larger cells using more beads. The bond was not good between the metal coating and the plastic beads and so would tend to flake off.

Dr. Biberian also worked with Lonchampt on solid state electrolyte. The experiment was with lanthanum aluminum oxide with hydrogen in the lattice. Excess heat was observed. The experiment was done at high temperature and was not in an electrolytic cell. Temperatures were up to 500 to 800°.

When Lonchampt retired in 2000, Dr. Biberian transported equipment in the laboratory to the University of Marseille where he continued to conduct experiments. He continued cold fusion work at the University until his own retirement in 2012, a period of 12 years.

While at Marseilles, Dr. Biberian conducted experiments in the gas phase with diffusion through the walls of a tube. He also continued electrolytic experiments at high temperature, near the boiling point.

He also tried the beads experiment again. In the electrolytic cells, he had the tubes coated with gold to trap deuterium in the lattice. Dr. Biberian also worked with solid-state electrolytes using lanthanum aluminum oxide.

Dr. Biberian had interaction with Pons and Fleischmann at Technova and was offered a job but the lab was closed instead. This was during his time with Lonchampt in Grenoble, about 1996. Dr. Biberian continues his good relationship with Stan Pons.

After his retirement in 2012, Dr. Biberian opened a laboratory in Avignon and brought everything from his lab in Marseilles to the new lab.

While at his lab in Avignon, Dr. Biberian did experiments similar to Andrea Rossi. He tried different things, but nothing worked.

During this time he also with a rotating powerful magnet (0.6 Tesla). He found at the temperature of 350° a jump of 40°, which is the critical temperature where nickel changes from ferromagnetic to paramagnetic.

He then tried another material with a lower critical temperature and selected gadolinium. The critical temperature is close to room temperature and was hard to work with. The critical temperature goes up when hydrogen is introduced.

Dr. Biberian also worked with the Cincinnati group where he found 20 to 35% uranium in samples.

In about 2011, Dr. Biberian became interested in the work of Urutskoyev and his ideas about magnetic monopoles. Some of this work involved in the accident at Chernobyl. Experiments with titanium in water resulting in transmutation to new elements, such as copper. Part of this work appeared to involve decrease of uranium 238 levels and increase of uranium 235.

Ten days after 9/11 (September 21, 2001) a large explosion of a fertilizer plant in Toulouse occurred. There were actually two explosions a few seconds apart. There was resistance in recognizing the second explosion because it occurred where fuel for rockets was being made.

Dr. Biberian thought that the explosion may be related to the magnetic monopole phenomenon. The firm Total, which was in charge of the facility, was not interested in experiments related to magnetic monopoles.

When Dr. Biberian talked to Stan Pons in about 1993, he indicated electrodynamic theory explanation. Dr. Biberian subsequently visited the lab at Technova. Pons wanted to hire Dr. Biberian but the lab closed down instead.

Dr. Biberian and Stan Pons hit it off and continue to have a good relationship and remain in communication.

France was chosen over Japan by Technova by Pons and Fleischmann because Pons was of Italian origin. (This needs more explanation.)

Dr. Biberian did not meet Andrea Rossi. When arrangements were being made with Steven Krivit to make the visit, Rossi declined. Rossi also declined to see Dr. Biberian on a second occasion. Rossi did not want Dr. Biberian to see his setup.

Dr. Biberian did experiments with nickel powder as a follow-up to Rossi's work. He found that triggering was necessary to achieve any results. It was during this time the magnetic effect was found. Dr. Biberian did experiments with nickel nano powder and hydrogen for two years. This took place in Avignon.

The idea of success with nickel hydrogen upset the field because such cells have been used as blanks in the past.

### **11.3 2018 Interview (Ruby Carat)**

Dr. Biberian is editor of the Journal for Condensed Matter Nuclear Science (JCMNS) and author of "Cold Fusion in all Its Forms". He had had a recent cold fusion interview with a news channel in France. Regarding experiments, he believes those based on the gas phase hydrogen and deuterium are more promising than electrolytic because of the higher temperatures of operation.

JCMNS got off to a slow start but now has a backlog of both theory and experiment papers. Dr. Biberian was primarily motivated to write his book *Fusion in All Its Forms* by the lack of books in the on the topic written in French. Regarding the preface of the book by Dr. Stanley Pons, Dr. Biberian noted that he had become friends with Dr. Pons in 1993 and had been visited invited to do research at Technova before it closed.

A new association, the French Society of Condensed Matter Nuclear Science, is being formed by Dr. Biberian and Mathieu Valat (indicated as Mathew Barach). The initial meeting was well attended.

Dr. Biberian has four to six simultaneous experiments underway, including plasma discharge, with nickel and its alloys, and development of a heat flow calorimeter. He is also conducting a two-cell experiment with Dr. Pons based on the ICARUS-9 calorimeter that Pons had used 20 years earlier. Dr. Biberian ("Dr. Biberian) is a friend of Stan Pons, who lives in France, and maintains contact, primarily through email. He visited the Technova laboratory with Pons not long before it closed.

### **11.4 2013 interview (Steven Krivit)**

This interview was conducted shortly after release of Dr. Biberian's first book. As part of the terms of a lawsuit between Dr. Biberian and the French Atomic Energy Commission, he received a three-year contract for LENR research. The merits of Peter Hagelstein's LENR theories were discussed. Dr. Biberian noted that LENR is in a Catch-22 situation – in order to be accepted, it must have papers published in mainstream journals, which will not accept papers submitted by LENR researchers. The pros and cons of different terms for the phenomenon – cold fusion, LENR and CMNS – were discussed. The claims of research by Arata and Zhang (1999) and confirmed by McKubre (2003) were covered.

## 12 Cold Fusion Research Timeline

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A preliminary timeline of Dr. Biberian's cold fusion research can be constructed from the information included in the BLRDP. The primary sources are Chapter 3 of his earlier book, “Fusion in All Its Forms” and the four interviews described in Section 11. Dr. Biberian started experiments when research methods with the gas phase emerged in 1993. The main phases of his research timeline are his preliminary investigations while he was working on a different project in U.S., collaboration with Georges Lonchamp in Grenoble, research in his position at the University of Aix-Marseille, and experiments in his private lab in Avignon.

### 12.1 Timeline from “Fusion in All Its Forms” (Chapter 3)

The sections of Chapter 3, “My Work in Cold Fusion”, have been abstracted as shown below. Space is provided for start and end dates, and entries are made when available. More dates may be added in the future.

My Interest. Dr. Biberian (“J-P”) loosely followed events at and around the March 23, 1989 announcement. But he was not an electrochemistry expert and saw no opportunity to contribute at the time.

First Experiments in Berkeley. While doing research on the crystallographic structures of surfaces under Gabor Somorjai at the University of California Berkeley, J-P learned about LENR success by Francis Forrat. The method utilized gas phase and solid crystals, which J-P could do. He decided to institute similar experiments “on the side” while in California. He observed excess heat. He submitted a paper to Physics Letter A (Jean-Pierre Vigier, editor), who went to Georges Lonchamp for review. Lonchamp was working under Forrat. He asked to replicate J-P’s experiment. When Dr. Biberian talked to Stan Pons in about 1993, Pons indicated an electrodynamic explanation. Dr. Biberian subsequently visited the lab at Technova. Pons wanted to hire him, but the lab closed instead.

Start: 1993

End: 1995

Francis Forrat. At the time of the LENR announcement, Forrat did experiments with deuterium gas and lanthanum aluminate crystals. He worked with Lonchamp, who believed excess heat occurred, which Forrat did not agree with. Dr. Biberian and Forrat did experiments jointly based on different ideas and approaches for several years but did not reach a conclusive result.

Start:

End: Ongoing

Roger Stringham and Russ George. While still in California, J-P worked with them at their lab in Mountain View for two months. Experiments were based on Stringham’s ideas of using ultrasound-generated bubbles in heavy water that collapse on palladium surfaces to produce LENR. Dr. Biberian helped to demonstrate excess heat clearly. After the Stringham-George affiliation ended, Stringham set up his lab in Hawaii.

Start: 1993-95 timeframe for two months.

End:

Michael McKubre. J-P met McKubre while also still in California and visited the SRI lab. He became friends with McKubre and enjoyed an excellent relationship.

Start: 1993-95 timeframe

End:

Jean-Pierre Vigier. Was the editor of Physics Letter A who sent J-P's paper to Lonchampt. He developed an LENR theory in which two deuterium nuclei revolved around an electron (an atom in reverse).

Start:

End:

Georges Lonchampt. Lonchampt was an electrochemist at CEA, where he started research on LENR but was prohibited from doing so by senior management. He then worked at ENSEEG with the Director, where they collaborated with Fleischmann and Pons, who were at Technova. Technova was founded by Minoru Toyoda, president of the Toyota auto maker. Fleischmann and Pons provided cells identical to the ones they were using as well as experiment instructions. Lonchampt was one of the few investigators who exactly reproduced the original experiment.

Start:

End:

Stay in Grenoble. Dr. Biberian brought his LENR cell from California to Lonchampt's lab, but it was too rudimentary, so a new one a better quality was built. He was simultaneously working with CEA on LENR and participating in a lawsuit on patent infringement against the organization, which he subsequently won. While still at Grenoble, Dr. Biberian did experiments with biochemical transmutation with bacteria. At CETI, Dennis Cravens built a 3-stage cell.

Start: 1995

End: 2000

Experiments in Grenoble. Dr. Biberian and Lonchampt worked on solid-state electrolytes and on an exact reproduction of the Fleischmann and Pons experiment. They also did experiments with metal-coated polystyrene beads based on the approach of the company CETI and its founder, James Patterson. Dr. Biberian had observed a CETI experiment (and had taken measurements) in Los Angeles in 1995 when he was still in the US. He and Lonchampt purchased a cell kit from CETI, and he visited the company for instructions. They used beads not from CETI but had their own produced by a company in Toulouse. Not enough excess energy was produced to consume and convince themselves it was real.

Start: 1995

End: 2000

Back to Marseilles. When Lonchampt retired in 2012, Dr. Biberian returned to the University of Aix-Marseille to continue his teaching (which he had done previously by commuting from Grenoble). He was also able to transfer the lab equipment from Grenoble and continue his LENR research at his university lab. After Lonchampt was no longer involved, Dr. Biberian did a long-term experiment which included two identical cells with the beads they had. One was with light water and the other with heavy water. The experiment was run for six months continuously. Dr. Biberian was looking for transmutation rather than excess heat. These experiments did not yield good results. The bond was not good between the metal coating and the plastic beads and so would tend to flake off.

Start: 2000

End: 2012

Meeting with Stanley Pons and Martin Fleischmann. Upon returning to Marseille, Dr. Biberian made contact with Stan Pons and Martin Fleischmann at their Technova facility. Dr. Fleischmann returned to England, and Dr. Pons was working on a new generation of ICARUS-9 type experiments as well as new high-pressure catalyzed gas-phase reaction investigations. Dr. Pons was supported in this research by confidential colleagues Jeanne and Thierry Roullette. The Technova operation shut down shortly afterward. As a result of these interactions, Dr. Biberian enjoyed a good relationship with both Dr. Pons and Dr. Fleischmann and maintained active contact with Dr. Pons. Because of his friendship with Dr. Pons, Dr. Biberian received much of the experiment equipment when Technova closed.

Start:

End:

Red Mercury. This compound, antimonate of mercury, had a reputation of being able to make atomic bombs smaller by lowering their critical mass. Lucrative traffic in the material had begun in some countries. The structure of the compound was believed to be similar to lanthanum aluminate, which Dr. Biberian and Forrat had used for LENR

experiments. Through a colleague, Dr. Biberian tried to obtain a sample of the material to see if it was actually hosting LENR, but the attempt was not successful.

Start: 1994  
End: 1994

The Secret Services. In a somewhat related event, after he was interviewed about LENR by a local newspaper, Dr. Biberian was contacted by the French Secret Services. During the conversation with the representative, General Jean Guyaux, the topic of red mercury came up. Dr. Biberian subsequently received a sample from this individual and did an x-ray analysis, which found only oxides of mercury and antimony and not a compound similar in structure to lanthanum aluminate. Dr. Biberian later saw General Guyaux at ICCF-5 in Monaco, who was attending under an assumed name.

Start: 1994  
End: 1994

Michel Rambaut. After the discovery of LENR, Rambaut did experiments using strong currents in thin conductors with deuterium in which he observed a release of unusual x-rays. As a result, his lab was closed and he was forced to retire. Rambaut also developed a LENR theory based on clusters of electrons. He and Dr. Biberian became friends

Start:  
End:

Jacques Dufour. At the time of the LENR announcement, Dufour was working with the Shell Group. He conducted experiments using the gas discharge method and observed anomalous heat production. He proposed to Shell to study electrical discharges in deuterium gas but was asked to find another lab for this work. Ultimately, he collaborated with Jacques Foss from the Conservatoire National des Arts et Metiers. The collaboration ended in 2011 when a change in management took place, and Dufour subsequently worked in his own lab in Paris.

Start:  
End:

Pierre Clauzon. Clauzon was head of a research team at Franatome at the time of the LENR announcement. He was among a group of researchers who were interested in LENR – Jean-François Favarque, Michel Genet and Jean Foss – who had a meeting that resulted in a collaboration between Shell, EDF and CNAM. After he retired in 1996, Clauzon tried to reproduce a light water electrolysis system with high voltage with a tungsten cathode. He got positive results but did not have a personal laboratory. Dr. Biberian and he are collaborating to reproduce Clauzon's results in a simple manner. Currently they are working on an electrochemical cell operating at high temperature and pressure.

Start:  
End: Ongoing

Jean-Louis Naudin and EDF. Naudin was a French independent researcher who rebuilt many cold fusion experiments. He was successful in reproducing the Mizuno experiment, which resulted in his being hired by EDF to re-do the experiment with better equipment. The experiment was successfully replicated, but funding declined for research at EDF and the program was stopped.

Start:  
End:

The "Cincinatti Group". This entity consisted of two technicians, Stan Gleeson and Don Holloman, neither of whom had any background in nuclear physics. Their experiment utilized a zirconium electrode in a sealed cell to which voltage was applied directly. They observed a decrease in radioactivity when using a radioactive salt. They sent a sample to Dr. Biberian, who conducted isotopic analysis and found the sample had 11% of uranium-235 (the rest was uranium-238). The natural proportion of these isotopes is only 0.7%. To this day Dr. Biberian has no explanation for this anomaly. With the knowledge acquired about LENR, the possibility of transmutation cannot be ruled out. Both Gleeson and Holloman died of cancer shortly after Dr. Biberian met them.

Start: 1998  
End:

Herve Bottollier-Curtet. Dr. Biberian and Battalier-Cartet met in the early 2000s and had many exchanges and collaborations. This gentleman did a literature search on isotopic anomalies in nature, suggesting they could not be explained by conventional mechanisms. They analyzed supposedly alchemical silver coins from a museum in Nuremberg, which is described elsewhere in the book.

Start:  
End:

Georges Luchak. Dr. Biberian was invited in 2003 by Luchak to give a cold fusion paper at a conference set up to bring together researchers who are working on the fringes of mainstream science. Luchak had developed a theory of light magnetic monopoles that could explain LENR and other unusual phenomena. During this conference, Dr. Biberian met Leonid Urutskoev, who discovered magnetic monopoles experimentally. He also met a journalist, Cecile Bonneau from Science et Vie. In 2004 she wrote an excellent article on cold fusion and biological transmutations.

Start: 2003  
End:

ICCF-II in Marseilles. Dr. Biberian was a member of the ICCF committee that determines where and by whom the conferences are held. At ICCF-10 he volunteered to manage the next conference and to hold it in Marseilles. He was able to recruit family members – wife Rachel and children Melanie and Gabriel – to assist with preparation for and conduct of the conference. Dr. Biberian made a major attempt to get the press involved and raise the level of public interest in LENR but was not as successful as he had hoped. A talk by Dr. Fleischmann did not have a major effect on the attitudes toward LENR among his colleagues at the University of Aix-Marseilles. A LENR demonstration by John Dash did not go as planned. Nevertheless, the conference was a success, with 172 participants from 20 countries. An experiment of particular note to Dr. Biberian was described by a German team led by Armin Huke. It involved the interaction of low energy helium-4 nuclei with deuterated metal targets and showed that the reaction rate did not correspond to conventional models.

- As he was organizing for ICCF-11, Dr. Biberian ran an experiment that apparently exploded and broke up.

Start:  
End:

Nicolas Armanet. Armanet participated with Dr. Biberian in his experiments that took place from September 2006 to June 2007. He presented the results of the research at the ICCF-13 conference in Sochi, Russia in 2007. Subsequently, he worked for an Italian laboratory in Sicily for nearly 2 years.

Start: 4/2006  
End: 6/2008

Fulvio Frisone. This individual is born with severe physical handicaps, but his mother helped him attend university, where he did brilliant studies in theoretical physics. When the LENR announcement occurred, he developed a theory to explain the phenomenon by fractofusion. He participated in almost all of the Cold Fusion conferences. In 2004 a foundation bearing his name was established.

Start:  
End:

Jacques Kurkdjian and Michel Buxerolles. After the Cold Fusion announcement, these individuals, who were specialists in neutron detection, did a LENR experiment to detect neutrons using a palladium tube closed at one end. Initially they observed a continuous increase in neutron production until the experiment was interrupted by a storm. When power was restored, the neutrons decreased and disappeared. The experiment indicated that neutrons might have a role in triggering LENR. They were forced to stop research by the lab where they were working. Later, in the early 2000s, Dr. Biberian worked with Kurkdjian to repeat the experiment, but could not do so because they did not have an adequate source of neutrons.

Start: Early 200s  
End:

Fabrice David. Dr. Biberian met Fabrice at ICCF-11 in Marseille in 2004 and became familiar with his LENR device, which was designed to produce electricity directly by contacting palladium with a semiconductor acting as a

diode in a deuterium atmosphere. After David and colleague John Giles presented results at ICCF-14 in 2008 in Washington DC, he offered a collaboration with Dr. Biberian, which is still ongoing.

Start: 10/2004  
End: Ongoing

Frederic Henry-Couannier. This individual developed a theory of gravitation that was not well accepted for journal publication. The theory explained apparent anomalies – the deceleration of the two Pioneer spacecraft that were on a trajectory to leave the solar system. According to Dr. Biberian, this theory of gravitation is open enough to possibly explain LENR. Henry-Couannier conducts LENR experiments, and Dr. Biberian and he have frequent discussions on topics of mutual interest.

Start: 2000  
End: Ongoing

Mathieu Valat. Valat contacted Dr. Biberian in 2007 because he was interested in LENR and, after receiving his degree, wanted to pursue a Ph.D. in cold fusion. Since that was not possible in France, Dr. Biberian suggested he try for a position in the U.S. Valat then received a master's degree working with John Dash at Portland State University in Oregon. Subsequently, after ICCF-17 in Korea in 2012, Valat participated in the Martin Fleischmann Memorial Project. He has started working with Dr. Biberian on high-pressure, high-temperature plasma electrodes.

Start:  
End:

Dag Zeiner-Gundersen. Dr. Biberian met Ziener-Gunderson at a workshop in 2007, and the two became friends and decided to work together. They met several times at Dr. Biberian's lab in Marseille and then in Ziener-Gunderson's lab in Oslo, Norway. At Dr. Biberian's lab they experimented with materials they had on hand.

Start: 2007  
End: Ongoing

Gustav Fralick. Dr. Biberian became familiar with a 1989 NASA report by Fralick in which excess heat was reported from an experiment in which a palladium tube of a hydrogen purifier was filled with deuterium. Dr. Biberian was inspired by this report to do his gas diffusion work. He successfully contacted Fralick at NASA in 2012. After that contact, Fraelich successfully replicated the earlier experiment with better measurements and observed the same effect. Dr. Biberian met Fralick in 2013 at I CCF 18 in Columbia Missouri.

Start:  
End:

Solid State Electrolytes. Dr. Biberian was particularly interested in experiments using the gas rather than the liquid phase because that approach was consistent with his previous work. Solid-state electrolysis is not only allowed operation at higher temperatures, but also corresponded to his skills. He and Lonchamp conducted LENR experiments similar to lithium polymer batteries except that phosphoric acid was used (to produce proton conductors) instead of lithium. The work began at Grenoble and continued when Dr. Biberian returned to Marseille. Lonchamp prepared the conductive layers in Grenoble and Dr. Biberian did the Calorimetry in Marseille. However, the results did not meet expectations, and the line of research was abandoned.

Start:  
End:

The New Mass Flow Calorimeter. In response to criticism that LENR experiments did not properly measure electric and thermal power, Dr. Biberian developed a mass flow calorimeter to remove any ambiguity in these measurements.

Start:  
End:

Electrical Power. LENR experiments using electric power can use either variable or near-constant current over time. Dr. Biberian's mass flow calorimeter uses the near-constant current as a source of power.

Start:  
End:

Thermal Power. Calorimeters are used to measure thermal power. But there are complications with heat-flow calorimeters that must be understood and accounted for, such as non-uniform temperatures in the experiment cell. The mass flow calorimeter is used to overcome these difficulties.

Start:  
End:

Mass Flow Calorimeter in Gas Phase. When he returned to Marseille from Grenoble, Dr. Biberian developed a mass flow calorimeter for gas phase experiments. The calorimeter can operate at high temperatures and air pressures from vacuum to 30 atmospheres. Dr. Biberian and Nicolas Armanet showed that when deuterium diffuses through the walls of a palladium tube, anomalous heat of about 10% occurs.

Start:  
End:

Mass Flow Calorimetry in Electrochemistry. During their collaboration at Grenoble, Dr. Biberian and Lonchampt developed an electrolytic cell that operated in a mass flow calorimeter. The calorimeter was similar to that of Fleischmann and Pons except that the entire cell was covered with metal, like a thermos. When he returned to Marseille, Dr. Biberian continued the experiments and found that 20% more excess heat was produced with heavy water than light water.

Start:  
End:

Plasma Electrolysis. Dr. Biberian became interested in doing experiments based on those of Tadahiko Mizuno in Hokkaido, Japan. Mizuno's experiments have been confirmed by Pierre Clauzon and Jean-Louis Naudin. Dr. Biberian set up the experiment on a balance and measured output power by the Heat of vaporization of water lost by evaporation. Clauzon proposed to do experiments at higher pressure and temperature. Mathieu Valat designed and built the cell for the experiment, and Walter Sigaut knew how to do the interfacing and got the system to work. Experiments with the cell are continuing.

Start:  
End:

My High-Risk Attempts. Dr. Biberian recognizes well that experiments must be based on an idea or theory on how LENR works. The experiments are challenging because there is not yet an explanation to provide direction. Because of limited time and financial resources, Dr. Biberian conducts primarily simple experiments.

Start:  
End:

A Nickel-Metal-Hydride Battery. In this experiment one of the electrodes is nickel metal and the other is an alloy of nickel that absorbs hydrogen and becomes a hydride. It is based on observations that LENR may occur with nickel and hydrogen like palladium and deuterium. Anomalous heat was not found.

Start:  
End:

A Nickel-Cobalt Battery. This experiment was based on an explosion that had occurred with a nickel-cadmium battery in which LENR was thought to have occurred because of the high energy of the explosion. Dr. Biberian placed a battery of this type in a calorimeter but did not find excess heat.

Start:  
End:

A Carbon-Based Catalyst. Dr. Biberian tried to replicate the experiment of Les Case using carbon from coconut shells that had palladium added up to 5%. This replication attempt was not successful.

Start:  
End:

My Understanding of the Phenomenon. After again noting that experiments must be based on a theory or model, Dr. Biberian reviewed the concept that deuterium atoms may be made to fuse by packing them close together in a metal lattice. He further noted that a dynamic rather than static condition is required or LENR would have been discovered

long ago. One method he tried (with Lonchamp) was to operate an electrolytic cell at boiling temperature of the liquid.

Dr. Biberian describes the debate over whether LENR occurs within the lattice or at the surface or an interface between two materials. He further details the need for electrons to be involved in LENR to help overcome the Coulomb barrier and allow fusion to occur. The success of LENR experiments of George Miley and Yoshiaki Arata are described as examples where the phenomenon occurs at the interfaces of two solids. With Nicholas Armanet he conducted experiments with a palladium tube closed at one end in which deuterium diffused through the tube walls. They showed excess heat of 4 watts for several days. Dr. Biberian concludes that success in achieving LENR...

“...requires an interface between two materials or between the metal and the vacuum containing many atoms of deuterium and simultaneously deuterium ion diffusion to the interface or surface.”

- In experiments with deuterium gas on one side of a thickness of Palladium and a vacuum on the other side, cold fusion occurs when deuterons passed through the Palladium and exit the other side, where electrons

## ***12.2 Timeline from Interview Annotations***

(In preparation.)

## ***12.3 Integrated Timeline***

(In preparation.)

### **13 Summary and Future Opportunities**

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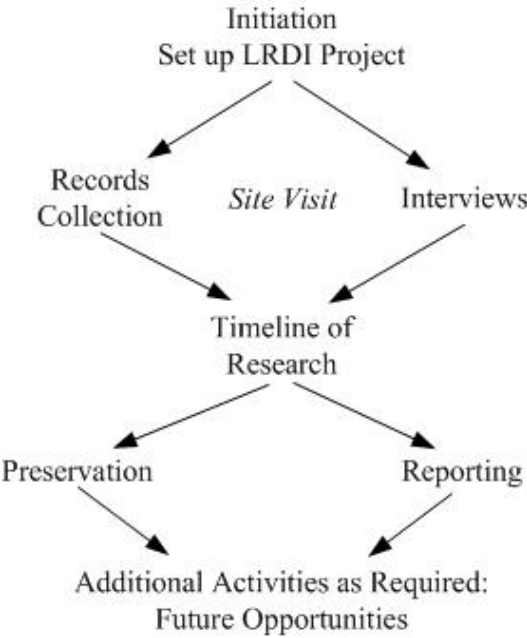
Dr. Biberian has been a foremost contributor to the cold fusion field going back to the time that Fleischman and Pons were doing their research at Technova in France. He has performed sophisticated research using many types of materials, methods and signatures of the phenomenon and has published many papers. He has also prepared two books and three websites. Dr. Biberian has been one of the strongest public advocates for the field.

This report has been prepared from information in the public record, the results of the site visit, and annotations of interviews with Dr. Biberian. A more complete inventory of the items and experiments could be made, and a more complete description of the active experiments could be prepared. The lab notebooks can be more thoroughly characterized. The contents of the electronic files could also be investigated and described. The items in Dr. Biberian's LENR library – and the other items in his bookshelf – can also be inventoried in the future.

A major opportunity in the future is to develop annotations for the 2022 interview and then prepare an integrated timeline of his course of LENR activities using Dr. Biberian's 2015 book, the interview annotations and information on the three websites.

# 14 Project Methods

The methods used in the Biberian LENR Research Documentation Project are based on a general LRDI procedure (Figure 14-1) that is modified to meet the specific requirements of individual projects<sup>16</sup>. The BLRDP is being performed according to accepted project management practices<sup>17</sup>. The overall LRDI procedure is set forth in an article in Infinite Energy<sup>18</sup>.



*Figure 14-1.  
LRDI Procedure*

The BLRDP began with a two-part interview of Dr. Biberian at ICCF-22 in September 2019. His publications that are included Rothwell’s LENR-CANR.org library websites were listed and downloaded. The three websites have been archived for preservation and easy reference in the future. Copies of his two books have been added to the project. Memos have been prepared to record progress as shown in Table 14-1:

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<sup>16</sup> Grimshaw, T.W., 2019. Collection, Organization, and Documentation of LENR Research Results: Guideline. January.  
<sup>17</sup> Project Management Institute, 2017. A Guide to the Project Management Body of Knowledge (PMBOK® Guide) — Sixth Edition and Agile Practice Guide (ENGLISH). Project Management Institute. Newtown Square, PA.  
<sup>18</sup> Grimshaw, T., 2020. Documenting Cold Fusion Research: Preserving a Vital Asset for Humankind. Infinite Energy, Issue 150, March/April 2020, p. 9-13.

*Table 14-1.*

*Memos Prepared for the BLRDP*

<u>Date</u>	<u>Subject</u>
9/26/2019	Transcripts of 2019 Interview: Unedited Version
9/26/2019	Transcripts of Interviews: Unedited Version
6/22/2021	Biberian Publications Included in LENR-CANR.org Website
6/30/2021	Biberian Blogsite
7/2/2021	“John-Paul Biberian” Website
7/3/2021	“Cryofusion” Website
2/3/2022	Transcription of Interview with Ruby Carat
5/27/2022	Annotations of First Interview on LENR Research
10/22/2022	Selected Photos from Site Visits on October 3 and 9, 2022
11/4/2022	Transcripts of Second Interview on LENR Research
11/13/2022	Inventory of Biberian’s Collection of Lab Notebooks
11/29/2022	Currently Active Experiments in LENR Laboratory

## Appendix A. Expanded Descriptions of Websites

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Dr. Biberian has developed three websites to describe his cold fusion work and present other relevant information. They are the “Jean-Paul Biberian” site<sup>19</sup>, the “Cryofusion” site<sup>20</sup>, and the “Jean-Paul Biberian blog<sup>21</sup>”. The three sites are described in this appendix. More detailed descriptions are in Appendices A, B and C. Some of the links on the websites are no longer active.

### A1. “Jean-Paul Biberian” Website

This website appears to be the earliest and most comprehensive of Biberian’s websites. It contains a great deal of information about cold fusion generally and about Biberian’s work in the field specifically. Its homepage has two lists of links to subsidiary pages, “Jean-Paul Biberian” and “News”, which are listed and then described below.

<u>Jean- Paul Biberian</u>	<u>News</u>
Presentation	A New Website
Agenda	A Book: “Fusion in All of Its States”
Research	A DVD on Cold Fusion
Education	A Film about Cold Fusion: knowledge-tv
Popularization	The Cold Fusion Danced
Conferences	Articles on Nuclear: lemonde.fr atlantico
Articles	A Film about Cold Fusion
Patents	A TV Series about Laboratory Research
Curriculum Vitae	A Blog to Know my Opinions on the News
Staff	
Contact	

#### A1.1 Description of “Jean-Paul Biberian” Webpages

Presentation. Homepage of this website. Its upper part is shown in Figure A1-1. Brief biographical information is on the lower part of the homepage and is presented in Figure A1-2.

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<sup>19</sup> <http://www.jeanpaulbiberian.net/>

<sup>20</sup> <http://www.cryofusion.org/>

<sup>21</sup> <https://blogde-jeanpaulbiberian.blogspot.com/>

Figure A1-1  
Upper Part of “Jean-Paul Biberian” Homepage



Figure A1-2  
Dr. Biberian’s Self-Description on the Lower Part of the Homepage

Engineer in nuclear and electronic physics, doctor-engineer and doctor of science, Jean-Paul Biberian worked for many years on the physico-chemical properties of surfaces of metals and semiconductors in France and the United States.

In 1977 he was shortlisted for the choice of the first European astronaut.

In 1982 he founded the company Luminy-Instruments which develops surface analysis instrumentation. It was during this period that he filed three patents, two of which were on micro-tip flat screens.

Since 1993 he has been passionate about the fields of Cold Fusion and biological transmutations. In 2004, he organized the international conference in Marseille, where 170 researchers from 20 countries participated.

Eager to make science known to a large audience, he gives lectures and interviews. Since 2001 he has regularly hosted a scientific café at 19 place Gouffé in Marseille.

.....

I am interested in science within its limits, trying to discover the laws of nature that govern us. There is still a lot of science to be discovered, and not just through big telescopes or giant accelerators. Small, well-thought-out experiments should give us a better understanding of nature.

Science is an exciting field and I would like to pass this passion on to other young and old. Physics, especially at the atomic and nucleus level, is a fascinating subject that brings us to the very sources of science.

The opinions which are developed in this site represent only my personal convictions and, in no way bind the University of the Mediterranean (Aix-Marseille II) or the CNRS to which I am attached for my teaching and research work. research.

Site created by Rachel Estève. [esteve\\_rachel@yahoo.fr](mailto:esteve_rachel@yahoo.fr)

Agenda. Three entries for 2017 as shown below.

- February 9. “La Fusion Froide”
- April 1. “The Couple, a Planned Obsolescence”
- July 5. “La Fusion Froide”

Research. Dr. Biberian's description of cold fusion as shown in Figure A1-3.

*Figure A1-3*

*Dr. Biberian’s Description of the Cold Fusion Field*

It was on March 23, 1989, that the whole world learned that two electrochemists: Stanley Pons from the University of Utah in the United States and Martin Fleischman from that of Southampton in Great Britain had just shown that we could carry out nuclear reactions at low temperature by passing electric current through an electrochemical cell made up of an electrode called a palladium cathode and a second made of platinum called an anode, in an electrolyte based on heavy water. The two professors had observed that they were getting more heat than the electrical energy supplied. The amount of heat released could not be explained by a chemical reaction, so they immediately thought of a nuclear reaction.

Although no fundamental law of physics is violated on this assumption, scientists were extremely skeptical. Numerous experiments were immediately carried out in numerous laboratories in order to verify the statements of the two discoverers. Obviously many failed, but a few did. The Department of Energy in the United States formed a team to analyze the phenomenon, and concluded that special funding was not needed for these studies, but that it could be done with the usual budgets. This conclusion was in practice considered as a prohibition to do research on this subject which was put at the level of charlatanism. Pons and Fleischman were called bad experimenters, even fraudsters, and found it very difficult to make their voices heard.

Cold Fusion research disappeared from the mainstream media, and for everyone, especially scientists, the case was closed, the topic did not exist. But many people from all walks of life continued, very often with makeshift means, to try to improve the first results. The big criticism that was made in 1989 was the lack of reproducibility of the experiments. In science, and especially in physics, one must be able to reproduce an experiment as many times as desired, and by different groups. This was not the case at the time. Some experiences were positive and gave excess heat, and others gave nothing. The inventors of this new science quickly understood that the first batch of palladium that they had received gave good results, while the following ones no longer worked. It must be said that the manufacturer of palladium had changed its production method, and did not want to reveal its manufacturing secrets!

Different teams got down to work. They sought to understand the different aspects of palladium metallurgy, and little by little improvements came. Other methods to highlight the phenomenon have been developed. In the end, we now know that the phenomenon is much more general than what we thought. It is no longer simply a phenomenon of the fusion of two nuclei of deuterium (an isotope of hydrogen) to make helium, but much more complex nuclear reactions, ranging from the fusion of nuclei to fission (breaking a heavy core to produce lighter ones by releasing heat), and even the transmutation of one element into another (the dream of the alchemists).

Nuclear reactions were discovered by Beckerel, Pierre and Marie Curie. It was they who demonstrated for the first time that the atom was not necessarily stable. They have shown that certain atoms such as radium can transform into another. It was the first breach in Lavoisier's sacrosanct law "Nothing is lost, nothing is created, everything is transformed". Later, experiments showed that uranium bombarded by neutrons cracked, and turned into two other lighter nuclei, as well as two or three neutrons with a release of energy. It is this reaction which is at the origin of the chain reaction at the base of current nuclear reactors, and of the atomic bomb.

Another form of nuclear reaction is possible. It is the fusion of light atoms to produce heavier ones, also with the release of heat. This is what happens in the sun and stars, where two hydrogen nuclei merge. To succeed in such a reaction, it is necessary to manage to make two nuclei of the same electrical sign touch each other, which tend to repel each other. In the sun, it is the very high temperature and pressure that reign in the center of the star, which allow these reactions to occur. The nuclei then come into contact despite the repulsive

*Figure A1-3 (continued)*

force. When the nuclei are close to each other, nuclear forces take over and allow the two nuclei to attract and merge. For fifty years, we know how to do this kind of reaction with the hydrogen bomb. In this case, in order to obtain the high temperatures required, a first nuclear fission bomb strongly compresses the hydrogen which melts. This reaction is obviously not easy to achieve. We therefore know how to do it brutally, on the other hand, doing it in a controlled manner is much more difficult. The international project ITER (International Torus Experimental Reactor), which will be installed in Cadarache, aims to show the feasibility of thermonuclear fusion. The method used is to confine the hydrogen in a torus-shaped chamber. The gas is brought to a very high temperature, and prevented from touching the walls by intense magnetic fields. The gases are so hot that on the one hand they ionize, that is to say that the hydrogen nucleus separates from its single electron and on the other hand they reach such speeds, that they can collide and merge to produce in the case of the ITER project helium and a neutron.

Cold fusion performs the same type of fusion reaction but in a solid and without radioactivity. The initial idea is to confine in the space between the atoms of a metal two hydrogen atoms to force them to react. When two atoms of deuterium merge in this way, helium is produced, a very harmless gas that is used to inflate balloons! In reality, the phenomenon is much more complex, and more varied than that. During the last fifteen years it has been observed that very special and unknown reactions take place in materials loaded with hydrogen or its isotopes. Not only has it been shown that you can do cold fusion, but also scientists have shown that secondary reactions of transmutation and fission of nuclei can take place.

These phenomena are therefore not the exception. A whole field of physics is opening up. We are at the dawn of a new science whose consequences are absolutely unpredictable, in a good sense. The applications seem immense: from the production of clean energy (no radioactive waste, no greenhouse gases), to the treatment of waste of all kinds: radioactive or heavy metals. Another section of science is opening up. This is what we now call Nuclear Reactions in Condensed Matter.

This new avenue of research is still in its infancy. After more than sixteen years of work, we are only sure of one thing: there is indeed a new phenomenon that has fallen through the cracks until now. On the other hand, we do not yet know which theory is capable of explaining it. Moreover, there are already many supposed to explain the phenomenon. They range from the most classical quantum mechanics to assemblies of neutrons, vibrations of the metallic lattice, new atomic arrangements, magnetic monopoles and many others.

Scientists work in this field in some fifteen countries and meet regularly.

In Russia, there is an annual meeting which brings together a large part of the 29 Russian laboratories working in this field.

In Italy, every two years, a very informal international meeting takes place in Asti to take stock of this work.

In Japan a learned society has been created which brings together the Japanese working in this field.

Finally, on a regular basis, almost every year an international conference takes place: the International Conference on Cold Fusion, the International Conference on Cold Fusion. ICCF11, the eleventh took place in Marseille from October 29 to November 5, 2004. 170 researchers from 20 different countries participated in this conference. The conference began on Sunday, October 29 with a day of cold fusion training intended for specialists, but also for people new to the field and who want to know the basics of this specialty. On Tuesday, November 2, the conference took place at the Faculty of Sciences of Luminy, open to all scientists who so wish. Finally the week ended with a press conference for scientific journals, but also for the mainstream media.

ICCF12 took place in Japan from 28 November to 2 December 2005.

ICCF13 took place from 25 June to 1 st July 2007 in Sochi, Russia.

It seems opportune to us in this period when energy becomes a global concern to bring this information to the attention of the public, and to announce that other ways than those known exist. That nothing is played yet, and that other possibilities exist. It's not just oil, gas, nuclear and wind turbines. Maybe in a few years, if we give ourselves the means, another inexhaustible and clean source of energy will be available to everyone.

Education. Links to Sections of Three Courses Taught by Biberian – General Physics, Hands-on Electronics, and Statistical Physics. The General Physics chapters is shown in Figure A1-4.

*Figure A1-4*

*Chapters of Course in Physics Taught by Dr. Biberian*

Introduction	Chapter 11: First principle of thermodynamics
Chapter 1: The Harmonic Oscillator	Chapter 12: Internal energy of ideal gases
Chapter 2: Geometric optics	Chapter 13: Reversible transformations of an ideal gas
Chapter 3: Optical instruments	Chapter 14: Physical Balances
Chapter 4: Wave optics	Chapter 15: Balance between several phases of a pure body
Chapter 5: Gases dissolved in liquids	Chapter 16: Liquid-vapor equilibrium
Chapter 6: Optical analysis	Chapter 17: Second principle of thermodynamics
Chapter 7: temperature scales	Chapter 18: Kinetic theory of gases
Chapter 8: Real gases	Hands-on Electronics
Chapter 9: Gas expansion	Handout
Chapter 10: Calorimetry	

Popularization. List of Biberian’s work in categories as shown in Figure A1-5.

*Figure A1-5*

*Popularization Activities of Dr. Biberian*

Extension activities	
" Knowledge Tuesdays "	2001 to 2007
Association " Seeds of Science "	since 2000
Consulting firm: International-Consultant	Spectrum-Imagum since 1989
SA: Luminy-Instruments	1985 - 1987
SARL: Surface Study Laboratory	1982 - 1984
Popularization articles	
New Keys	September 2003 "Inner life"
Audiophile	No. 13, 1990, Pages 22,27 "Superconductivity"
No. 11, 1990, Pages 24,30	"Quantum components"
No. 10, 1990, Pages 34,39	"The new magnets"
No. 9, 1990, Pages 36,40	"Gallium Arsenide"
No. 7, 1989, Pages 18,25	"Optical fibers"
No. 6, 1989, Pages 26,33	"New materials applied to Audio"
No. 5, 1989, Pages 34,41	"Materials and High Fidelity"
No. 4, 1989, Pages 36,43	"Micro-triodes"

Conferences. List of 158 Presentations by Biberian from 1973 to 2016. Total of 158 items listed.

Articles. Citations for Dr. Biberian’s masters and doctoral theses, followed by 69 articles authored or co-authored by him from 1970 to 2012. The titles of Biberian’s masters and doctoral theses are shown below.

1971. Doctor-Engineer thesis, University of Aix-Marseille II. “Theoretical Study of the Mean Square Deviation of the Surface and Volume Atoms of Graphite”

1975. PhD thesis, University of Paris VI. “Study of Electron Diffraction and Auger Electron Spectroscopy of the Adsorption of Lead on Gold”

Patents. Titles of three patents obtained by Dr. Biberian as shown below.

Method for producing display screens and flat screens obtained by implementing said method. Filed in France, Europe, USA, Japan. March 9, 1984

Process allowing the simultaneous analysis of several gas streams by mass spectrometry, and its implementation. Filed in France. March 29, 1984

Electron emitting device and its application in particular to the production of flat television screens. Filed in France and the USA. October 2, 1986

Curriculum Vitae. The brief CV includes the following:

Jean-Paul Biberian

Born June 26, 1946 in Marseille

Diplomas

Engineer National School of Electricity and Mechanics of Nancy. 1969

Diploma of Advanced Studies in Crystallography. 1970

Doctor of Engineering, University of Aix-Marseille II. 1971

Doctor of Science, ENSCP, University of Paris VI. 1975

Jobs

Physics Assistant Faculty of Sciences of Luminy. 1969-1975

Lecturer, Faculty of Sciences of Luminy. Since 1975

Post-doctoral stay at University of California at Berkeley. 1976-1978

Consultant to the SARL Surface Study Laboratory. 1982-1985

Chairman and CEO of Luminy-Instruments SA. 1985-1987

Consultant to Cybernétix SA. 1987-1989

Consultant to International-Consultant. Since 1989

Expertise

Expert with ANVAR

Member of the Advisory Committee of the International Conference on Cold Fusion

Editor-in-Chief of the Journal of Condensed Matter Nuclear Science

Member of the Scientific Council of the Fluvio Frizone Foundation

Staff. Includes personal information for Dr. Biberian in four categories – “My Origins”, “(My) Dances), “The Inner Experience” and “(My Favorite) Quotes”. A portion of “My Origins” is shown in Figure A1-6.

*Figure A1-6*

*Personal Information from “My Origins”*

My father

Hatchik Biberian was born in Kutahyain Turkey in 1909. He didn't know exactly when, he said: "it was in the eggplant era". His family consisted of his father Georges, his mother Marie, his two brothers Garabet the elder and Artin his younger, and a sister Horop. Two other children had died young. My grandfather was a shoemaker, that's all I know about him. In 1921 because of the Greco-Turkishwar, they had to flee. My grandfather was taken for deportation. The rest of the family took the boat to Izmir to go to Greece. My grandfather was to join them there, but he probably died as a result of the hardship of the deportation. There, after one or two years, I don't know exactly, they left for Marseille. We found the collective passport of the late Republic of Armenia which they used to let them pass without return. Here is the picture. It is also the only one I have from my father as a child.

*Figure A1-6 (continued)*

When they arrived in Marseille as refugees, they moved into a small room in the city center. My father was fourteen. At that age we couldn't go back to school, it was more time to leave. This is why he has been illiterate all his life. When I was young it bothered me a lot, now I'm proud of it. Living conditions there must have been difficult, and my aunt Horop quickly died of tuberculosis.

From an early age he had to work, first in a biscuit factory, then later with his two brothers by creating their own sports shoe manufacturing company, the "Bibert Shoes". They were very hardworking, and did well in business.

In 1939, when war was declared, the three brothers were called up for the service. In June 1940 it was the debacle, my two uncles returned home, but my father was taken captive to Germany. Three times he will try to escape, but without success. It was only at the end of the war that he returned and found his fiancée, my future mother Marie, who had been waiting for him for six long years.

My mother

Marie Tilki was born on August 23, 1922 during the Greco-Turkish war . His family lived in Bilecik , and because of the war they had to flee and leave for Istanbul., city more welcoming to Armenians. When the family left Bilecik, my grandmother Marika was pregnant with my mother. My mother was born on the road. The conditions were difficult, there was no milk to feed her. It was my older Aunt Raymonde who fed her with water and flour. My grandfather Pierre had also been taken for deportation, and thanks to the kindness of a Turkish Pasha, had been able to join his family on the road.

The family moved to Istanbul where my grandfather had his family. This is where my uncle Rolland was born, he completed the family of seven children. Conditions remained difficult. My grandfather, who owned a silk factory in Bilecik, had to give up everything, and they no longer had any income. They were also helped by the family of my great aunt Blanche who was married to a great doctor in the city, Doctor Hotoum Kapikoglu.

My aunt Aimée having married an Armenian from Argentina Pierre Vertanessian, my mother, then aged 15, left to join her there. On her way, between Turkey and Argentina, she passed through Marseille where my aunt Alice had already settled, who had been married to Garabet Biberian, my father's older brother. It was at this stopover that my mother first saw the man who was to be her husband. She continued her journey to Argentina by taking the boat in Le Havre, and stayed two years with her sister in Buenos Aires.. As she returned to France to be married to my father, World War II broke out. She could only see her fiancé again during a few leaves before he was taken prisoner of war. Throughout the war, she stayed in Marseille with her sister's family while waiting for my father to return.

Then

My parents got married on July 7, 1945, and on June 26, 1946 I was born. Then it was the turn of my two sisters, Renée and Nicole, finally that of my brother Pierre who came to finish our family. My father died in 1969, he was only 60 years old, his whole life was an example for me. I now have three children myself, Mélanie, Gabriel and Margot.

(Note: A letter from Dr. Biberian to his deceased father is not included here.)

Contact. Dr. Biberian's contact information is presented as shown below.

*Jean-Paul Biberian*

*Address*

*CINaM-CNRS*

*163 Avenue de Luminy*

*13288 Marseille Cedex 9*

*France*

*Phone : +33 660 14 04 85*

*Email :jpbiberian@yahoo.fr*

## A1.2. Description of Cold Fusion on “News” Webpage

A New Website. <http://www.cryofusion.org/>. Link to second website of Jean-Paul Biberian, Cryofusion, at cryofusion.org. Described in Section 10.

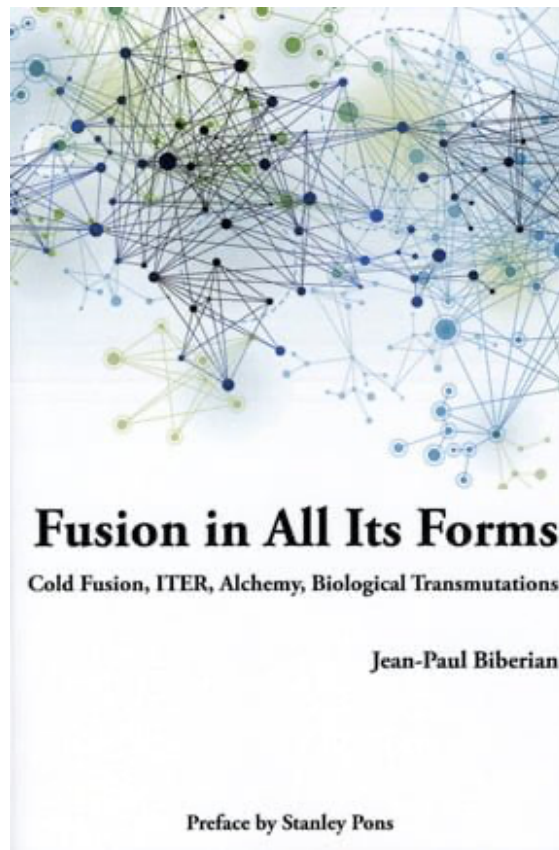
A Book: “Fusion in All of Its States”. Page offering Biberian’s book for sale. More detail on this book appears in Section 3.1 of this report. Includes the following narrative describing the book shown below followed by an image of the book’s cover (Figure A1.7). <https://www.editions-tredaniel.com/la-fusion-dans-tous-ses-etats-p-5204.html>.

When the discovery of cold fusion was announced in 1989, the whole scientific world was in turmoil. So it would be possible to produce unlimited energy at a lower cost? In many laboratories, known or unknown, reputable or not, everyone tries to reproduce the experiment that everyone is talking about. I was one of these pioneers, of this extraordinary promising adventure. But cold fusion didn't happen overnight.

Let me tell you the big and small story, human and scientific, alchemical and biological, of cold fusion. A story that fascinates me and which continues today...

*Figure A1-7*

*Cover of “Fusion in All of Its States”*



A DVD on Cold Fusion. Webpage offering for sale a DVD by Biberian: “Biological Transmutations and Other Reflections on Science”. Includes personal observations by Dr. Biberian, shown in Figure A1.8, followed by an image of the DVD container (Figure A1.9). [https://www.filmsdocumentaires.com/portail/fusion\\_froide.html](https://www.filmsdocumentaires.com/portail/fusion_froide.html).

*Figure A1.8*  
*Personal Observations of Dr. Biberian*

“I am interested in science within its limits, trying to discover the laws of nature that govern us. There is still a lot of science to be discovered, and not just through big telescopes or giant accelerators. Small, well-thought-out experiments should give us a better understanding of nature.

Science is an exciting field and I would like to pass this passion on to other young and old. Physics, especially at the atomic and nucleus level, is a fascinating subject that brings us to the very sources of science.

The opinions which are developed in this site represent only my personal convictions and, in no way bind the University of the Mediterranean (Aix-Marseille II) or the CNRS to which I am attached for my teaching and research work. research. " Jean-Paul Biberian

Engineer in nuclear and electronic physics, doctor-engineer and doctor of science, Jean-Paul Biberian worked for many years on the physico-chemical properties of surfaces of metals and semiconductors in France and the United States.

In 1977 he was shortlisted for the choice of the first European astronaut.

In 1982 he founded the company Luminy-Instruments which develops surface analysis instrumentation. It was during this period that he filed three patents, two of which were on micro-tip flat screens.

Since 1993 he has been passionate about the fields of Cold Fusion and biological transmutations. In 2004, he organized the international conference in Marseille, where 170 researchers from 20 countries participated.



The Cold Fusion Danced. Inactive link.

Articles on nuclear: lemonde.fr atlantico. Links to two newspaper articles by Biberian.

A. LeMonde.

Is nuclear power necessary? France can get out of nuclear power, but it is a political and industrial choice.

Jean-Paul Biberian, lecturer in physics at the University of Aix-Marseille

[https://www.lemonde.fr/idees/article/2011/04/01/l-energie-nucleaire-est-elle-necessaire\\_1500273\\_3232.html](https://www.lemonde.fr/idees/article/2011/04/01/l-energie-nucleaire-est-elle-necessaire_1500273_3232.html)

B. Atlantico. Are you ready to change your mind? [Article not found.]

A Film about Cold Fusion. Inactive Link.

A TV Series about Laboratory Research. Inactive Link.

A Blog to Know my Opinions on the News. Link to Biberian’s second website, Cryofusion. Described in Section 4.2 of this report. <https://blogde-jeanpaulbiberian.blogspot.com/>.

## A2. “Cryofusion” Website

The primary emphasis of this website is on biological transmutation. The home page (Figure A2.1) is a matrix consisting of 20 (4x5) panels (some of the panels are combined).

*Figure A2-1.*

*Matrix on Homepage of Cryofusion Website*



Many of the images have links to the other webpages that are relevant to the BLRDP. These webpages are described below.

Agenda. Calendar showing ICCF conferences in 2014 and 2015.

Biberian Blog. Link to “Jean-Paul Biberian blog”. (Described in Section 4.3)

JPBiberian.net. Link to “Jean-Paul Biberian website”. (Described in Section 4.1)

Unnamed Lab Glassware Image. Inactive Link.

Jean-Paul Biberian Photos with Date and Time. Inactive Link.

Why This Site? Description of the purpose of the Cryofusion.org website (Figure A2-2). Includes a link to “Seeds of Science”, which is the webpage presented under “Association” below. Also includes a photo of Dr. Biberian in his lab (Figure A2-3).

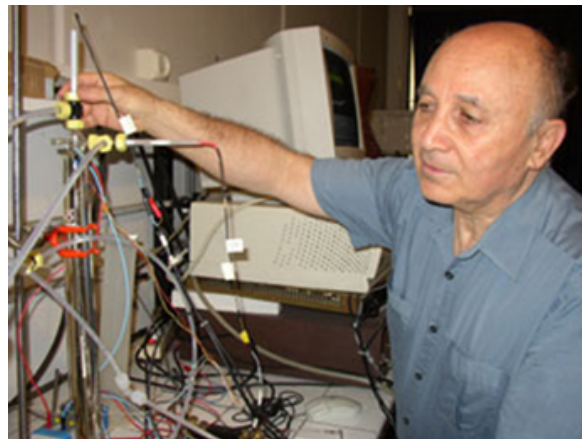
*Figure A2-2*

*Description of the Purpose of the Cryofusion Website*

This site is intended for people interested in cold fusion and biological transmutations. It recalls some of the important work produced by researchers in these fields as well as my own accomplishments. These two areas are of paramount importance for science and technology. Unfortunately they are not yet accepted by official science, and few researchers are working on them. This site will provide useful information to those who follow these subjects through landmark scientific articles, as well as the latest national and international news. Navigate to the " Seeds of Science " page.

*Figure A2-3*

*Dr. Biberian in His Laboratory*



Association. Description of “Grains of Science” association as shown in Figure A2-4. Includes an image for the organization (Figure A2-5).

*Figure A2-4*  
*“Graines of Science” Description*

The "Graines de Science" association was created in March 2000 in Grenoble, and its purpose is to scientifically demonstrate low-temperature nuclear reactions in various situations. In plants and seeds during their germination and growth. In bacteria and other living organisms during their development. In certain chemical, electrochemical or physical reactions.

*Figure A2-5*  
*“Graines of Science” Image*



Photo Gallery. Twelve photos, shown in Figure A2-6, that enlarge when clicked. Two of the photos – of Dr. Biberian giving a lecture and of Dr. Biberian with Martin Fleischmann – are presented as examples in Figures A2-7 and A2-8.

*Figure A2-6*  
*Matrix of 12 Photos*

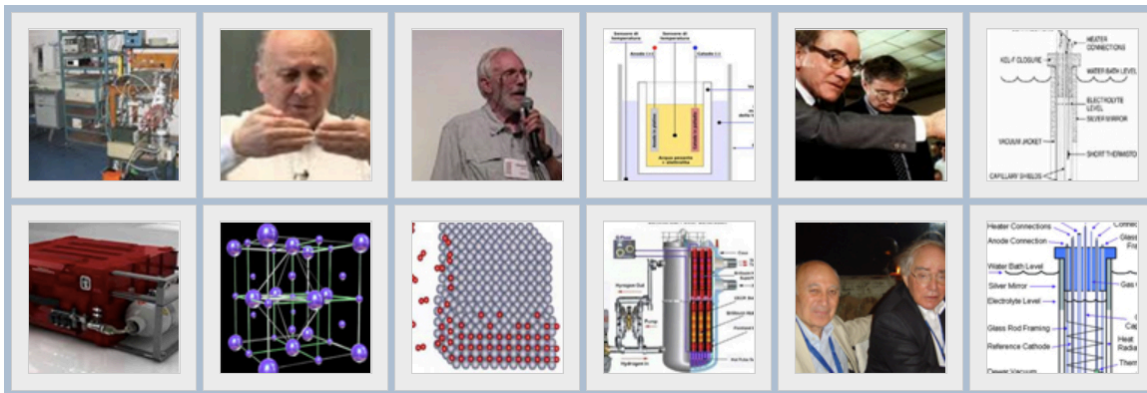


Figure A2-7

Dr. Biberian Giving a Lecture



Figure A2-8

Dr. Biberian with Dr. Martin Fleischmann at an ICCF Conference



To Log In. Instructions on how to become a member of Dr. Biberian's initiative.

Instructions on how to become a member of Dr. Biberian's initiative, as shown below.

CRYOFUSION

To be part of it, you can contact Jean-Paul Biberian:

By email: [Click here](#)

By phone: +33 660 14 04 85

Username:

Password :

If you forgot your password, please send me your request by email by clicking on this link

© 2013 CryoFusion.org - All Rights Reserved

Conception & Design by Fred Janura and David Fojt

Contact Me. Provides methods of contacting Dr. Biberian by email or phone.

*Click to send me an E-mail*

*Phone: +33 660 14 04 85*

Includes three images – Dr. Biberian with Stanley Pons (Figure A2-9), Dr. Biberian with Martin Fleischmann (Figure A2-10), and an article (in French) with the title “The world celebrates physics in 2005” (Figure A2-11). The article references ICCF-11, which was held under Dr. Biberian’s leadership in 2005 in Marseilles, France.

*Figure A2-9*

*Dr. Biberian with Stanley Pons*



*Figure A2-10*

*Dr. Biberian with Martin Fleischmann*



Figure A2-11  
Le Monde Article



Unnamed Glass Containers Image. Inactive Link.

Websites. Link to webpage entitled “Connections”, which includes links to many websites related to cold fusion (Figure A2-11).

Figure A2-11  
List of Links

List of links to sites dealing with cold fusion (French and English).  
Information sites:  
<http://fusion-froide.fr>  
<http://www.fusionfroide.info>  
<http://fusionfroide.ch>  
 Site containing many articles on Cold Fusion: <http://lenr-canr.org>  
 Cold Fusion Times, Mitchell Swartz's journal: <http://world.std.com>  
 Sites related to the work of Andrea Rossi:  
<http://www.journal-of-nuclear-physics.com>  
<http://coldfusionnow.org>  
<http://peswiki.com>  
<http://www.e-catworld.com>  
<http://nickelpower.org>  
 Site of the magazine Infinite Energy: <http://www.infinite-energy.com>  
 journalist Steven Krivit Site: <http://news.newenergytimes.net>  
 website Brillouin Energy Corporation: <http://brillouinenergy.com>  
 sites on the applications Cold Fusion:  
<http://lenrproof.com>  
 Martin Fleischmann Memorial Project: <http://www.quantumheat.org>  
 David Nagel's website: <http://nucate-energy.com>  
 Generalist websites:  
<http://lenrproof.com>  
 Film on Cold Fusion: <http://thebelieversmovie.com>  
 Japan Cold Fusion Research Society: <http://jcfrs.org>

Resources. List of 14 papers important to the cold fusion field, with links to PDFs of the papers (Figure A2-13).

*Figure A2-13*

*List of Important Papers in the Cold Fusion Field*

<p>The first article by Fleischmann and Pons Electrochemically induced nuclear fusion of deuterium (Martin FLEISCHMANN and Stanley PONS - 1989)</p> <p>An Arata article showing a comparison between heavy water and light water electrolysis Anomalous Difference between Reaction Energies Generated within D2O-Cell and H2O-Cell (Yoshiaki ARATA and Yue-Chang ZHANG - 1998)</p> <p>The first publication on the nickel-hydrogen system Large excess heat production in Ni-H systems (FOCARDI, GABBANI, MONTALBANO, PIANTELLI and VERONESI - 1998)</p> <p>A review article showing the conditions for cold fusion electrolysis experiments to work New Physical Effects in Metal Deuterides (HAGELSTEIN, McKUBRE, NAGEL, CHUBB and HEKMAN - 2010)</p> <p>An article showing the transmutation of one element into another Elemental Analysis of Pd Complexes: Effects of D2 Gas Permeation (IWAMURA, SAKANO and ITOH - 2002)</p> <p>An article showing very low level neutron production Neutron Emissions from Metal Deuterides (JONES - 2003)</p> <p>An article showing the correlation between excess heat and helium production The Emergence of a Coherent Explanation for Anomalies Observed in D / Pd and H / Pd Systems (McKUBRE, TANZELLA, TRIPODI and HAGELSTEIN - 2000)</p> <p>Ancient NASA report showing excess heat when deuterium comes out of palladium Results of an Attempt to Measure Increased Rates of the Reaction <math>2D + 2D \rightarrow 3He + n</math> in a Nonelectrochemical Cold Fusion Experiment (FRALICK, DECKER and BLUE - 1989)</p> <p>An article showing low neutron emission when deuterium exits palladium Cold Nuclear Fusion Induced by Controlled Out-Diffusion of Deuterons in Palladium (Eiichi YAMAGUCHI and Takashi NISHIOKA - 1990)</p> <p>A 2009 report from the US agency: Defense Intelligence Agency Worldwide Research on Low-Energy Nuclear Reactions Increasing and Gaining Acceptance (Defense Intelligence Agency - 2009)</p> <p>Vauquelin's original article from 1799 on biological transmutations with chickens Annals of Chemistry (VAUQUELIN - 1799)</p> <p>Baranger's work on biological transmutations Do plants perform transmutations? (Pierre BARANGER - 1970)</p> <p>A journal article on biological transmutations Biological Transmutations: Historical Perspective (Jean-Paul Biberian - 2012)</p> <p>Important work showing the decrease in the half-life of radio nuclides by bacteria Successful Experiments on Utilization of High-Activity Nuclear Waste in the Process of Transmutation in Growing Associations of Microbiological Cultures (VYSOTSKII, SHEVEL, TASHIREV and KORNILOVA - 2003)</p>
--

News. Description of the ISCMNS and its associated Journal of Condensed Matter Nuclear Science as shown in Figures A2-14 and A2-15.

Figure A2-14

*Description of the International Society of Condensed Matter Nuclear Science*

The International Society of Condensed Matter Nuclear Science was created in 2004 as a result of the need for researchers in the field of cold fusion to have an organization that represents them. It is based in the UK, and has “Charirity” status.

[www.iscmns.org](http://www.iscmns.org)

One of the important activities of this organization is the publication of the “Journal of Condensed Matter Nuclear Science”. It is the only journal dedicated exclusively to cold fusion. It is published free of charge, electronically on the association's website at:

[www.iscmns.org/CMNS/publications.htm](http://www.iscmns.org/CMNS/publications.htm)

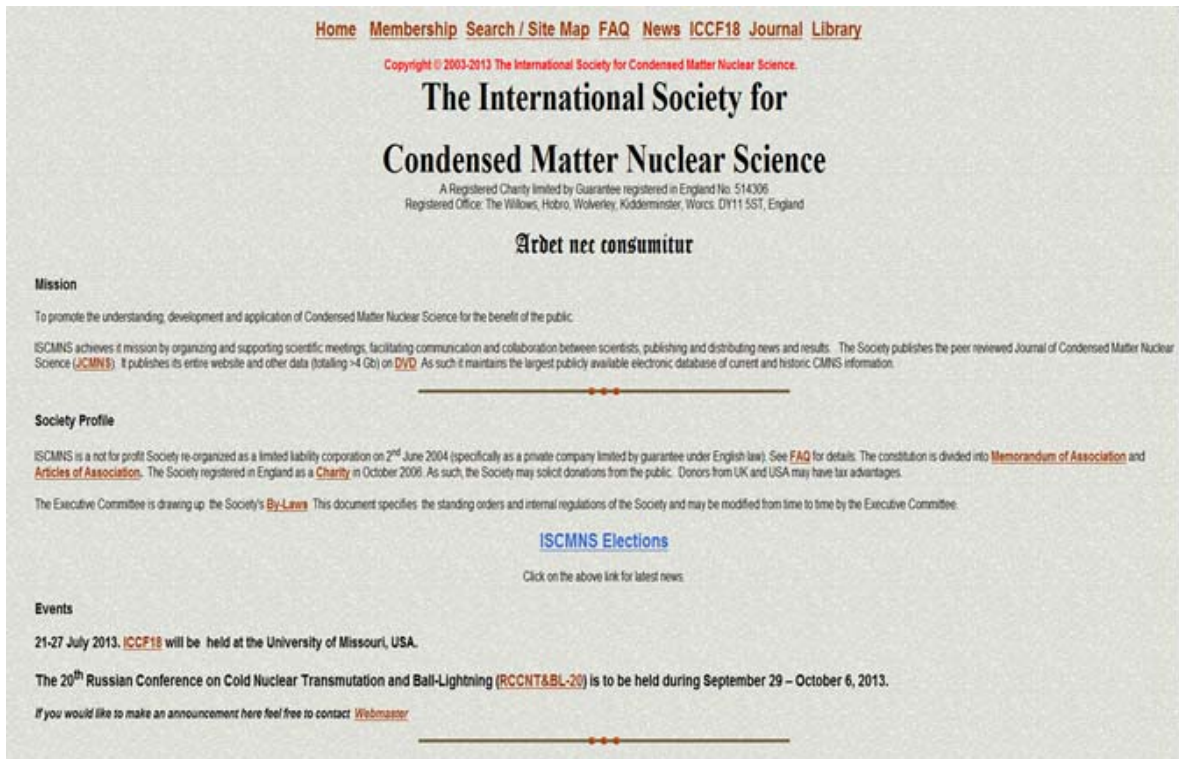
ISCMNS Publication

Volume 12 of the Journal of Condensed Matter Nuclear Science will be released shortly.

It will be available free of charge on the website of the International Society of Condensed Matter Nuclear Science:

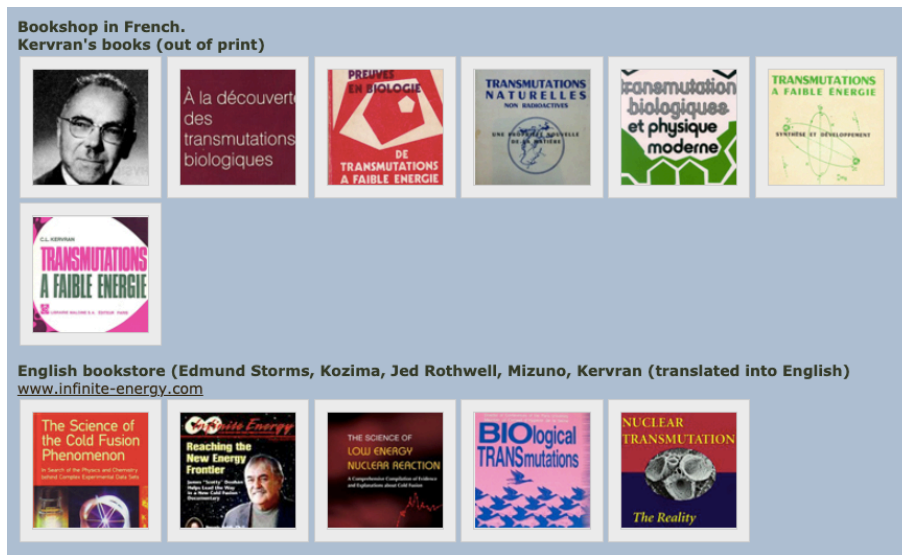
Figure A2-15

*Screenshot of ICMNS Homepage*



Bookstore. Delineation of major books of the cold fusion field, with emphasis on biological transmutation (Figure A2-16).

Figure A2-16  
Cold Fusion Books in “Bookstore”



Biological Transmutations. Description of a subfield within cold fusion and one of Dr. Biberian’s primary interests in the field. Includes the narrative shown in Figure A2-17 and links to PDFs of two important papers by Vauquilan and Baranger (Figure A2-18).

Figure A2-17  
Narrative on Biological Transmutation

History

In year VII of the republican calendar, that is to say in 1799, the French chemist, Louis-Nicolas Vauquelin published an article in the Comptes Rendus de l'Académie des Sciences in which he related an experience with hens. He had given oat seeds to chickens as food, and compared the amounts of calcium and silicon in feces and eggs to those in oats consumed. He had seen an increase in calcium and a decrease in silicon. However, the decrease in silicon did not correspond to the increase in calcium.

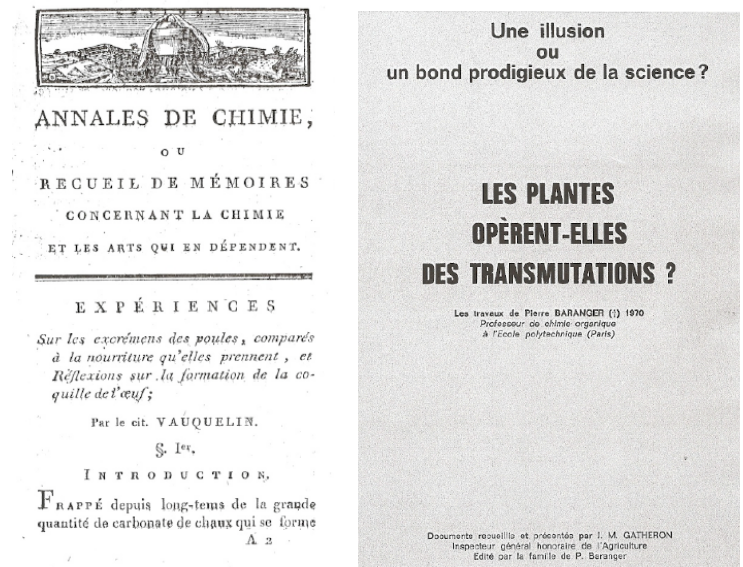
His experiment was not repeated as it is, but later other researchers tried to reproduce this result from germinating seeds and bacteria. The most famous is certainly Louis Kervran who during twenty years from 1960 to 1980 published six books on the subject. In particular, he proposed three types of reactions to explain the production of calcium:

What is a biological transmutation?

While nuclear reactions can, according to current theories, only occur under specific conditions, they should not occur in cold fusion or in biology. However, experiments by renowned scientists suggest that biology is not only a chemical phenomenon, but also a nuclear process. Recently work by Vladimir Vysotskii demonstrated that with bacteria there was transmutation of manganese into iron, and also a decrease in the half-life of cesium-137 which goes from 30 years to one year in experiments with bacteria.

Vauquelin-1799.pdf  
Baranger-1970.pdf

Figure A2-18  
Title Pages of Books by Vauquelin and Baranger



Cold Fusion. An important description of the cold fusion field by Dr. Biberian as shown in Figure A2-19. Includes two links to the “Websites” (Connections) webpage described above.

Figure A2-19  
Dr. Biberian’s Description of the Cold Fusion Field

**Historical**

It was on March 23, 1989 that the whole world learned by way of a press conference that two scientists, professors Stanley Pons of the University of Utah in the United States, and Martin Fleischmann of the university from Southampton in Great Britain had succeeded in producing nuclear reactions in a test tube. They had performed a heavy water (D2O) electrolysis experiment with a palladium cathode and a platinum anode. They had observed a production of heat greater than the electrical energy which they had sent. The energy produced being too important to be chemical, they had deduced that this one must be of nuclear origin. Following this spectacular announcement, many laboratories around the world attempted to replicate this experiment with widely varying results. Many failures, but also successes were announced by way of the general public press, in a completely unusual situation in science where the work of researchers is announced either in scientific journals or in communications at scientific congresses.

**What is cold fusion?**

Cold Fusion or more precisely Low Energy Nuclear Reactions are a direct consequence of Albert Einstein's theory of relativity. This theory led first to the manufacture of the atomic bomb, then to the construction of nuclear power stations producing electricity. These two examples relate to the fission of atomic nuclei, i.e. a uranium or plutonium atom breaks to give lighter nuclei, the loss of mass being transformed into thermal energy by the famous relation  $E = mc^2$ .

Another way to make nuclear energy is thermonuclear fusion. This has been happening for billions of years in the sun and the stars, where two hydrogen nuclei merge to form deuterium, then helium. This same mechanism was used to manufacture the H-bomb. For several decades now, research has continued to carry out this same experiment in a controlled manner. At the Cadarache Nuclear Center, researchers are trying to reach the millions of degrees necessary to achieve this reaction. There are many obstacles, in particular the need to maintain a plasma at such high temperatures without destroying the enclosure in which it is contained.

*Figure A2-19 (continued)*

The Cold Fusion discovered by professors Stan Pons and Martin Fleischmann consists in making a confinement of deuterium, an isotope of hydrogen in the vacancies of a metal, for example palladium. One of the difficulties of this kind of experiment is to manage to lodge a large quantity of deuterium in the palladium. The inventors of this new path used an electrochemical trick which consists in electrolysis of heavy water with a palladium cathode. Heavy water has the chemical formula of D<sub>2</sub>O. Part of the deuterium which is given off at the cathode of palladium enters the latter. Under the right conditions, it is possible that the reaction  $D + D \rightarrow He-4$ . Helium is an inert gas without any danger. Each reaction produces 22 million times more energy than

One of the difficulties in reproducing this experiment was the metallurgical quality of the palladium in the cathode. Whereas in the beginning the experiments produced random results, we now know how to process the material to obtain reproducible results.

After the announcement of the discovery of cold fusion by Martin Fleischmann and Stanley Pons in 1989, many researchers around the world tried to redo the experiments of the two inventors. The vast majority failed, which is not surprising when you consider the difficulty of carrying out any scientific experiment. Especially at the time and even now, we did not know all the parameters necessary to succeed.

The few scientists who either succeeded or trusted the two discoverers have continued to work on the subject for nearly 25 years. Initially, the focus was on electrochemical experiments with a palladium cathode and a platinum anode in an electrolyte formed from heavy water and lithium hydroxide (LiOD). Confirmations of excess energy production have been very rapid. However, in order to support the hypothesis of a nuclear reaction, it was necessary to find the origin of the excess heat. Some researchers have been able to show the production of neutrons and tritium at very low levels, but this did not explain the large releases of energy observed. It took the detection of helium-4 production, significantly to confirm that the...

Quickly, however, researchers embarked on other avenues. First of all, they placed themselves not in a liquid environment, like Pons and Fleischmann, but in a gaseous environment. Important results were then observed during plasma discharge experiments. They detected both transmutations and ionizing radiation. Further work with the diffusion of deuterium through palladium showed normal energy releases.

At the same time as experiments in liquid and gas phases with palladium and deuterium, other experimenters have embarked on a nickel / hydrogen pair. The first results were observed by electrolysis of light water with nickel, then in gas systems. Initially the nickel was in the form of a metal bar, then in the form of powder.

At present, more and more work is being done in gas systems, because they allow higher temperatures to be reached than in electrochemistry. The high temperature is necessary to ensure the production of electricity from heat in the future.

[Lab Photo with Technicians](#). Inactive Link.

[Videos](#). Includes Dr. Biberian's presentation entitled "Cold Fusion" (in French). It is a film documentary by Jacques-Yves Billen (Figure A2-20) ([www.filmsdocumentaires.com](http://www.filmsdocumentaires.com)). Also includes link offering his DVD for sale and a link to a YouTube clip entitled "The Forgotten Archives: The Cold Fusion War".

Figure A2-20

Dr. Biberian Presentation, “Cold Fusion” by Jacques-Yves Billen

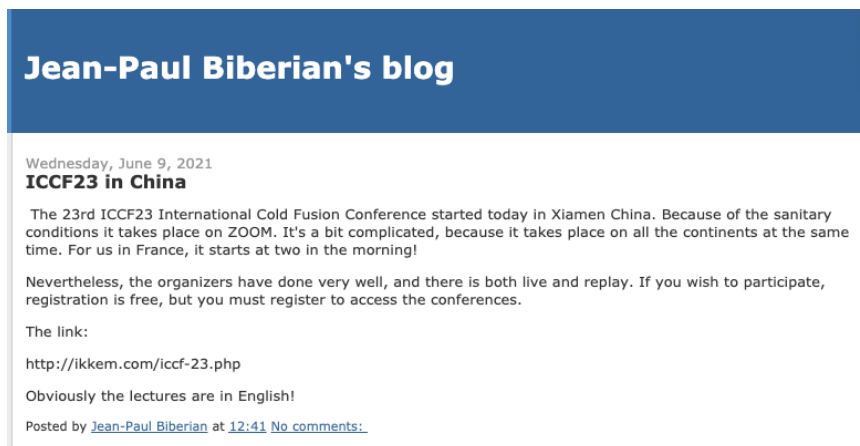


### A3. Biberian Blogsite

An image of the blogsite homepage is shown in Figure A3-1. The two main entries are “Presentation and Studies” and “Blog Archives”.

Figure A3-1

Homepage for Dr. Biberian’s Blogsite



Presentation and Studies. The blogsite includes a self description in the “Presentation” as shown in Figure A3-2. It also includes ways to contact Dr. Biberian by email or telephone.

Figure A3-2

Dr. Biberian's Self Description in "Presentation"

**Presentation**

Born in Marseille on June 26, 1946, in a family of Armenian immigrants. I lived in a double culture: oriental by my parents, and French by school and society. Subsequently, I made several trips to the United States which allowed me to discover another way of living and of thinking.

**Studies**

I have always loved science and technology. When I was 6 or 7 years old, I wanted to be a mechanic, then a little later: engineer-inventor. As I was good at math and physics, after my secondary studies, I took preparatory classes at Lycée Thiers in Marseille to become an engineer.

At the National School of Electricity and Mechanics of Nancy, which I joined in 1966, I developed a passion for electronics and nuclear physics. After the exhausting two years of preparatory classes, the three spent in Nancy were a real decompression.

After a few organized visits to nearby factories, I quickly realized that the engineering profession was not for me. What I wanted to do was research. By a great coincidence, Professor Michel Bienfait from Marseille had placed an advertisement at the School to look for an Assistant who would write with him a thesis on surface crystallography.

I didn't know much about surfaces, and crystallography was an area that wasn't really appealing to me. But the current quickly passed, and I started a doctoral thesis on "the vibrations of the surface atoms of graphite" at the Faculty of Sciences of Luminy.

Two years later, I went to Paris to attend the National School of Chemistry in Paris. With Dr. Gordon Rhead I completed a state thesis on "The Growth of Thin Films of Lead on Gold".

Blogsite Archive. In addition to the self description, Dr. Biberian's blogsite includes a set of archives. The blog archives extend from June 2009 to June 2021, a total of 12 years. About 160 posts were found for that period. The topics covered are shown in reverse chronological order in Figure A3-3. The full content of the box is available on the blog site.

Figure A23-3

Contents of Blogsite Archives

- |   |   |
|---|---|
| <ul style="list-style-type: none"> <li>▼ 2021 (4)</li> <li>▼ June (1)</li> <li>ICCF23 in China</li> <li>▼ May (1)</li> <li>Nathalie Calmé's book "Adventurers of the Spirit"</li> <li>▼ April (2)</li> <li>To dance again....</li> <li>US Navy relaunches Cold Fusion</li> <li>▼ 2020 (4)</li> <li>▼ August (1)</li> <li>Europe supports Cold Fusion</li> <li>▼ May (2)</li> <li>Where have the billion masks in stock gone?</li> <li>Administrative paperwork at its height</li> </ul> | <ul style="list-style-type: none"> <li>▼ February (1)</li> <li>Book on Cold Fusion at Elsevier</li> <li>▼ 2019 (6)</li> <li>▼ September (5)</li> <li>Friday September 14, 2019: ICCF22 5th day</li> <li>Thursday September 12, 2019: ICCF22 4th day</li> <li>Wednesday September 11, 2019: ICCF22 3rd day</li> <li>Tuesday September 10, 2019: ICCF22 2nd day</li> <li>Monday September 9, 2019: ICCF22 1st day</li> <li>▼ May (1)</li> <li>Roundabouts</li> <li>▼ 2018 (10)</li> <li>▼ December (1)</li> </ul> |
|---|---|

Benjamin franklin  
 ▼ September (1)  
 New website  
 ▼ June (6)  
 Friday June 7, 5th day ICCF21 Fort Collins ...  
 Thursday June 7, 4th day ICC21 Fort Collins Colo ...  
 Wednesday June 6, 3rd day ICCF21, Fort Collins  
 Tuesday June 5, 2nd day ICCF21 Fort Collins Col ...  
 Monday June 4: 1st day ICCF21 Fort Collins Co ...  
 Sunday June 3rd day 0 of ICCF21 at Fort Collins Co ...  
 ...  
 ▼ May (1)  
 An international conference on transmutations ...  
 ▼ April (1)  
 NASA and Global Energy Corporation  
 ...  
 ▼ 2017 (13)  
 ▼ November (1)  
 The AZF accident and the magnetic monopoles  
 ▼ October (3)  
 An old film about cold fusion  
 Priority right in the city  
 Next International Conference on Fusion ...  
 ▼ September (2)  
 Interview on CNews  
 A hard France Culture program on Maria Montessori  
 ▼ June (4)  
 Conference in Asti 4th day  
 Conference in Asti: 3rd day  
 Asti conference: 2nd day  
 Conference in Asti: 1st day  
 ▼ May (1)  
 A little humor on the words  
 ▼ March (1)  
 Response of the European Commission to a question ...  
 ...  
 ▼ January (1)  
 Universal Income: A Utopia?  
 ...  
 ▼ 2016 (16)  
 ▼ October (8)  
 Poster session of Tuesday, October 4  
 Friday October 7, 5th and last day of ICCF20 ...  
 Thursday October 6, 4th day of ICCF20 in Sendai, Japan  
 Wednesday October 5, third day of ICCF20 in Sen ...  
 Tuesday October 4, second day of ICCF20 in Sendai, ...  
 ...  
 Monday October 3, first day of ICCF20 in Sendai, ...  
 Friday September 30: Second and last day of ...  
 Thursday September 29: First day of the Sat ...  
 ▼ September (1)  
 The program of the 20th Conference on Fusion ...  
 ▼ July (1)  
 A report on the work of Melvin Miles on the ...  
 ▼ May (1)

American Defense wants to invest in LENRs  
 ▼ March (3)  
 Cold Fusion in India  
 Report of the symposium on the Cold Fuson of ...  
 First conference in France on Cold Fusion  
 ▼ February (1)  
 An article in "les Echos"  
 ▼ January (1)  
 Two articles to appear in the press on the Fus ...  
 ...  
 ▼ 2015 (17)  
 ▼ December (3)  
 Cold fusion in the online newspaper "Atlantico"  
 The first symposium on Cold Fusion in France ...  
 A first step in the recognition of the Fusion ...  
 ▼ October (1)  
 The Airbus conference on Cold Fusion  
 ▼ August (1)  
 An interview in "The Voice of America"  
 ▼ July (1)  
 Airbus hosts cold fusion conference  
 ▼ May (1)  
 A new video on cold fusion  
 ▼ April (5)  
 ICCF19 in Padua, day 5  
 ICCF19 in Padua, day 4  
 ICCF19 in Padua, day 3  
 ICCF19 in Padua, day2  
 ICCF19 in Padua, day 1.  
 ▼ March (3)  
 NASA is still interested in Cold Fusion  
 An article on cold fusion in the issue of a ...  
 Creation of the French Society of Science Nuc ...  
 ▼ February (1)  
 Lockheed Martin the great aeronautical company and ...  
 ...  
 ▼ January (1)  
 Has there been another nuclear accident in Ukraine?  
 ...  
 ▼ 2014 (15)  
 ▼ December (2)  
 Rossi's experiment has been reproduced by a researcher ...  
 Registrations are open for ICCF19 in Padua ...  
 ▼ October (1)  
 Rossi's report on his reactor  
 ▼ September (2)  
 September 21 international day of peace!  
 Next International Conference on Fusion ...  
 ▼ July (2)  
 Luc Montagnier's video again on Youtube  
 Luc Montagnier on Youtube  
 ▼ June (2)  
 Improve electricity distribution in Europe by ...  
 Luc Montagnier and the memory of water on France  
 5

- ▼ May (1)  
Mats Lewan's book on Rossi and cold fusion
- ▼ April (1)  
Mitsubishi wants to destroy Fukus' radioactivity ...
- ▼ March (1)  
March 23, 1989 - March 23, 2014: 25 years of cold fusion
- ▼ February (2)  
The 25th anniversary of the cold fusion announcement celebrates ...  
The British government questions the fus ...
- ▼ January (1)  
The US government opens the door to ...
- ▼ 2013 (19)
- ▼ December (2)  
Say thank you!  
Teaching in France and Maria's pedagogy ...
- ▼ November (4)  
The blank vote  
Obedience, the worst fault!  
Celebrations of November 11, 1918  
An interview on "radio free"
- ▼ October (1)  
Georges lonchamp
- ▼ September (1)  
School and pedagogy
- ▼ August (3)  
The worst fault is obedience.  
French, English and regional languages.  
On Positive Science: 'Nuclear energy and f ...
- ▼ July (6)  
The ICCF18 Conference: Friday July 26, 5th day.  
The ICCF18 Conference: Thursday July 25, 4th day.  
The ICCF18 Conference: Wednesday July 24, 3rd day.  
The ICCF18 Conference: Tuesday July 23, second d ...  
The ICCF18 Conference: Monday July 22, first day.  
What strategy for the electric car?
- ▼ April (1)  
"Research" series 3rd episode
- ▼ February (1)  
An interview on RFI
- ▼ 2012 (11)
- ▼ December (1)  
A book on cold fusion
- ▼ October (1)  
A film on cold fusion in French
- ▼ September (1)  
Where were our deputies born?
- ▼ August (3)  
The compressed air car  
Conference on Cold Fusion in Daejeon, Korea ...  
Death of Martin Fleischmann

- ▼ July (2)  
Today's youth  
Line up at the post office
- ▼ April (1)  
Cold Fusion in Siena, Italy
- ▼ January (2)  
Residence of deputies  
The nuclear strike force, the great lack of ...
- ▼ 2011 (12)
- ▼ December (1)  
Conditions for generalizing nuclear power in the ...
- ▼ November (1)  
A new source of energy: Cold Fusion?
- ▼ September (1)  
Review of Laude Allègre's book "Should we have little ...
- ▼ August (1)  
Why the euro cannot continue
- ▼ July (1)  
Will we soon be writing "Chinese"?
- ▼ May (1)  
Nuclear power and airships
- ▼ April (1)  
What future for the electric car?
- ▼ March (3)  
A head of state in history?  
Is nuclear power necessary?  
For a taxation of second homes?
- ▼ January (2)  
The miracle  
Conclusion of the Cancun conference
- ▼ 2010 (11)
- ▼ December (1)  
For a Minister of Peace
- ▼ November (1)  
Scientific truth
- ▼ September (1)  
Ordinary violence against children
- ▼ August (1)  
Why ITER?
- ▼ May (1)  
For a consolidation of laws
- ▼ April (3)  
The veil, the law and its consequences  
A chance for France: de-nuclearisation  
Who killed the hydrogen car?
- ▼ March (2)  
Simulation and reality  
French people and stress
- ▼ February (1)  
Normal and average

- ▼ 2009 (22)
- ▼ December (3)
  - Eurostars and humility
  - Global warming and aid to southern countries
  - Let's be afraid
- ▼ November (6)
  - The pessimism of the French
  - From spanking to war
  - Trade-bomb-immigration
  - The collateral benefits of influenza AH1N1
  - Can we all be rich?
  - Integration / standardization
- ▼ October (3)
  - Conference on Cold Fusion in Rome
  - Prem Rawat in Mutzig
  - Study-reward
- ▼ September (2)
  - CAC 40 and Physics
  - The electric or hybrid car?
- ▼ July (7)
  - AH1N1 influenza
  - Climate-energy contribution
  - The price of electricity
  - Why 60 minutes in an hour?
  - What to think of the ITER project?
  - The man on the moon
  - Administration-administrators-administered
- ▼ June (1)
  - Plane crash

## ***Appendix B. Interview Transcripts***

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### ***B1. Transcripts of Interview during Site Visit, October 2022 (Unedited)***

The interview during the site visit was done in five segments.

#### **B1.1 Transcript of First Segment of the Interview**

Thomas Grimshaw: This is Tom Grimshaw, I'm here with Jean-Paul Biberian. It's October the 3rd, 2022, and we're outdoors near his laboratory in the south part of Avignon. His home is just a short half block away, and he's within walking distance of his lab here. The purpose of the interview today is to document or to describe Jean-Paul's adventures in cold fusion.

As I said, Jean-Paul, I think we'll try to do it in a time fashion, but if we find interesting topics as we go along, we'll be prepared to do diversions from the timeline. Having said the date and everything, Jean-Paul, why don't we start with when did you first hear about cold fusion and what did you do about it, and when did you start?

Jean-Paul: I think I heard about cold fusion on March 23, 1989 when the announcement was made. It was really a big thing at that time. Everybody heard about it, and I was amazed. I was ready to go to America, to Utah, to see the guys there. I was thinking about going there. Because for me, it was like this is a revolution that happens only once in your lifetime when you're a scientist.

I was really interested in going there, finding out more, but it was difficult for one thing. Second, I'm not an electrochemist, and their experiment was an electrochemical reaction and I didn't know much about that. It's not my field at all. I hate electrochemistry basically, because it involves chemistry that I don't like, and electricity in addition to that makes life too complicated for me. I like simple things. That's why I like physics. It's simpler.

Anyway, I was not ready to do that. But at that time, it was just at the beginning of the internet age, and we were receiving texts from this guy in Geneva. He was working at the [inaudible 00:02:28] there. His name, I can't remember his name. Maybe it will come back later. And he was sending messages about what's going on.

Thomas Grimshaw: Was that Douglas Morrison?

Jean-Paul: Douglas Morrison, exactly. Yeah. I met him later on. But he was sending messages about what's going on, what's working, what's not working and he was looking at different countries, those who are against in favor and those in favor and everything. Himself, he was against it. But I had the feeling he was paid to discredit cold fusion basically somehow. That's the feeling. Anyway, I was aware of what was going on, couldn't do anything about it.

Thomas Grimshaw: Where did you first hear about it? Do you remember?

Jean-Paul: Where?

Thomas Grimshaw: Did you hear read it in the newspaper or was it from a friend?

Jean-Paul: No, it was not the newspaper. It was in the news.

Thomas Grimshaw: On the news, okay.

Jean-Paul: On the news, yes.

Thomas Grimshaw: Television-

Jean-Paul: Television or radio. I don't remember.

Thomas Grimshaw: Okay, that's fine.

Jean-Paul: And then I remember talking with my boss. His name was Michel [inaudible 00:03:31]. And one day ... I still have the image about cold fusion. He came out of the lab with his hands down, cold fusion is over. That was an image. I still have the image in my head.

Thomas Grimshaw: Of course.

Jean-Paul: He was so happy that cold fusion is dead. Now we can go on with our regular life.

Thomas Grimshaw: Interesting perspective.

Jean-Paul: Yeah, I mean when you want to have a carrier, you don't want things like that to happen that will kill your carrier.

Thomas Grimshaw: Yeah. So let's expand upon that for a moment. We've had this discussion before, but tell me what your thinking is about why people reject Because they have to start over.

Jean-Paul: Yeah, why did they reject it? I mean the killing of the field was very fast. In a few weeks, the field was dead. Right? It doesn't make sense. Too fast. And then if you look at what happened in the past, people tried putting deuterium in metals to make atom bombs. There was attempts in the '40s to do that. It was simple. Because it's complicated to do an H bomb. H bomb is difficult to do. It was really a big challenge. I mean the French had a lot of problem to do it. Nobody thought about using deuteride lithium. They were trying to use deuterium and tritium and not deuteride lithium. So it was really difficult.

So there was this attempt to use hydrogenated [inaudible 00:05:05] materials and [inaudible 00:05:06] uranium. And then I came across some information, two sources. One, the International Atomic Energy Commission in Vienna, Austria, there is a report, I think in 2008, if I remember correctly. There are only three lines. They say that under impact, Uranium UD3 [inaudible 00:05:33]-

Thomas Grimshaw: Deuterated uranium.

Jean-Paul: ... under impact produces neutrons. That's all. This could be used as a trigger for an H bomb. Why not? But then if you look at other information, and I heard about it by other sources, that if you have [inaudible 00:05:56] uranium bombs, they

claim it is just for the penetration capacity of these bombs to penetrate tanks. But that doesn't make sense because when you look at what they use it for, it was used in Iraq. It was used in Lebanon by the Israeli, it was used in Yugoslavia and it was used also in Mali in Africa by the French because they actually used ... If you go on the internet and look for it, deuteride uranium Mali, you find it was in the newspapers there. There's no reason to use this kind of bombs there because they're so powerful bombs. There's no tanks. These guys don't have tanks. They have only cars, four wheel drive cars. That's all they have, pickups. So it doesn't make sense.

So that means they are special bombs, very powerful. So now if you imagine you have UD3 in a uranium environment and then a shock, you produce neutrons. Neutrons react with 238, make deuterium 239 and this has been analyzed different places where they use these bombs, in Iraq especially. They have found plutonium and you cannot have plutonium [inaudible 00:07:16].

So the idea is that if you take [inaudible 00:07:27], you can put one hydrogen or one deuterium [inaudible 00:07:32] maximum, a little bit more, but not much.

Thomas Grimshaw: A one-to-one ratio.

Jean-Paul: One-to-one ratio. If you take titanium, you can put two. That's why titanium is used as a [inaudible 00:07:41] to pump hydrogen. But uranium, you can put three. I mean obviously one day someone will try uranium. It's better than titanium and it's cheaper. It's costs nothing.

Thomas Grimshaw: Depleted uranium.

Jean-Paul: It's free basically. So you can use uranium, but if you use uranium, there is a paper published by a Chinese group. I was the referee of this paper where they did load titanium and uranium with deuterium and they saw the neutrons coming out. So that means that has been done. They didn't ... Probably these people didn't know about the bombs. These are just normal scientists. They don't know all the secrets. So I think everybody in the military everywhere on earth have the capacity of things like that know about that but they don't want us to touch this field. I mean hydrogen in metals.

And then there's something that people don't really realize. If you take a carbon atom, you remove an electron, you have a carbon atom about the same size as a carbon atom, just slightly smaller maybe. But if you take an electron out of hydrogen, you lose four orders of magnitude in dimensions. You have an atom and now you have a particle which is a proton or [inaudible 00:09:09]. So it's completely different. We are not talking about the same thing. An ion of hydrogen is not like any other ion unless you want to remove all the electrons from the ion. But in the normal life, you don't do that.

So putting hydrogen in metals is a new field. It's a field that has not been studied so far. It's changed completely the dimensions here. And this field of cold fusion,, because it's hydrogen in metals especially, I mean now why they were pushing against us, it didn't make sense to be killed so quickly. I mean you can do it if you

send some really powerful people who have top position in the organization. So that's what I did.

And a few years ago, not a few years, 20 years ago now ... Time is passing by so quickly ... There was a meeting at my university and there was this Indian guy, a theoretician who wanted to talk about cold fusion in astronomical things like maybe [inaudible 00:10:18] is happening elsewhere in the universe. So again, we talk about that. And then we had a coffee break at the end. So we started chatting together and he said, "I wanted to write a paper about that but my paper was always rejected." He said, "One day I met the editor-in-chief of the [inaudible 00:10:37] and, after a few whiskeys, he told me, 'We got a call from the state department preventing us to publish this paper.'" I mean this is important and you have to realize that. I mean how would they prevent someone publishing a paper in India? I mean the state department knows that?

You see? I met the guy-

Thomas Grimshaw: Careful watching.

Jean-Paul: I mean they do their job that is controlling the world. That's their job, I don't know who gave them this job. They took it by themselves. I didn't tell them to do that but it's surprising. There was no [inaudible 00:11:18] tell me a story about it.

I met someone who was working for Renault and Renault has a military division.

Thomas Grimshaw: The auto maker, Renault?

Jean-Paul: The auto maker, yeah, French auto maker. And this guy was working in the military section and there's a place between Toulouse and Bordeaux in southwest of France where they do testing of these different arms, bullets, shells, that kind of thing. And he said they had these 10 centimeter shells and there was also 12 millimeter shells and they were shooting these things and they told him it was nuclear and he was supposed to keep this secret but he didn't. And he said after that they were coming with this, I recall that they were dressed with white protective.

Thomas Grimshaw: Protective gear.

Jean-Paul: Yeah. Protective gears to collect these things. So it comes out that there's something going on there that we don't know and they don't want us to know because it's something intermediate between a nuclear bomb and a classical bomb, a small nuclear bomb. And we've seen the descriptions of the explosion in these tanks afterwards. Everything is destroyed inside. It doesn't make sense. Very powerful.

Thomas Grimshaw: Too much.

Jean-Paul: Too much.

Thomas Grimshaw: Too much energy-

Jean-Paul: Too much energy

Thomas Grimshaw: ... released, yeah.

Jean-Paul: So that's a very interesting thing. People have analyzed the soil in Lebanon after that and found plutonium. The same thing in Iraq. And there's absolutely no reason to use them in Africa. There they have no reason. So I think that's why they blocked us so quickly. They've sent some good people, top people. You don't know they're working for whom they're working. I mean they have position, normal position. How do you know if the guy's from the CIA or not? You don't know that. They won't tell you. Yeah.

So that's my position. Why? It's not the economic that is in danger. That's also another issue because any new source of energy will kill somehow the other sources. I mean when the train came out, I mean the other one didn't want horses. How could it compete with a horse?

Thomas Grimshaw: Right. And the automobile in the US.

Jean-Paul: The automobile the same thing. I mean you don't like changes. Nobody want changes.

Thomas Grimshaw: Yeah, we call it the buggy whip syndrome in the US. The buggy whip industry went out of business with the auto disappears

Jean-Paul: Yes, because in your industry it comes, but the same people cannot do both. They are not qualified to do that.

Thomas Grimshaw: Now, I think you started to tell a story about you were visited by a general?

Jean-Paul: I started my first experiments when I was in Berkeley at the Royals Berkeley Lab. Because for three years I couldn't do anything about cold fusion because it's an electrolysis. I have no idea what to do in electrolysis. But I was exchange visitor in Berkeley at that time. In 1992 we went with my family to Berkeley, second visit to Berkeley. And I was working there on software science, which is my field of research, which was my field and still is somehow. I love it. But anyway, I love better cold fusion. That was my field of research there then. And I was living there, but I had to come here to teach in Marseilles which was not very convenient. I had to come back-

Thomas Grimshaw: To keep your position.

Jean-Paul: And that was for two months intensive and then go back. Anyway. And when I went back to France, I met ... Can you hold on a second? I'll see [inaudible 00:15:19]. That's okay.

Thomas Grimshaw: If you need to pause, that's okay. We can do that. Any time something comes up, we can always pause here.

Jean-Paul: I know. So when I was back in Marseilles for teaching, I met a friend of mine, a scientist, and we chat about different things and at one point we talked about cold fusion and at that time talking about cold fusion, we're really talking about which is something really impossible.

Thomas Grimshaw: Well, it had become disgraced-

Jean-Paul: Completely. It was really bad.

Thomas Grimshaw: ... by that time, a pseudoscience.

Jean-Paul: You couldn't mention the word. It was really [inaudible 00:15:57]. So he mentioned to me that there was this engineer in [inaudible 00:16:02] which is where [inaudible 00:16:03] being built. And he said, yes, he has found good results with solid state electrolytes.

So solid state gas phase was more my field than the other one. So this guy, his name is Francis Florent, sent me two samples of this [inaudible 00:16:23] aluminum oxide crystals and I started my experiment there. I got some pretty good results. And when I went back to France in 1994, somehow a friend of mine mentioned it to the local newspaper. And I had a long paper on me on my cold fusion reactor that I brought back from the US that in actually stainless steel tube and at that time it was easier to carry things than today.

And I brought that back and I had my picture on the first page. I could show you, by the way. I have the paper somewhere if I can find it and I'm on the last page of the journal, the newspaper, about that. A few days later, I received a call from the police department in Marseilles actually, the minister of interior inviting me to talk to him.

And there was a general, whose name was Alveo. His name was Alveo and I went to his place. We spent half a day, all morning talking about cold fusion, about [inaudible 00:17:28] and Martin Flashman and [inaudible 00:17:30] everything, things like that. He was wondering why they had the lab there. So we talked a lot. And then after that, the year after, a few months later, there was ICCF-5 in Monaco. And at the Monaco meeting I met the general, General Alveo. He said, "Shh, I am incognito here." And he came in a-

Thomas Grimshaw: You don't know me.

Jean-Paul: You don't know me. You don't know me. So this proves that the field is extremely well monitored by governments everywhere. It's true in Russia, true in France, it's true everywhere. Because they have the same agenda all of them.

Thomas Grimshaw: Yes.

Jean-Paul: They don't want to show what they know.

Thomas Grimshaw: I suppose that the surprising thing is in that scenario that one of them breaks ranks and goes for cold fusion to get the one up on the others.

Jean-Paul: Well, military people want to make arms. They don't care about anything else. They want to kill people the best way they can find, the most efficient.

I was at the ICCF-16 conference in India and after the conference there was a workshop of materials for cold fusion. At this conference, it was a small conference, there were 10 Americans. There are always many Americans at [inaudible 00:19:10] conferences, a few Europeans, a few Brazilians, but 10 Americans and nine were working, were former military people or retired military. Nine of them.

Thomas Grimshaw: That says something in itself.

Jean-Paul: Exactly. So many military people. I think the only one who was not military was Roger [inaudible 00:19:37].

Thomas Grimshaw: Yeah. Okay. It's an interesting thought and in our discussions earlier you'd indicated you don't think it's a conspiracy among these nations. It's just that they have a common interest in subjugating cold fusion in their respective countries.

Jean-Paul: There is no central power that control that. They have the same interest. That's all.

Thomas Grimshaw: Yeah.

Jean-Paul: You see, if you see cars in the streets, they don't hit each other but there's no one brain that control the car flow. Each one's controlling his own car. That's all. That's enough. You don't need to have-

Thomas Grimshaw: Distributed intelligence.

Jean-Paul: You don't need to have one big brain that control every car in the world. You don't need that.

Thomas Grimshaw: That's a very interesting analogy. Yes.

Jean-Paul: Yeah, that's what I think. People think you have a big brain, there's a group of people in the world who's controlling the world. You don't need that. They have special interests, common interests.

Thomas Grimshaw: But it would still seem to me, Jean-Paul, that eventually someone would emerge in one of those kind of positions that said, "This is an opportunity for me and for my country to get a leg up, to get an advantage over all the others." But that has not happened.

Jean-Paul: That has not happened because there are other interests in the middle. People doing nuclear power want to continue doing nuclear power. That's all they know how to do. They're training for that. They don't want to make windmills. They don't know how to make a windmill. People doing solar panels, they don't want something else. They know how to make solar panels. They don't know how to do other things. They don't know how to make a nuclear plant. So everyone has his own interest in keeping things going the way they go. Nobody wants to change.

Thomas Grimshaw: Okay.

Jean-Paul: If you have coal, you don't want to do something else. You only have coal. That's all you have. If you live in Poland, you have plenty of coal. You don't have oil so you use coal. So that's inertia in the system.

Thomas Grimshaw: Yes.

Jean-Paul: It's hard to make changes like a big boat cannot change directions so quickly. It's difficult.

Thomas Grimshaw: I understand. Yeah. It's a disorganized world and, without the central brain, you would think there would be one entity that would say, "The heck with the rest, I'm going to charge ahead and do it."

Jean-Paul: No, you cannot do that because people would react immediately. Look, it's very simple. People are working. If you are a guy, mountain guy, you work in front and people follow you. You cannot push people, you can never push people. When parents say, "I push my children to go to school and study," it never works. I'm sure if you push them, they will stop.

Thomas Grimshaw: Yeah. Just the opposite.

Jean-Paul: The opposite. I mean nobody want to be pushed. You like to follow someone, but you don't want to be pushed. Pushing is very dangerous. I mean you're afraid of falling, especially if you're walking on a cliff and the guy is pushing you. You follow the guy. That's okay but you don't want to be pushed.

So the same thing with the system. You never want to be pushed. It's very difficult to make changes. So unless you are in a big ... That will happen anyway because you cannot stop a technology. It's impossible. You can delay it, you can slow it down but you cannot stop it. It will come. It takes time. People's minds change and slowly, slowly it will happen because you have more and more proof that it works. Not like did [inaudible 00:23:20] make the correct experiments, did the water well mix or not?

But these are questions we don't have anymore because we know. We have done other types of experiments that show it works. We don't want to replicate exactly the same one because you do the same, you will make the same mistake if there is one. So you have to do some somehow differently too to prove it works.

Thomas Grimshaw: There's another point that you made before we started this interview about how the entrenched people in the system don't want to go from the peak of their career to the bottom of the pyramid because they have to learn something completely over again and there are many people ahead of them. Whereas so they go from the top of the heap to the bottom of the heap.

Jean-Paul: There was in France recently ... In France, a lot of MDs are doing homeopathy also but homeopathy is a cheap medicine. It costs \$2 or two Euros to have a medicine. It costs nothing. So the pharmacy industry don't like it at all. It's not expensive enough. So they try to kill it, but a lot of people use it. Even they cure animals with it. And they have [inaudible 00:24:39] that can cure plants with it. Can you believe it? He said it works. But anyway, yeah. So I don't know. They give it to horses, to all kind of animals. It can't be a placebo because animals don't understand that.

So anyway, to make it short, they try to kill homeopathy. Why do they want to kill it? Because if they don't kill it, there are many reasons. One is the pharmaceutical industry. The pharmaceutical industry which is at risk. But even the doctors, they're not paid by the industry but they don't want to lose their position because if they know that homeopathy works better, they have to learn, now go back to school and learn homeopathy. Who wants to do that? If you are 55 or 60 at the end of your career, you don't want to change. So you will-

Thomas Grimshaw: It's a threat.

Jean-Paul: It's a threat. You see, for instance, in France ... I don't know in the US the probably same problem ... You have these high power lines, 400,000 volts, something like that in the air. They could put it in the ground. It's possible, a technology to do this. But people who know how to do it in the air cannot do it in the ground. They're not the same people.

So how would you do it? You have to fire these people, hire new ones. You have to train people following with the helicopter, the lines put them in the ground. So it's difficult to change mentalities.

Thomas Grimshaw: It is, yeah.

Jean-Paul: You don't want to lose a job. So the system can change slowly, but not too fast.

Thomas Grimshaw: Yeah. The comparison you're making with high voltage electricity is very apt because the technology is clearly there in pipelines for gas pipelines and petroleum pipelines, even water pipelines. And today you see Google putting out the fiber, Google fiber in the ground for transmission of information for the internet. So yeah, it's a very interesting question why we don't have high voltage-

Jean-Paul: We don't have it. We could because we have the technology, but it's mentality. I mean the people are not qualified to do that and the companies are not qualified. I mean look at electric cars. Tesla started from brand new ... They didn't know how to make cars, so they made electric cars straight away. I mean they were smart.

They start with top and down slowly, slowly because they know it's expensive. But they did very good. The other car manufacturers, they take a regular car, put batteries instead, normal. I mean they don't know how to make electric cars. They change the engine, put an electric engine instead of a gas engine. It cannot be a good car.

Thomas Grimshaw: Your point is well taken.

Jean-Paul: Remember the first cars, they were horse carriage with an engine. It looked like ... There was no horse. That's all. They put an engine instead.

Thomas Grimshaw: Yeah. The analogy is very clear. Well, it's an interesting proposition that it's neither a conspiracy nor is it just a natural submergence of the field of cold fusion, but rather it's kind of in between where there's a localized submergence or subjugation, I should say, maybe country by country, maybe even at a smaller scale perhaps.

What do you think about the idea that such a subjugation took place in the academic environment as well as for energy reasons and for competition for energy, similar but different pressures in the academic environment as well?

Jean-Paul: Yeah, exactly. Same thing. I mean I show you the image of my [inaudible 00:28:56]. He has to change his research field, go to something more exciting than what he's doing where he's not qualified at all because it's so important. You see, we are quiet. There's nothing going on in cold fusion [inaudible 00:29:19].

Thomas Grimshaw: Well, if you learn something about the trajectory of the events in the first year after March 23rd, 1989, it certainly makes you think that there was something more than just honest science taking place at that time. I've done a fair amount of research on that myself as it relates to public policy and how public policy followed the scientific and technological lead in governments saying, "Well, if these are risky or if it's pseudoscience, then we can't have a public policy to support it." And that's where I began in this field.

Jean-Paul: Look, NASA has been doing cold fusion since 1989. They never stopped. Low level, but still doing it.

Thomas Grimshaw: Low profile.

Jean-Paul: Low profile and they're flying under the radar. For sure. But they're still doing it because they believe it. They need it actually.

Thomas Grimshaw: Well, they need it because they've run out a plutonium for the RPGs.

Jean-Paul: They need it. I mean, to travel to Mars, going to Mars is not that simple. It's a two-year travel. You need the food with the oxygen. You need the energy, you need everything to go there. People think it's easy. It's not easy at all.

Thomas Grimshaw: Solar panels won't do it.

Jean-Paul: Yeah. And I mean most of the satellite they send now in the solar system are nuclear power. [inaudible 00:30:49] are nuclear. Solar panels don't work well. They're not that's powerful.

Thomas Grimshaw: Yeah, I mean people have been investigating cold fusion with the specific aim of replacing RPGs. George Miley comes to mind with his LENUCO although he's kind of gone silent since he became funded by Industrial Heat.

Okay. Well, I think we've had a very good discussion on this topic. We agreed that we would do side issues and talk about politics and politics in the world, politics and science.

Jean-Paul: Why this is difficult, if there was one power, you could talk to but there's nobody you can talk to. To whom can you talk? Nobody. Because there's so many different interests.

Thomas Grimshaw: Yeah. And it seems to me the more centralized the power, the more dangerous. That is my political opinion.

Jean-Paul: That's true. But if there was a central power, we could talk to that power and tell them we should change things but we cannot do because there's not someone like that. They don't exist. It's delocalized at different levels. It's not one level, it's many levels. I mean some people, I talk to ecologists, both in the US and in France, they say, "Oh, that cold fusion is the worst thing that can happen because you will deplete the resources of the earth if you have unlimited energy." You see, nobody wants it. Even ecologists don't want it. I mean it is a clean form of energy, contrary to what you think, they're against it.

Thomas Grimshaw: I see your point.

Jean-Paul: It's amazing. Nobody's in favor basically except the people.

Thomas Grimshaw: Yeah. Yeah.

Jean-Paul: People ask me all the time, "When can I buy a cold fusion reactor?" Not yet. Maybe at the [inaudible 00:32:58] research level.

Thomas Grimshaw: Well, I like to do these segments in 30 minutes, 30-minute pieces and we're now 30 minutes. If it's okay with you, we'll end this session and begin another one when it's convenient.

Jean-Paul: [inaudible 00:33:12].

Thomas Grimshaw: So, as I usually do, I'll end by saying that this is Tom Grimshaw here with Jean-Paul Biberian, and we're talking about his experiences and his views as well on cold fusion and why cold fusion is where it is in the world stage. I should also say that today is October 3rd, 2022. And we're sitting just a few yards away from his home laboratory here in Avignon. So thank you, Jean-Paul, for this session and we'll end here and start another one soon. Thank you.

Jean-Paul: Thank you. [inaudible 00:33:54].

## **B1.2 Transcript of Second Segment of the Interview**

Thomas Grimshaw: Okay, this is Tom Grimshaw. I'm here with Jean-Paul Biberian. We're here at his laboratory, or near his laboratory in Avignon, very close to his home. If I didn't already, I should say it's October 3rd, 2022. And we're talking about Jean-Paul's experiences and viewpoints on the field of cold fusion, which he's been involved with going back almost to the beginning, back to about 1993 or 1994.

So Jean-Paul, we were saying we were going to do a timeline and then take excursions into interesting side event or side topics. But let's go back to the timeline now. You did your initial work while you were at Berkeley National Laboratory in Berkeley, California. You did your initial experiments there. Can you pick up the thread at that point and what happened after that?

Jean-Paul Biberian: Yeah. Actually, Francis [inaudible 00:01:07] sent me these two samples of [inaudible 00:01:09] Aluminum oxides, so I... I mean the Gabor Somojai's lab is a big lab. There are maybe 20 or 30 people working there full time. So it's a big lab. He comes every day. Just make a tour of every student, every scientist there. So I could do about anything I wanted. I knew the lab because I worked there before. So I managed to build my own small reactor with my solid state electrolyte. There was deuterium, there was Hydrogen, there was everything available. So I made the system. At that time I had no computer to collect the data, but I had two children, my son and my daughter. So one was reading the voltage, the other one the current and one writing down the numbers. That's how I did my first experiment. [inaudible 00:02:01]

Thomas Grimshaw: And that was in Berkeley?

- Jean-Paul Biberian: In Berkeley, at The Lawrence Berkeley Laboratory National Laboratory.
- Thomas Grimshaw: Very interesting. Yep.
- Jean-Paul Biberian: And this is historical things. Maybe you cannot do that anymore. I don't know. That was 30 years ago.
- Thomas Grimshaw: Well, yeah, talk to Ed Storms about the fate of the national laboratories. That's a different story altogether.
- Jean-Paul Biberian: This is a place where they prevent you to have more than 100 grams of chlorinated materials, so you cannot have salt more than 100 grams. They make laws sometimes that are completely stupid. I don't know who does that. Anyway, at that time, at the LBN, life was easy. So I did my first experiments, took my sample, put two electrodes and used tan tantalum because tantalum is a good conductor. It's low in Hydrogen also, so that was good. I put the small register below, put the [inaudible 00:03:03], put power in. [inaudible 00:03:05], I mean I did the whole thing and I got excess heat when I put deuterium, no excess heat when I put Hydrogen. So I tried to publish that.
- So I wrote a paper. I sent it to Physics Letters A, which was the head of this... the editor in chief of this journal was Jean Pierre Vigier, who is a theoretician who almost worked for Einstein. So he was [inaudible 00:03:32] at that time, I tell you. Actually was a communist. And I don't think that was easy to go to the US at that time to work with Einstein. Anyway, he was the editor in chief. He was believing in cold fusion. And his idea, his model was kind of strange. He was thinking of something. Actually nobody came back to this model. If you take the one electron and two deuterium [inaudible 00:04:00, symmetric, like a wheel, so the two deuterium as much are heavy. So they will rotate very close to the electrode. So that's why by both screening and tunneling you could have fusion. That was his idea. I don't know how you can make it.
- Thomas Grimshaw: So the larger particles were revolving around the electrons.
- Jean-Paul Biberian: Yeah, which is very light, but it has to be very symmetrical if you want it to work. Otherwise it would just collapse. But he is right. If it is symmetric, it would be like a wheel.
- Thomas Grimshaw: Yeah. Very interesting. Okay.
- Jean-Paul Biberian: That was his idea and well it makes sense somehow, if you can make it. I don't if possible [inaudible 00:04:45] that to be made by itself.
- Thomas Grimshaw: Conceptually it makes sense.
- Jean-Paul Biberian: Conceptually it makes sense. I don't know if it really works. Anyway, he was accepting papers on cold fusion. When I sent my paper regarding this solid state electrolytes, he sent the paper to Jacques' [inaudible 00:05:01] Grand Noble, who was working at the Atomic and Energy Commission in Grand Noble. I mean, why did he send it to him? Because he had done the same experiment that [inaudible 00:05:13] was talking about in his laboratory before.

So he was the right referee for this paper. And [inaudible 00:05:21] had done the experiments, not the way I've done it. He had taken a tubular oval plus [inaudible 00:05:32] . He used a large size of crystal, put two electrode, put power and everything. And he made, according to him, it was negative results. But [inaudible 00:05:43] thought it was positive. Same results interpreted differently.

Thomas Grimshaw: Okay.

Jean-Paul Biberian: One say there was nothing, one say there was something wrong. So when he heard about my work, he didn't believe into it because he had done the experiment before. So he said, "Come to my lab and let's do the experiment together." This is the first time I see a referee doing the experiment by himself.

Thomas Grimshaw: Yeah, that's a little different.

Jean-Paul Biberian: Usually this is, the paper is not good. That's all. This guy, or at best they try to improve your paper. That time he wanted to do the experiments. So I brought my-

Thomas Grimshaw: Perhaps he had the agenda to prove you wrong.

Jean-Paul Biberian: No, he wanted to make sure.

Thomas Grimshaw: Yeah?

Jean-Paul Biberian: He was open-minded person. So I went there with my reactor. He didn't like my design. So he made a better design and we did experiment together and we found some excess heat. Not as much as I measured, but we found some. We even tried to measure neutrons. We find a few neutrons but not very many. One day while the experiment was running, it was actually a [inaudible 00:06:54] tube, 35 millimeter in diameter with a window where the fourth window, glass window, I don't remember. So you could see what was happening inside. I never mentioned that before to you. And then at one point the crystal become like red hot. It was not hot.

So just lights coming up like an LED. We are really afraid that what's happening. Because we are putting lot of voltage, like 200 volts through this crystal at high temperature. And we saw this light coming out. So I took a Polaroid film with a black color, plastic paper cover, put it in front and I opened it. There were white races, some kind of x-rays coming out. That's why I believe in X-rays. Those were more powerful because they had to go through the glass. I still have it. That Film here. You can take a picture. That was very, very interesting. I never mentioned that actually in any paper.

Thomas Grimshaw: Yeah. Good. Well-

Jean-Paul Biberian: Something is going on. I mean infrared is great. They don't make infrared anymore. I loved infrared because you can immediately see the result that will go to lab.

Thomas Grimshaw: Yeah, yeah.

Jean-Paul Biberian: And you can see x-rays with infrared, same thing as with regular light. But it was with a black cover, so couldn't be light. It was something coming out.

Thomas Grimshaw: Soft x-rays.

Jean-Paul Biberian: Soft x-rays.

Thomas Grimshaw: Yeah.

Jean-Paul Biberian: But not too soft because it goes through the glass. But the plastic is very transparent of soft X-rays.

Thomas Grimshaw: Yeah.

Jean-Paul Biberian: It's not like metal.

Thomas Grimshaw: So you've never forgotten that idea?

Jean-Paul Biberian: No, I never forgot it.

Thomas Grimshaw: Yeah.

Jean-Paul Biberian: But I wish I could redo that one.

Thomas Grimshaw: Yeah.

Jean-Paul Biberian: So we have seen things that are really abnormal. So we published these papers, this work at the ICCF 5 conference showing that it was giving excess heat and a few neutrals. Very few neutrals. Very, very few. Yeah. Just slightly above the background. It was clearly there.

Thomas Grimshaw: Above background.

Jean-Paul Biberian: Above background.

Thomas Grimshaw: Significantly enough.

Jean-Paul Biberian: Yeah. So when people say, do you believe in cold fusion? I don't believe in cold fusion. I have seen cold fusion. I don't need to believe. It's not a belief. I've done many experiments, different types of experiments.

Thomas Grimshaw: Based on evidence.

Jean-Paul Biberian: I've seen it for my own eyes. You see? it's not like someone told me. You see there is a simple rule. Theoreticians believe in their theory, their own theory. They don't believe in the other theories. But experimentalists have always doubts about their experiments. But the other people believe in their experiments.

Thomas Grimshaw: That's a twist of fate.

Jean-Paul Biberian: Yeah, because you are doing experiment then maybe there are errors somewhere. Maybe you didn't see that. But the other people don't know the details that you missed the communication.

Thomas Grimshaw: They don't know where the rabbit holes are.

Jean-Paul Biberian: They don't know. Yeah. Exactly. Yeah. It's very often the case.

Thomas Grimshaw: That's an interesting observation. Yes.

Jean-Paul Biberian: I like observation. I like seeing people working by two, they have to synchronize their phase when they work. Sometimes in phase and sometimes out of phase. Most of the time in phase, but sometimes out of phase.

Thomas Grimshaw: What's going on about that?

Jean-Paul Biberian: The work because they don't touch each other when they are in phase. Because they communicate somehow they talk to each other. They have to talk to work in the same rhythm.

Thomas Grimshaw: Yeah.

Jean-Paul Biberian: It's automatic. You don't need to do anything. It happens.

Thomas Grimshaw: Yeah. There are other [inaudible 00:10:33] like that.

Jean-Paul Biberian: I love watching it. And sometimes you see two girls, the same dress.

Thomas Grimshaw: Yeah.

Jean-Paul Biberian: Good friends they buy don't realize they're dressed the same.

Thomas Grimshaw: Yep, yep.

Jean-Paul Biberian: Anyway. Yeah.

Thomas Grimshaw: Forces we don't understand. But okay, so you started [inaudible 00:10:50]

Jean-Paul Biberian: So I started the experiment there with [inaudible 00:10:54] and [inaudible 00:10:54] was doing [inaudible 00:10:56] type experiments. He had a good relationship with Martin Freshman. Martin Freshman gave him two cells. He carries two cells with the electrodes and everything so they could repeat the experiments. So he was excellent experimentalist. So I started working with him, not only the solid state electrodes we were doing. This my solid state x-rays experiments plus electrolysis. That's how I learned electrolysis.

Thomas Grimshaw: Kicking and screaming.

Jean-Paul Biberian: Because that's so complicated. But I started really on the experiment, not on paper. I learned a lot about that. So now I understand. I'm still not qualified, but I understand better. And we've done experiments. We had some positive results, but not as good as what they got. That was the problem. We had some, but it was not significant. At one point I said to [inaudible 00:11:59] I said, "Why don't we reverse anions and cations?" So that would be a blank. It would not work the other around. So we reversed it. We never had as much heat as that time. That was more than ever. Never published that.

Thomas Grimshaw: Yeah. That's hard to explain.

Jean-Paul Biberian: Maybe it was some chemical reactions, I don't know. But maybe Platinum is active also.

Thomas Grimshaw: I've heard of other experiments.

Jean-Paul Biberian: Yeah, I think Platinum is active so we never know. Maybe there's some Palladium in Platinum or Platinum can absorb some Hydrogen [inaudible 00:12:35] . I don't know. Anyway, we have seen something positive there.

Thomas Grimshaw: Do you still have that information? Maybe write up a paper.

Jean-Paul Biberian: I don't remember all the details. I don't have the data.

Thomas Grimshaw: Because sometimes these serendipitous experiments turn out the opposite of what you expect.

Jean-Paul Biberian: Recently. Let's go to 2022.

Thomas Grimshaw: Okay.

Jean-Paul Biberian: I've done experiments with nickel, pure nickel in matrix of Aluminum, Aluminum oxide matrix.

Thomas Grimshaw: Nano particles.

Jean-Paul Biberian: Nano particles.

Thomas Grimshaw: Suspended in the-

Jean-Paul Biberian: Just like a cake. You know where raisins-

Thomas Grimshaw: Raisin in a cake. Yeah,

Jean-Paul Biberian: Exactly the same. So they don't touch. So they were not simple. Got the idea?

Thomas Grimshaw: Yep.

Jean-Paul Biberian: I mean I don't know if that's the idea. Maybe the interface between the oxide and [inaudible 00:13:28] is important. Who knows, other the cracks or whatever.

Thomas Grimshaw: Yeah.

Jean-Paul Biberian: You don't know. You have an idea, but there are other things happening. Anyway, I ran this experiment, got some excess heat again and then I analyze it on the microscope, electron microscope and I saw copper and there was no copper.

Thomas Grimshaw: Oh you had EDFs on the SCM. You saw copper?

Jean-Paul Biberian: Copper. There was no copper to start with. And copper is just next to nickel on the table, on the chart. And if you add a proton to a nickel, you get a copper. Then we did some mass spectroscopy experiments on this powder. And the copper was close to natural. Then we did the mistake with the [inaudible 00:14:24]. I mean then I calculated the energy per copper, because there was like 1 or 2% copper. Which is a lot.

Thomas Grimshaw: Wow. That is a lot.

Jean-Paul Biberian: Too much. I mean I was not expecting copper at first, because there was much enough energy to make copper. But then you find something like 10 kilo electron [inaudible 00:14:31] copper, which is too far from a nuclear reaction. But then there are theories, other people and I [inaudible 00:14:40] has this idea that negative Hydrogen looks like an electron. Negative Hydrogen. It's like an electron

for the nucleus. So this negative Hydrogen can go inside the electron shell very near the nucleus because it's so much heavier than the electron. 4,000 times heavier than [inaudible 00:15:07] what you have. Depends what you have.

Thomas Grimshaw: But it is attracted to the-

Jean-Paul Biberian: It's attracted but you not touch to be around. It'll have the mass of the copper because of [inaudible 00:15:19] . But it's not in the nucleus. So it's just something which is not chemical, which is not nuclear. Something else.

Thomas Grimshaw: Yes. Well I'd never heard of a negative Hydrogen before.

Jean-Paul Biberian: That's [inaudible 00:15:33] theory.

Thomas Grimshaw: Can you describe what that is? I mean as a proton with a negative charge?

Jean-Paul Biberian: No, no. No. Hydrogen is neutral. Now if you put a second electron on the Hydrogen atom, you have H minus.

Thomas Grimshaw: Okay.

Jean-Paul Biberian: H minus now is negative. The exact charge, the charge of an electron.

Thomas Grimshaw: Sure.

Jean-Paul Biberian: The mass is much higher. So if Hydrogen much higher, it'll rotate much closer to the nickels. It will spin around the nickels but much, much closer.

Thomas Grimshaw: Yeah.

Jean-Paul Biberian: 2000 times closer than the first elections.

Thomas Grimshaw: Interesting.

Jean-Paul Biberian: So the mass of the whole thing would be like the copper. Yeah, it will look like copper. But the taste of copper is not copper. And the energy will not be one [inaudible 00:16:24], but a few kilo electron volts. So my question was should I publish a result like that? I said yes, I should publish it because maybe one day people realize that was what we are looking at is not nuclear reaction, it's something else. And we the first to have shown it.

Thomas Grimshaw: But there's risk.

Jean-Paul Biberian: There's no risk. No, no. Because I will publish it saying that it is probably contamination but I have no idea where the contamination comes from.

Thomas Grimshaw: Okay. Safe pay.

Jean-Paul Biberian: Yeah, exactly. [inaudible 00:16:57]. It's probably contamination, but maybe not. Then something else. You see what I mean?

Thomas Grimshaw: Of course. Yeah.

Jean-Paul Biberian: It's very important to publish things [inaudible 00:17:11] because I could say he was, which [inaudible 00:17:14] not correct.

Thomas Grimshaw: Yeah.

Jean-Paul Biberian: Contamination that unknown origin contamination.

Thomas Grimshaw: But here it is.

Jean-Paul Biberian: Here it is.

Thomas Grimshaw: Yeah, I get that. Yeah.

Jean-Paul Biberian: You see, I have to repeat the experiments anyway, but you see the idea behind it.

Thomas Grimshaw: Sure. I didn't, I was unaware, credited to my ignorance of the extra electron.

Jean-Paul Biberian: Of the Hydrogen.

Thomas Grimshaw: Of the Hydrogen.

Jean-Paul Biberian: You see when people talk, you have two attitudes. Either you reject immediately what he says or you listen to the person. Maybe there's something right there.

Thomas Grimshaw: Yeah.

Jean-Paul Biberian: Some people come to my lab, know nothing about science. They tell me things that are obviously stupid. But sometimes what they say could be interesting anyway.

Thomas Grimshaw: Yeah.

Jean-Paul Biberian: You know it give me an opening. Something I never thought of because these people are completely out of the field of cultivation. They don't know anything about science, but maybe they would give me an idea. So you have to spend time to listen to them and not reject them right away.

Thomas Grimshaw: Yeah.

Jean-Paul Biberian: It's easy to reject.

Thomas Grimshaw: In English. It's from the mouth of babes. Yeah.

Jean-Paul Biberian: Absolutely. I am the editor in chief of this job and sometimes the papers people send me should be rejected. But my opinion is we should not reject. I mean sometimes you have to reject them, very rarely, but try to improve the paper. And some of the referees, sorry, are very good at that. They bring information, that paper be better.

Thomas Grimshaw: Yeah.

Jean-Paul Biberian: I have one that I like a lot. [inaudible 00:19:00] to them more, I mean quite a few. So like Peter [inaudible 00:19:05]. You send in the paper and the comments are five pages long with all the calculations we made. I don't believe in this theory, but if you make it correctly it should be like this.

Thomas Grimshaw: He's willing to do that. Yes. He's honest, intellectually honest.

Jean-Paul Biberian: And he spends a lot of time to do this because he does all the calculations, all the references, which paper should be read. You should look at that and that. This is positive attitude and I think that's the best way to do things. And if the experiment isn't very well done, tell them what to do. What measurement should

be done. How do you do present the data? I mean to improve the paper, not to kill the paper.

Thomas Grimshaw: Yeah. I mean I think it's okay to point out where the issues are without killing it. Say, well have you considered this problem or that problem?

Jean-Paul Biberian: Absolutely.

Thomas Grimshaw: Without saying you idiot.

Jean-Paul Biberian: You idiot, yeah. Who's the idiot? I wonder sometimes.

Thomas Grimshaw: There was a recent paper published using evidence. What is evidence from some investigators in Brazil and they published in the Journal of Electoral Analytical Chemistry. And for some reason, The Journal of Analytical Chemistry asked me to be a peer reviewer. And so I did and I mean, because I had published with Ed Storms a paper in 2010 in JCMNS. I think it was a second volume or something like that on using the criteria for science versus pseudoscience from three different sources as maybe that's why I got picked, I don't know.

But I did just that. On the face of it, I wasn't too attracted to their case that they were making. But I took the time to point out what the skeptics really what the skeptics were going to say and how they were going to be attacked.

Jean-Paul Biberian: Absolutely.

Thomas Grimshaw: Yeah. And I pointed them to that old paper 12 years ago and the paper came out and it was quite well received. Rothwell liked it. So I was privileged to have that opportunity.

Jean-Paul Biberian: Good. Yeah.

Thomas Grimshaw: Okay, well let's stay the course just a bit. You were... back to [inaudible 00:21:38]

Jean-Paul Biberian: [inaudible 00:21:38] was a great person. I loved him. He died unfortunately a few years ago and he was working at the French [inaudible 00:21:51] Commission. Actually he was the one who developed the technology to separate Lithium 6 from Lithium 7 in extra chemical ways. Because for military application you need Lithium six for the bomb.

And that was expensive, finding a way to do it that was cheap. Then as he was good at that, there was someone developing technology, a similar technology by chemistry to separate 235 to from 238. So he worked for 20 years on that. Separating 235 to 238. And first they thought this technology will not allow you to make bombs. And they realized later on that it was possible. Something that was [inaudible 00:22:38] and then-

Thomas Grimshaw: A chemical rather than the centrifuge method of separation.

Jean-Paul Biberian: It worked. He did it. He had the system working, but then they went to large scale and they couldn't make it.

But he did it. He was very good at that. He's good chemist, very conscientious. He was working 24 hours a day to make the thing work. He's a hard worker. And then

there was this idea of separating radio with lasers. IV fine tuned lasers that excite 235 instead of 238.

And the people in control of the field of nuclear science in France as well as in other countries are physicists, not chemists. So they don't understand this chemistry system, but they'd understand lasers. That they understand. So they switched, they abandoned that and they went to laser. It actually never worked. So it's never been used anyway. But [inaudible 00:23:37] was good at that.

So when cold fusion came up in 1989, these electrochemists, they wanted to do experiments. So they started doing things, but the head of the French Atomic Commission was forbidden to do anything with cold fusion. Nobody could do anything. And even in your free time you cannot do it. But he was lucky enough to have friend at the university and the guy said, "Okay, come, there's a room for you. You can do your experiment there." So he took all these equipment, brought it there.

Thomas Grimshaw: Interesting.

Jean-Paul Biberian: And I started working there. So he had his lab and he did all these experiments. Even though he was working at the, he was working during the day at the Atomic Energy Commission doing batteries. And then he was working at night to do cold fusion.

Thomas Grimshaw: On the sly.

Jean-Paul Biberian: On the sly. I mean this is really someone very interesting. He's not a scientist. An engineer. So he is with [inaudible 00:24:46]. He's the only one who was depicting exactly concentrational experiments. There are only two people. [inaudible 00:24:57] the others have done something different.

Thomas Grimshaw: Yeah. Interesting. So was he successful?

Jean-Paul Biberian: He was party successful and I was there, I mean doing the measurement. I know. I did it with him. So we were seeing excess heat, but not as much as [inaudible 00:25:16]. Then we went to the boil off experiment, famous work. And that was a nightmare because when you said boiling drops of water can go out.

Thomas Grimshaw: And carry energy.

Jean-Paul Biberian: [inaudible 00:25:33] And you think it's vapor, but it's not vapor, it's water. Then you calculating [inaudible 00:25:38] water. And Freshman was telling [inaudible 00:25:43] that his cells were not clean and there was soap in it. That's why it make bubbles. We never-

Thomas Grimshaw: That's pretty fundamental.

Jean-Paul Biberian: So I don't know. We didn't clean it with soap anyway. We never managed to have something clean enough to make sure there was not some droplets of water coming out.

Thomas Grimshaw: Yeah.

Jean-Paul Biberian: It's hard to make sure the vapor is dry or not dry. I mean it's not something simple. You don't see it. See, you could see it because if you see the vapor they think they're droplets.

Thomas Grimshaw: Yeah.

Jean-Paul Biberian: If there's no droplet, there's no water. You don't see it. You don't see the vapor when it's dry, you see the vapor only when there's droplets.

Thomas Grimshaw: Yeah. But it might be wet but without vapor. I suppose if the droplets are small.

Jean-Paul Biberian: Oh they can go out. Your calculations are wrong because you can't create the energy of vaporization of water.

Thomas Grimshaw: Yeah.

Jean-Paul Biberian: You didn't vaporize the water.

Thomas Grimshaw: Right.

Jean-Paul Biberian: So you make big mistakes.

Thomas Grimshaw: Yep.

Jean-Paul Biberian: That's what Rossi did. His measurements were completely incorrect. He was having [inaudible 00:26:48] paper coming out. The paper was not dry. So your calculations are completely wrong.

Thomas Grimshaw: That's very interesting. I was not aware of that.

Jean-Paul Biberian: People don't know that because most people don't think about, they have not done the experiments themselves. I've done it. I know. I don't know by reading a book. I know by doing the experiment.

Thomas Grimshaw: Yeah. Hard-

Jean-Paul Biberian: I've learned it the hard way.

Thomas Grimshaw: The school of hard knocks.

Jean-Paul Biberian: That's how you learn really. I mean, yeah.

Thomas Grimshaw: Okay.

Jean-Paul Biberian: So it's a big, it's not as simple as you think watching vapor coming out. No. Anyway. So we did experiment with him and then he retired. He had to retire.

Thomas Grimshaw: He had to retire.

Jean-Paul Biberian: Yeah.

Thomas Grimshaw: Did you convince him of cold fusion in the end? Or did he become a believer?

Jean-Paul Biberian: Let's say, I think he believed in it but he didn't feel that he had it in his hand. Really.

Thomas Grimshaw: Well it's one thing to believe it exists without really knowing why or how. Yeah. To say that it's possible.

Jean-Paul Biberian: We have done many type of things. We have even done something that nobody else has done. Took a one millimeter cathode, put it in the nuclear reactor under neutral flux to make vacancies and see if the level of vacancies helps. But you put the nuclear reactor, then it's activated. So you have to wait for another year before it comes down. So after one year, two years later, we could do the experiment, but we didn't see anything significant. Maybe there's something else. One experiment I have done at ICCF 7 in Canada.

Thomas Grimshaw: Vancouver.

Jean-Paul Biberian: Vancouver. A guy came and said we should use Gold anodes. Gold anodes, why Gold anodes? When I came back to the lab, let me try Gold anodes. It seems stupid to him. He said it's better. So I took a Gold wire, made Gold anodes, ran an experiment. I said he carries two experiments. And after a little while, I don't remember how long exactly, it stopped. I opened the cell. There was no more Gold anodes. It was completely etched by the reaction. Anodic Gold his completely disappeared. It's oxidized.

Thomas Grimshaw: Wow.

Jean-Paul Biberian: But when I saw there was a Gold deposit on the cathodes, Gold plated.

Thomas Grimshaw: That's interesting.

Jean-Paul Biberian: That's interesting. So [inaudible 00:29:30]. So later on I thought about it. I went this Gold plated, [inaudible 00:29:38] might be interesting. Let me run it with a Platinum anode. So I used Platinum, regular Platinum anodes. Took this cathodes, Gold plated cathodes, ran a boil off experiment. My God, it went so fast that I didn't have time to do the measurements. Usually it takes hours, like minutes.

Thomas Grimshaw: Okay.

Jean-Paul Biberian: That they go away. Why do you think, why plate is interesting? I have to explain something about it.

Thomas Grimshaw: Yeah.

Jean-Paul Biberian: These are things I never said, I never mentioned anywhere. You see when you have electrolysis, you break your Hydrogen molecule to atoms and the atoms go inside the pallidium and they become an ion particle. When they come out, they come out and they get an electron. Become an atom at the surface, find another atom, make a molecule and get out.

It has to make a molecule to go out. Now if you have a layer of Gold on top, when you do the dissociation, because the good thing with electrolysis that you don't have an app, you directly make a product. You don't have to disassociate the molecule. There's no molecule. Water molecule. H<sub>2</sub>O is H plus, [inaudible 00:31:10] H plus. So the Hydrogen goes through the Gold layer, which is pallidium. It goes inside the pallidium. Gold will not keep Hydrogen. Maybe a little bit. So it will go inside. Now when he comes out, now he's at the interface between the pallidium and the Gold. So he cannot make the molecule. There's no room. So he's stuck.

That way you can load more inside the pallium because it cannot get out. It's kind of a diet for Hydrogen.

Thomas Grimshaw: Yeah and I've heard of mercury being used.

Jean-Paul Biberian: Could use, many Mercury would work.

Thomas Grimshaw: Yeah.

Jean-Paul Biberian: So it goes in, can't get out. And Gold is simple. So that explained why I had so much excess heat. I mean this experiment really, I didn't have time to do the measurement. It went so fast.

Thomas Grimshaw: Interesting.

Jean-Paul Biberian: I mean it's something I cannot publish because there's no data. No recording, nothing. I can't publish the story.

Thomas Grimshaw: Well you need to become a theorist.

Jean-Paul Biberian: No, but the experiment was interesting. So later I tried doing deposits of Gold to repeat the experiment. Never manage to do well as that one.

Thomas Grimshaw: That's too bad. [inaudible 00:32:25] won't repeat.

Jean-Paul Biberian: No, but I believe into this interface problem.

Thomas Grimshaw: Yeah.

Jean-Paul Biberian: And I also believe that [inaudible 00:32:35] because and [inaudible 00:32:38] mentioned a lot about what he did is pallidium [inaudible 00:32:42] melt layers. He was talking about this electron, what did he call it? A lot of electron and interface. So this electrons can be used for [inaudible 00:32:54]

Thomas Grimshaw: Okay. Free electrons. Yeah.

Jean-Paul Biberian: Like swimming electrons.

Thomas Grimshaw: Yeah.

Jean-Paul Biberian: So probably there are plenty of electrons at interface and you need electrons for the screening. So these electrons could come from metals or could come from oxides. Could come in my solid state electrolytes, we do that by making purposely Lanthanum Aluminum oxide. I mean we put less Lanthanum. So Lanthanum has a valency of three. Well why we like Lanthanum Aluminum oxide? Because Lanthanum has three valency, Aluminum also. Some metals can change valency. 2, 3, 4 depending on the metals. But Lanthanum and Aluminum, both are only valency of three.

So when you remove Lanthanum, you could put three Hydrogen instead or more maybe. So that's when you have this vacancies, you can have locally a lot of Hydrogen there, a lot of electron [inaudible 00:34:01] oxide. And if you have some dynamics because you're putting your current, then you flow things. So there's dynamics, there's location in buckets. That's why I am pretty much in favor of vacancies.

Maybe cracks, but I don't know. Cracks. I always had discussion with [inaudible 00:34:20]. I mean how wide is this crack? He never used to give you numbers.

Thomas Grimshaw:

No. One nanometer.

Jean-Paul Biberian:

One nanometer is huge because one nanometer, it's like two surfaces.

Thomas Grimshaw:

Yeah. Well that's part of your story. They both have a negative charge. Both surfaces have electrons. Like all surfaces do.

Jean-Paul Biberian:

Yeah. But then it's not a crack. If you don't care. the crack or surface is good enough. So you need a crack because at the bottom of the crack is like a valley. And the Hydrogen will be lined up.

Thomas Grimshaw:

That's his old theory. Now he says gap.

Jean-Paul Biberian:

Gap.

Thomas Grimshaw:

Gap. And the protons are protons or deuterons are suspended between the positive surfaces of the gap. They're suspended in there and then there's excess electrons to negate the cool on barrier. And then there's fusion or tunneling.

Jean-Paul Biberian:

Yeah, okay, I understand that. But now I've been, I work in [inaudible 00:35:29] science for many years. Should something, if you go either one side or the other side, you do not say in between. Because one nanometer is huge for an atom. it's three times the size of the atom. So it would not float in between. It will go on one side or the other.

Thomas Grimshaw:

Oh, I see. It won't stay suspended,

Jean-Paul Biberian:

It won't stay in the middle. It's just like two magnets. If you put the metal ball, it will go one side or the other, depending where you put it. It will not stay there. So it likes to be on the surface. That where lower energy is. So that's why I don't believe, I have always problem with that, [inaudible 00:36:05] about that.

Thomas Grimshaw:

Yeah. So because of that problem, you favor more and because of your work with the Lanthanum Aluminum crystals that you favor Vacancies? Vacancies [inaudible 00:36:18] square-

Jean-Paul Biberian:

I believe in vacancies. I believe in X-rays because I've seen them. It's not coming out of my head.

Thomas Grimshaw:

Yeah, yeah.

Jean-Paul Biberian:

It come from experiments.

Thomas Grimshaw:

Okay.

Jean-Paul Biberian:

I have seen vacancies and I've seen X-rays. So probably the energy comes out of x-rays. There was-

Thomas Grimshaw:

As photons, not as-

Jean-Paul Biberian:

Photons. Yeah. Not like particles.

Thomas Grimshaw:

Not as particles.

Jean-Paul Biberian: And that makes sense because in chemistry that's what you have. People, we never think about that. We have chemical reaction. Do you have a photon coming out with the energy of the reaction? No, you have heat and heat is [inaudible 00:36:59]

Thomas Grimshaw: Heat is just vibration.

Jean-Paul Biberian: Vibration. But where do vibration come from? Okay, if you listen to Peter, like I said, Peter would say it's photons.

Thomas Grimshaw: Yeah.

Jean-Paul Biberian: But maybe it's not photons. Maybe. I think it's soft x-rays. I want to prove it soon.

Thomas Grimshaw: Good.

Jean-Paul Biberian: [inaudible 00:37:16].

Thomas Grimshaw: The sooner the better. Here we are at 37 minutes.

Jean-Paul Biberian: Okay. We should stop.

Thomas Grimshaw: So yeah, let's take a break.

Jean-Paul Biberian: Okay.

Thomas Grimshaw: Biological break if need be. In my case.

Jean-Paul Biberian: Yeah, we can go to your house actually.

Thomas Grimshaw: And so in this, by saying again that this is Tom Grimshaw, I'm here with Jean Paul Biberian. It's October 3rd, 2022. And we're located very close to his laboratory here in Avignon. And we're talking about his opinions and his experiences in the wonderful field of cold fusion. Thank you Jean Paul,

Jean-Paul Biberian: Okay, let's go home.

### **B1.3 Transcript of Third Segment of the Interview**

Thomas Grimshaw: Okay, this is Tom Grimshaw here for the third session with Jean-Paul Biberian talking about his cold fusion experiences and observations. I should say, that we're at within his home now in Avion. And it's October 3rd, 2022. So Jean-Paul, as I said, this is the third session and I took pictures of several of your experiments in your laboratory. But tell us about the one with the rotating magnets please.

Jean-Paul Biberian: Okay. I think it was 2011 that Rossi came up with his design.

Thomas Grimshaw: Correct.

Jean-Paul Biberian: And Rossi were using nickel powders.

Thomas Grimshaw: Yeah. This is Andrea Rossi and he was working in Italy at the time, I can't remember the town, the city, it doesn't matter.

Jean-Paul Biberian: Doesn't matter. Anyway, was claiming he was getting a lot of excess heat. I mean people, the field we're talking about watts, or milli watts. He was talking about

kilowatts and his design, was it powder, nickel powder, in give too many detail on the powder itself. But he did with the wire. But he was using not DC wire, he wasn't using DC current, he was using AC, but pulse AC. So the current was very high. So it was certainly producing some magnetic field. So I had two friends that I knew from before and he told me if there is a magnetic field, we should create a magnetic field with magnets so that we don't have, we can separate the heating from the magnet. Because in Rossi's design, the magnetic field was created by heating at the same time. So it come from choosing separate, you need separated two factors.

So we designed an experiment with magnet, rotating magnets. My two friends did that in their home. First design was made of wood. It was wood rolled with magnets around, powerful magnets. So we took a test tube, put a heating wire around the test tube, put the powder. We went to put some powders and then we were looking for powders. We couldn't find any good powder. The first experiment was done. We thought that people making batteries, nickel-metal hydride batteries are using some alloys of nickels that load a lot of hydrogen. So if we can take a loaded battery, cut it open, take the cathode, then we have highly loaded material. So the first experiment we manage, my friend did it, cut it, manage to take the grid, takes small grid, a mesh of nickel with some other additives that we don't have the details of, and we put it in our system, heated it while the magnet were rotating and all of a sudden at a certain given temperature, the temperature went up suddenly very high.

We were very happy. That was our first experiment. The lack of the first experiment. It works first time, then it takes years to reproduce it. Then we try different type of powders. And finally we find the powder that could reproduce that at the Curie temperature. Nickel is ferromagnetic. So when you reach 358 degree C, you go from ferromagnetic to paramagnetic. So you lose the magnetism and at that very temperature, there's a temperature jump. So we thought at that time it was excess heat being produced. Later on, took us a while to realize that we are not doing heat, we are doing cold before the Curie temperature. So we are cooling at high temperature. We are cold. We are making cold at 350 degrees and the higher temperature, the closer you have from the Curie temperature, the more cold you produce. Then we opened the tube and I will show you later on, the test tube I still have it.

There is a deposit of metal on the tube. It's plated. But our experiment didn't go to, nickel melt at 1,453 degrees and well said didn't go about 500 degrees C and still we have a deposit. So something happened, very powerful so that we vaporize the metal.

- Thomas Grimshaw: So it was a stainless steel tube?
- Jean-Paul Biberian: No, it was a Pyrex tube.
- Thomas Grimshaw: Pyrex tube.
- Jean-Paul Biberian: Test tube.
- Thomas Grimshaw: So you had a metal deposit on Pyrex. Very interesting. Okay.

Jean-Paul Biberian: Low temperature, doesn't make sense. I still today don't understand what happened that day. This is the kind of experiment [inaudible 00:05:35] once in your life. Yeah. What happened then? I mean we never went to this high temperatures. I mean even at 1400 degrees C, we never deposit nickel like that. I still have it. I don't know what to do with this tube. I want to break it. I want break it to analyze it, but it's there.

Thomas Grimshaw: So you're not sure exactly what the deposit is? Just that it's a metallic deposit.

Jean-Paul Biberian: It could be nickel because I put nickel in it, but I don't even know. You're right. I don't know. Because what happened, we removed the powder, we did the experiment. It worked without the powder. Right. There's a problem there. Then we realize the deposit is there. Deposit was active.

Thomas Grimshaw: Too bad.

Jean-Paul Biberian: Too bad.

Thomas Grimshaw: It won't go.

Jean-Paul Biberian: But anyway, this type of experiment, which is rotating magnets is very interesting because nobody has done that before. Because people try to make magnetic fields and when you use coal, you need a lot of current to make a magnet of strong magnets and then heats up and everything. So it's complicated. So with this rotating magnets, we could do experiments without heating with the magnet. So at the ICF 24 Conference, I mentioned this work and it's very, very surprising. Why do we have court? Why do we have court? I mean, I can understand exothermic reactions, but endothermic reactions and it happens only if you have hydrogen in the metal.

If you don't have the hydrogen, it doesn't work. Pure nickel will never do that. Also, the size of the nickel is important. If you take big chunks of nickel, nothing. I finally, maybe year ago or less than a year ago, we bought some nickel from China. My friend who bought the nickel thought it was amorphous. I said, you cannot have amorphous nickel. To have an amorphous material, you need two, at least two components or three or four or five. Anyway, he thought it was amorphous. So we had this nickel. I did cut it in small pieces, put in the system and there was effect in the crucible. I analyzed the nickel, it was pure nickel. We went to the x-ray diffraction. It was really crystallized. It was not amorphous at all. As I was [inaudible 00:08:19]-

Thomas Grimshaw: Maybe micro crystal and.

Jean-Paul Biberian: Yeah, but cannot be-

Thomas Grimshaw: Can be amorphous. No.

Jean-Paul Biberian: Cannot be amorphous. You cannot have amorphous.

Thomas Grimshaw: Right.

Jean-Paul Biberian: I mean nobody has done it so far. Maybe one day someone would do it. But so far we not done it. Maybe you need cooling much faster than [inaudible 00:08:38].

Thomas Grimshaw: Maybe liquid hydrogen someday.

Jean-Paul Biberian: Maybe liquid hydrogen would do it. Anyway, it's just pure nickel and it gives this anomalous behavior every time. If I'm doing the experiment now with big pieces of nickel, one, two centimeter long, no effect. Cut it in small pieces, the same material, small pieces. Normally when you have magnetic field, you have any currents that will heat a little bit. I don't even have that. So because the flow of the magnetic field is not strong enough maybe. So this is a big mystery, and-

Thomas Grimshaw: You say the effect is to the temperature goes down.

Jean-Paul Biberian: Down and not up. And the thermic reactions, where does the energy comes from?

Thomas Grimshaw: How much? 10 degrees?

Jean-Paul Biberian: Oh no, we got 40 degrees.

Thomas Grimshaw: 40 degrees. Wow.

Jean-Paul Biberian: Within one water fitting power, temperature jumps for 40 degrees at 358 degrees. Temperature to Curie temperature. Now what's happening? I leave it to the theoreticians. I don't know. I mean because here you have nuclear science, solid state, physics, magnetism. It's really multidisciplinary.

Thomas Grimshaw: Yeah. Well, not unusual.

Jean-Paul Biberian: Not very unusual in our field. But it is not simple at all to understand what's going on. So I don't know. But this magnets are very interesting.

Thomas Grimshaw: They're solid iron magnets.

Jean-Paul Biberian: Yeah. We bought these very powerful magnets in the new sea. We had this first design was made of wood. The other one is metal. The new one, we have 72 magnets. Very strong magnets. The field is 0.5 Tesla in between. And probably it's more even when focuses by the nickel. But it is strong. It is effective. Temperature is important. Hydrogen is important.

Thomas Grimshaw: Curie point.

Jean-Paul Biberian: Curie point is important. That's why I like nickel because it's just a ferromagnetic. Whereas palladium, you cannot do that.

Thomas Grimshaw: Right. Interesting.

Jean-Paul Biberian: So we will try some other alloys of metals like iron and nickel. See, because then you can move the Curie temperature to higher temperatures. See what is the effect there.

Thomas Grimshaw: Stainless. Yeah. What is it? Stainless? What's the number?

Jean-Paul Biberian: Some are magnetics, some are not. Yeah. But you can buy all kinds of mixtures now between iron and nickel.

Thomas Grimshaw: Sure. Yeah.

Jean-Paul Biberian: So you can change Curie temperature. So even tried gadolinium, gadolinium has as a Curie temperature at 26 degrees or something like that. But gadolinium, you

buy it chunk [inaudible 00:11:54]. It's not power. So it didn't work. We bought some, no success with gadolinium and [inaudible 00:12:03] gadolinium absorb hydrogen or not.

Thomas Grimshaw:

Sure.

Jean-Paul Biberian:

No idea if it does or not.

Thomas Grimshaw:

Yeah. Not in the literature. Right.

Jean-Paul Biberian:

Maybe does. Who studied gadolinium? Our PhD of the [inaudible 00:12:13] of gadolinium.

Thomas Grimshaw:

Well, that's very interesting experiments. You've been at it for what, two, three years now?

Jean-Paul Biberian:

This experiment? We studied seven years ago.

Thomas Grimshaw:

Seven years. Yeah.

Jean-Paul Biberian:

Where I've been studying that for seven years. We have tried so many different materials because we got it first time. Couldn't produce it. But we knew we had it. So now you have to reproduce it. And we tried, the best results we got from Germany. We bought some nano nickel, 20 nanometers. They do that by electrochemistry somehow. It's quite expensive, but it works now. Oh no, it didn't work. At first, we put it in the system. No result. Then we realized that maybe we need to separate the nano particles because they like-

Thomas Grimshaw:

Like you are now.

Jean-Paul Biberian:

We are do now. So what we did, we mixed the nano particles with a cement and then it was dispersed inside the cement, not as good. Well, yeah, just by hand. Then it worked. Only then. When it was together, probably you lose the nano particle size effect.

Thomas Grimshaw:

Yeah, yeah.

Jean-Paul Biberian:

Because they have tendency to center, I mean at this size they center immediately.

Thomas Grimshaw:

Yeah. Just surface effects.

Jean-Paul Biberian:

Surface effects.

Thomas Grimshaw:

But the particles, yeah.

Jean-Paul Biberian:

It is said that they will take two wafers of silicon, put them one on the other. They diffuse and they [inaudible 00:14:08]. They get together. Because they're so flat. They're extremely flat. Atomic levels are flat.

Thomas Grimshaw:

Good. Well, another mystery. So we would call it very cold fusion.

Jean-Paul Biberian:

Yeah. It's not heating, it's cooling. I mean this is the opposite of what we want. Now if we have cooling, why not after all? After all, everything is pretty busy, the magnet are doing something. Maybe he shaking things inside. Who knows? I mean it's a mystery. This [inaudible 00:14:45] thing is really a big mystery.

Thomas Grimshaw: It is.

Jean-Paul Biberian: Yeah. It's there, open the door, new field.

Thomas Grimshaw: Huge parameter space.

Jean-Paul Biberian: I tell you hydrogen is a particle when it got inside the middle. So that changes properties of the materials.

Thomas Grimshaw: Yeah, of course. Yeah. Leaves the electrons behind.

Jean-Paul Biberian: So you have protons, electrons. All the metals sizes-

Thomas Grimshaw: Gaps.

Jean-Paul Biberian: Gaps, side effect.

Thomas Grimshaw: Defects.

Jean-Paul Biberian: Coherent behavior, coherent behaviors. When you have small size, you can have coherent behavior that you don't have a large dimensions. Cannot do it. So who knows. Maybe you have super connectivity and high temperature. People have done that. I tried that. I believe into that too. I've taken Constantine wires heated in nitrogen. The resistivity dropped by a factor of two. Okay. Constantine is not very good candidate as low resistivity. The resistivity is pretty high. But anyway, when [inaudible 00:15:58], I measured it. Can I go to do, I don't know. I try, I tried, it didn't work. You can work it at low temperature. But yeah, I think that we don't know yet about this hydrogen loading metals.

Thomas Grimshaw: You would think after a third of a century, 33 years, that we would have a reduced the parameter space somewhat to know what are the defining conditions. Do you feel that we made any progress in eliminating some of the parameter space or reducing?

Jean-Paul Biberian: We have. I did a number of parameters. The spaces more dimension than used to have. You have so many dimensions. I mean this experiment I've done that [inaudible 00:16:45] has done before me, where I took this sample of silicon with a thin [inaudible 00:16:52] palladium on it with a laser beam on it. And he felt transmutations. So that's what, a few years ago, for three, four years ago. Gave me two of his samples. Same samples. One [inaudible 00:17:04] samples. I show you. I didn't show you the experiment. Very simple experiment. Put it on holder in the room temperature, put hydrogen in one, two bars, heat them, I mean a pointer, laser red. 659 meters wavelengths. Started the experiment just before the COVID. After that, we got locked down for three months. So instead of two weeks, I went to limit. I left it three months because after that I couldn't do the analysis anyway.

After three months, I took it to the lab and under the electro microscope. We observed all kind of transmutations. You see everything. So it's like fishing of [inaudible 00:17:55]. All the elements are lighter than poly, all of them. But I see a lot of oxygen. There's no oxygen in my system. It's only hydrogen. Maybe could have leak. But a lot of nitrogen. I mean nitrogen, the molecule of nitrogen is extremely stable. You can't break it like that. It's one of the stablest, more stable

molecule there is. So how come I have nitrogen? I couldn't have nitrogen by a chemical away or contamination. It's not possible. And I have nitrogen. Not only I have nitrogen, I have nickel, I have copper, I have [inaudible 00:18:40], I have [inaudible 00:18:40].

Thomas Grimshaw: And you started just with nickel?

Jean-Paul Biberian: Pure palladium. palladium and hydrogen.

Thomas Grimshaw: Okay.

Jean-Paul Biberian: Not even deter. It's hydrogen. So it seems palladium and hydrogen are similar to uranium and neutrons. When you put the in uranium, you break up the uranium. Now when you put hydrogen in palladium, somehow we make it unstable. And this had been found before by Lee in China. He did some experiments which he loaded the palladium and he found some new elements in it. So all these transmutation things they went with, nobody thought about it 30 years ago. We didn't think about transmutation at all. People were looking for Gama rays, neutrons. And even in the first paper of Pulse and Flashband, they don't even mention Helium four. They look at two first major branches. They never looked at helium at the beginning.

Thomas Grimshaw: The third branch.

Jean-Paul Biberian: If you read the paper, the first paper, they say we have few neutron, few Gama rays. And anomalous heat, we don't have the source of this heat. We don't know what the source is. That's what they say in the first paper. They don't say we produce helium. They don't even mention helium.

So something happens, the parameter space is increasing, not decreasing. So the more we move, the less we know. I mean and you see the front corner, it's amazing, right? You have two metal that don't touch, produce electricity without anything, doesn't make sense. And Alan Smith has done it without deposition of any metal, just by electrolysis of one of the metals. He put hydrogen at the surface of the metal. That's enough. So people have done it with palladium and with iron. But probably you've done it with aluminum. So how come that's possible? Doesn't make sense at all. These two metals don't touch. If you put the vacuum, I've done it. If you remove all the gases, hydrogen, water or anything, it doesn't work. Nothing. So you need the gas. So it's ionization of a gas. So I could get ionization. That means that the effect of Cold Fusion is a general phenomenon. It's not something unique. It's extremely general.

Thomas Grimshaw: I have something else to ask you, but let's see where we are. We're 21 minutes. I want to take another break. I want to ask you something else. So I'll end this by saying again, this is Tom Grimshaw with Jean-Paul Biberian. It's October 3rd. We're in his home in Avion. And we're talking about his experience on cold fusion and related phenomenon now. So we'll stop here. Jean-Paul, thank you.

## B1.4 Transcript of Fourth Segment of the Interview

Thomas Grimshaw: Okay, Jean-Paul, this is Tom Grimshaw. With you, you have Jean-Paul Biberian and we're doing this interview regarding your experience and experiments in Cold Fusion. And I should say it's October 3rd and that we're in your home here in Avignon, in France. So just before we started this recording, Jean-Paul, what you had been talking about your rotating magnets and then we were picking it up after you completed your work when Longshop retired in Grenoble and you took up your teaching and research position at the University of Marseille. So can you pick it up there please?

Jean-Paul Biberian: Yeah. I did continue for a few months or one year maybe in Grenoble and then it was time to go back to Marseille. So I hired a moving truck, took all the equipment, brought it to Marseille.

Thomas Grimshaw: It's good you were able to do that.

Jean-Paul Biberian: Yeah. Because most of this equipment was used this to anyone except me, because they do it myself.

Thomas Grimshaw: They were glad to see it go perhaps.

Jean-Paul Biberian: Yeah, right. Literally they want to empty the rooms. They don't want to keep anything in it. So I took everything, furniture, everything, took it back home to the lab and there I started working again and I developed a flow mass spectrogram where you put cold water on one side, put cold water on the other side. And I did a very interesting experiments because at Fradick at NASA in 1989, I did a very good experiment where I used a purifier, put determinate in and out, was looking for gamma rays and neutrons he didn't see anything. But point he had to give the purifier back to the one person he borrowed it from. When he pumped the deter out instead of cooling, temperature was up. So that was not normal when you pump out or it goes down. So you put hydrogen. When you put hydrogen it goes down. When you put hydrogen, it goes up. So there's normally definitely there. There is a memorandum, NASA 1989 about it.

Thomas Grimshaw: Yes, I've seen that publication. Yeah. Free lake.

Jean-Paul Biberian: Frank. Many pages have been in very detailed work. And then I knew about that. Someone I met in the US and that gave me this memorandum, not really well known in the field. Nobody knew about this memorandum. So I talked to Lee in China. Lee is an excellent scientist. He's both experimentally center edition and we were interested by the different things. So what I did, I took parade tube throw it at one hand, put it in my water flowmeter, put a powder on vanadium inside the tube and introduce hydrogen inside the tube. It pumps from the outside. So hydrogen was in flowing from inside to outside and there amazingly enough, I got a lot of excess seat with that. And it was part of a publication that happened in the ICCF 13, I think it was in Russia, the only one that happened in Russia. And there was heat continuously. Franic had to load and but in my case, because I was flowing the hydrogen serum, it was constantly beginning heat.

Thomas Grimshaw: I may be sure I understand. It was a palladium tube with palladium powder inside the tube with hydrogen flowing through and out of the tube. Okay.

Jean-Paul Biberian: The tube was only 10 centimeter long. Two diameter, very small tube. But it worked. Actually this tube was used as a hydrogen purifier. They can become more for the water, don't forget the water. And so we as part of publication, because it lasts for a week. We had one week of, I think we have too much to be too strong.

Thomas Grimshaw: Okay. Thank you for calibrating me with the lemonade

Jean-Paul Biberian: With the lemonade. So it worked and we published that. But I didn't continue too much this experiment. I like to continue now because you were with this multilayer is doing about the same thing is learning and learning the hydrogen from these multilayers, but with hydrogen and you got a copper where my keys are just printed. So something to be done but have so many things to do and only 24 hours a day. So anything is simple but it takes time. There's not like say, oh do something. There's nothing like one experiment you do and you're finished with it. Nothing like that.

Thomas Grimshaw: Now, each experiment leads to three, four, five more.

Jean-Paul Biberian: Yeah. The work, it's not, I do this experiment that will prove you. So I moved to France, did that kind of experiments there and I continued in that direction. I did also some... I've done also electrolysis also because in there carriage nine cells, it was actually pulse mainly because Fleshman had left already in round. He had this continuously boiling experiment and they had the top was cold so the water was cooled down, it was dropped back. So it could have something like that. And we started with low shower actually at the beginning. We did something similar but by, we had a tube and we put this tube inside. That was what a cool, so that the water vapor will condensate and just drop down. So we did that plastic system and I made the same one with glass and cut it made by glass. So I did some experiments with that. I did the experiment with this glass cell and it was in 2004.

One day I use also as an electrode a tube the same as the one I was using for the gas diffusion. But this time it was working in the opposite direction because the electrolysis was bringing hydrogen from the outside and then it was going inside, reverse the system. Why not? And one day I arrived at the lab, it was September, 2004, something like that. I looked at the screen, I really strange. I looked at the screen and then I looked at the cell just broken. I didn't see the cell first. I saw the one fill the screen, computer screen, it was completely broken, shattered everywhere, glass everywhere on the ground. It exploded. I tried to repeat that experiment to try to explode it with hydrogen and oxygen to see if it was like that.

Thomas Grimshaw: Never would again.

Jean-Paul Biberian: Nothing happens.

Thomas Grimshaw: Was what? Sorry to interrupt. What had happened to the tube in the explosion? Did you find it's remnants?

Jean-Paul Biberian: Yes. See there? Yeah I have, I can show you. You have the tube.

Thomas Grimshaw: You had the tube, but had it ruptured or?

Jean-Paul Biberian: The tube was intact.

Thomas Grimshaw: So it Appeared to give off energy and Caused the cell to explode. Okay.

Jean-Paul Biberian: Now that was my conclusion. There was some nuclear effect. But later on with Jacque Blair, he said, I'm sure it didn't nuclear. Maybe it's just a physical phenomena because there are different types of explosions and maybe this is another type. So he did some experiments in his house and possibly to just chemical explosion. But anyway, it broke to pieces. But I had accessed with this kind type of cells anyway by putting diffusing hydrogen from outside, inside. So this is the type of experiments done there. This cell press, the mass flow calorimeter find different materials in it.

Mass flow calorimeter is good but not very precise because you have to measure the input temperature, output temperature, high precision, the mass flow. Mass flow is easy to measure, but temperatures you can have some in precision. If you want to have high sensitivity, you need highly precise measurements. And there is not, you always have losses anyway. You cannot measure everything. There always losses. But with calibrations that could have pretty good precision. And then I stayed there up to my retirement actually 10 years or 12 years or 11 years doing this type of experiments. Tried different things. I can't even remember all what I've done for these 12 years. I've done many experiments. I was there busy all the time.

Thomas Grimshaw: Do you have the lab notebooks?

Jean-Paul Biberian: Sure. Somewhere. Yeah.

Thomas Grimshaw: So they could be revisited and you could reconstruct the history, I suppose.

Jean-Paul Biberian: I have to look at that when I retire. All these things take time. I have to make different choices.

Thomas Grimshaw: But along those lines, would we find those lab notebooks in the same location as you showed me in the?

Jean-Paul Biberian: Yeah. Most of everything I've done in Marseille and here are there. There's some notebooks I don't have. That was incredible, because I should ask to Nathan's wife because I don't know what she would do with it. She has no use of these books. She has other books I don't that I don't have. One day maybe I have to go and meet her. She's in vulnerable. I hope she's still alive.

Thomas Grimshaw: Might be worthwhile to get a full.

Jean-Paul Biberian: And to have them because we have done a lot of work with this E carries two cells, gave some results and I called all the data.

Thomas Grimshaw: I know you're busy. I don't know how far it is to Grenoble.

Jean-Paul Biberian: No Grenoble is not that far. No, no I can't drive there. It's one day. That's all.

- Thomas Grimshaw: And anyway, I encourage you from the standpoint of documentation and having the early part of the record with long shop as well as your time at the university and since then.
- Jean-Paul Biberian: That would be a good idea to do. Okay. The strange things I have seen there so many strange things that I can believe it as I would. Did I tell you that? Yeah. With my boss he said God is with you. Because every time I was doing something simultaneous in the US I was doing something with something new that I was working in catalysis. And this is not my field at all, because you surface science. So you take a single crystal of platinum and look at the dehydrogenation of psycho with the mass spec. Then I deposit one gold on top of this platinum. And it's more reactive than the platinum. Well, gold is extremely interesting material. Extremely interesting. I wish I could do more work with gold. Gold in thin films or nano particles, it could be very reactive.
- Thomas Grimshaw: Well, you weren't able to do electrolytic work in the early days, but once the field had moved beyond electrolytic, it seems that your background in surface science was ideally suited for these experiments since that time.
- Jean-Paul Biberian: Absolutely. Because then I know all the surface problems, vacuum problem, all this I know very well. I've been working all my life on that. That's why I didn't have any problem. I know the problem interfaces and this is my field of basic research. I've done that for years.
- Thomas Grimshaw: Yeah. So you were being groomed for cold fusion in your original?
- Jean-Paul Biberian: I was ready. I had enough background to go in the field and I was not too young because when you're too young, you have new experience. Yeah. Okay good. You have book type of experience, but books are books. The reality is different.
- Thomas Grimshaw: That's absolutely true. Well, you call it a necessary but not sufficient.
- Jean-Paul Biberian: You have to have to land on something. And especially, he's very well known. If you want to hire people, we want to have someone with some experience. Otherwise he has to start from scratch and learn the hard way.
- Thomas Grimshaw: And you're paying him in the process, him or her to learn.
- Jean-Paul Biberian: That's why people have experience are paid more than people that don't have any experience. But that's part of it. They have more experience, that's all.
- Thomas Grimshaw: Yep. Okay. So if you have the lab notebooks that your history at the university could be reconstructed, you might be able to get the notebooks that remained with Longshop when he retired that would be very helpful. Yeah, please do that.
- Jean-Paul Biberian: I would call that. I will send an email.
- Thomas Grimshaw: Okay. So then you retired mandatory retirement, you managed to stay one, I think you told me one extra year to age 66.
- Jean-Paul Biberian: I stay 66 and then I had to go. But we moved here. So I was commuting. It was really impossible. Almost two hours to go to house, come back. It didn't make sense. So I decided to build a lamp here. So I asked my friend, who is my landlord,

can I build the garage here? So I put it over there. So I bought this two car garage 36 square meters without the garage door. I bought the garage door.

Thomas Grimshaw: So you moved the building in then?

Jean-Paul Biberian: So we did everything there. We put the concrete floor and built a thing. We brought electricity and internet from the house there. Had to dig a trench. It was long good there. And then started putting all my equipment, I took all the equipment I had brought from Grenoble to Marseille. I brought it here.

Thomas Grimshaw: Good for you.

Jean-Paul Biberian: It is kind of, nobody works. They don't use it. And what do they do it myself throw it away anyway.

Thomas Grimshaw: You rescued it from the dumpster.

Jean-Paul Biberian: Yeah, I've seen the computer I have. It's an '80s. Who wants this computer? Nobody wants this computer. I want it.

Thomas Grimshaw: And I was working briefly in the computer field. I was developing systems and they called computers like that boat anchors.

Jean-Paul Biberian: I thought they called it Dobra Rocks.

Thomas Grimshaw: Same thing. Yep.

Jean-Paul Biberian: Anyway, yeah, I know. This is for what I do is perfect. That's enough. One measurement per minute. That's fine. I don't want to have fast thing, I don't care. I don't do that much memory. It's fine. It works. This thing has been working for 35 years. It's computer with this interface.

Thomas Grimshaw: They don't make them like that anymore?

Jean-Paul Biberian: No. My computer chip like this

Thomas Grimshaw: And I had to give up a whole computer because one key wouldn't work. It was crazy. Okay, so.

Jean-Paul Biberian: I moved here, built a laboratory and started working here doing all these experiments. One of the, and then when... I forgot one thing. When I was in Marseille, I designed the heat flow calorimeter, because I realized that heat flow is better. I imagine these two cell correction cells tubes with this integrator and thermo couples in between. At that time I made it more simple than the one I made after. Eddie worked well, I like that because if you have a water flow, you need a water pump, you have a tank of water, things can leak, so many things can happen. Whereas heat flow, you just measure the heat coming out of the thermo holes. And it's more precise too by category. Once you are calibrated.

\And as am familiar with vacuum chambers, I made a vacuum chamber so that I can have a good vacuum, good insulation, so you can go to high temperature with low power to improve the COP. So that was my design and my personal design. I designed it out of my head. And then when a few years later, Renault contacted me, Renault cars, someone from Renault contacted me because Nissan in Japan

was doing cultural research in collaboration with Takashi group, Takashi with the powders. And Nissan was part of this group, the NATO project. But that was Nissan. Renault didn't have any laboratory to do this kind of work. So this guy contacted me and we developed a better calorimeter. He's a good engineer. He worked at front at Stanford. Got his PhD. Yeah, his PhD in Stanford. He's very good scientist. So we worked together, collabo.

Thomas Grimshaw: So was his name again?

Jean-Paul Biberian: His name was Lohan Levine. I never mentioned that name. Lohan Levine is his name. He worked for Renault, still working for Renault. So at that time he had some funding to develop the technology here, collaboration with Nissan. So the people from Nissan came here two years in a row. They came until the Covid stopped. So before Covid they came, they send me the powers, same powers. I have the same powers as Takashi. Same. I've done some tests, some work, some didn't work. I think I know what to do now to make it work with my present experiment experience of how to do things. And I still have the powers.

\So we've done this experiment with him for several years. And then Covid came the Japanese I think. And then there was the whole story of Bruno with all the program, the breakup and the prison. This the CEO and he went to prison, escaped, a drama with Renault and Nissan. I think they stopped working on the field in Nissan. There was no more money to continue at Renault. So the collaboration stopped. But in the meantime I got quite a very good equipment paid by Renault. So that was good for me because I don't have any funding beside my retirement money. So that helped me a lot.

Thomas Grimshaw: So this work with Renault and Nissan was while you were still at the university?

Jean-Paul Biberian: No, I was here.

Thomas Grimshaw: After you moved here. Okay.

Jean-Paul Biberian: Here. That was just shortly after. So that allowed me to have a collaboration with Nissan, which is not bad. No, they knew how to make the powder. I couldn't do the powder. It's not that simple. Very technical. So that was one very good opportunity. I had to collaborate to have some funding to do, to buy equipment. They don't give me money, but I don't care. They give me equipment. This is as good. And then I realized, you see when you have a metal at high temperature, any metal cannot hold hydrogen. Hydrogen will diffuse out at high temperature. 700, 800 degrees C, all metals, all of them. They go through with just like a filter does it at low temperature. But all those do it at higher temperatures. So I thought the best candidate is quartz. So I made myself out of quartz. That was good move. Because quartz, it's easier. Cheaper. People, glass blowers know how to do that. Can buy them.

Thomas Grimshaw: Quartz, I knew that about glass of course. But quartz is higher.

Jean-Paul Biberian: Yeah, much higher temperature. But there are specialized people in quartz. There was one in Marseille, then the guy retired on the closed down. So he sold the game of his equipment together. A young guy in Leon, not far away from here. So

I went, met him, talked with him and he made myself exactly what I wanted. Very good worker. It is excellent. Since then, I work only with quartz. I tried stainless steel kind of sales and not work as it doesn't work as well. And also once you have put some powder inside the cells, sometimes they're stuck to the walls. Can't remove it. You have to change the cells. The quartz is kind of disposable. Cheap enough.

Thomas Grimshaw: Out as cheap as glass, but.

Jean-Paul Biberian: No, but it's not that expensive. Research is always expensive. There's no shortcut to spending money. You have to pay. I have very expensive electricity bills because of the lab. The pumps are turning or running all the time. What can I do? Part of my expenses. So I worked with Renault and Nissan for several years. Then the European project arrived and that was a good use. Somehow we didn't know about that. And that was two and a half years ago at the conference in Italy. We heard about this appeal from, for project European project and Fusion. There was only two lines. It's not like a big thing energy with nickel and hydrogen. And you have to know-

Thomas Grimshaw: Innocent enough? Yes.

Jean-Paul Biberian: That it's not written confusion or nothing, just these two lines. It was clear it was for us. So we applied and I was part of the game. In Europe, Lanny and I are the two people doing something really for a long time. They're newcomers, but they have no experience. But in fact, in reality there were very few people active in Europe. There were more in the past when they disappeared for some reasons. So Italy's mainly him and me and the others came later. And in the field of gas loading, I'm basically the only one, almost.

There are the people, but with so much experience, different knowledge of different fields because I've done so many different things from hydrogen to gas field, so state rights. I even worked with, I never mentioned that with Roger Stringham in 1995. In 1995 I was in the US and I knew Roger Stringham. So I went to his lab in Mountain View. It was not really well insulated, terminally, but temperature was varying by 20 degrees between day and night. But I've done experiments with him and Russ George was there also. We had a very good time. For two months I was commuting to go to work with him.

Thomas Grimshaw: Livermore?

Jean-Paul Biberian: No, from now from Berkeley. Anyway, it was great. We did some very good experiments. I had them with the Gyromittrin because they were not very good at Gyromittrin. They were good at what were, they're doing fusion, things like that, but Gyromittrin they were not too good. So I had them there. We got some results. Good positive results with. And I enjoyed doing fusion. There've been so many fields and very few people have done fusion besides still register string them.

Thomas Grimshaw: I would love to do a project with Roger Stringham, but so far he's not cooperating.

Jean-Paul Biberian: No, because he's old. He's sick. He has problem.

Thomas Grimshaw: His wife Julie could help. But so far no luck. Anyway. Okay, so in the early years here you worked with Nissan and Renault, what then? And then you started working on the European Commission. By the way, the two lines that were in the plan for the European Union, how did they get in there?

Jean-Paul Biberian: Because there was, you remember Cuppy Cherry? You got the Medal.

Thomas Grimshaw: Yes.

Jean-Paul Biberian: Cuppy Cherry knew a guy from Europe, an Italian guy. And this guy had very good feeling about the work of Cuppy Cherry. So Cuppy Gary is a key person there in this called fishing project. Without Cuppy Cherry maybe should not happen.

Thomas Grimshaw: Be very interesting. Well, no wonder he gets medal

Jean-Paul Biberian: Because it's human things. Someone you trust does the good work and Cuppy Cherry is not doing the coefficient as we do. He is exploding met, not graph concrete or stain or iron or thing like that. And see transmutation neutrons coming out. It's different. But it's still go through. So because of him we have this project. So when we knew about this project, there was the idea of making several projects and then we decided to make only one instead of competing against each other. So we made one and the leader is Jetski, Conrad Jetski from Poland. The good thing, he has a support of the university, which is a good sign.

Here nobody will support us. Forget about universities. It's impossible. Because when I was at Marseille doing my experiments every four years at the lab, we have a commission of people, a group of 15 people that come to evaluate the laboratory. So one day I think, well I've been doing Cold Fusion, I should talk about Cold Fusion. So we had posters and this group of people could go through all the posters and see what we are doing. Nobody came to see my poster. Anyway, at the end of it, we wrote a report on the activities of the laboratory. So there was one page of Cold Fusion. But two months later where the reviewer said about Cold Fusion stop immediately this activity.

So I knew the boss, the director of the lab, he said, just do what you want but don't talk about it. Go underground, go under the radar. And that's what I did. I forgot them. So I know there was no... And when the European project happened, I went back to my lab, said you should collaborate. We have money coming from Europe. It's not like you have money, it's official. He didn't want, the director didn't want. Stupid guy. He had free money coming without doing much. He could have done some analysis that I get anyway done for free because I have friends there. So I need to go to electro microscope. I told him that I want to go, they come free.

Thomas Grimshaw: Well, this might be a good time to talk a little bit about the current experiment. I think we covered that a little bit, but I don't think we were recording at that time.

Jean-Paul Biberian: Maybe not. We can talk about that.

Thomas Grimshaw: So tell me about that.

Jean-Paul Biberian:

The Japanese, I've done this nano particles of palladium, nickel, copper in the conium oxide. It's a very expensive way to do that. Mitch and Schwarz does do the same thing with these devices, but it's expensive material. Some people can do it, but you have to buy the materials. It's very expensive. Japanese do it themselves but we don't know how to do it here. The collaboration, we have a group actually one person from to lose with a chemist and he managed to make the powder containing nickel in it and copper. But when you heat it in hydrogen at high temperature at the beginning is green, green powder, not magnetic at all. But when you heat it in hydrogen at 809 degrees C, it becomes black and becomes magnetic.

And then if you look at it in a microscope, you see nano particles of nickel or nickel copper. So this is very interesting because we can do it much cheaper, a lot cheaper, large quantities. Industrial can do it with this device system. It's called hydroperoxide. It's a chemical. It's very common inside in this field. But hydroperoxide is made of magnesiums, the normal magnesium hydroperoxide. But they have already changed magnesium with other metals like nickel. It is known in literature, nothing new there. So it's possible to do that. So what we have done and we have done experiments with bicarimen, which is extremely sensitive. Can't see a hundred milli watts or this range.

So since the project started two years ago, we have tested different types of materials and it seems that the materials with nickel copper, same ratio as the Japanese seven to one seven nickel for one copper. And then we remove the copper, we put all the nickel it works also. And the thing is it works when you load and you de load and it works have more heat when you de load. And this has been observed by many people now. It's just new. You need a flex, dynamic. So now why does it work with nano particles? I think there are some cooperative phenomena I think, but I'm not sure. Maybe not because it works even without the flex, but it works better with the flex. So now we are trying to, okay, this is my calorimeter. I collaborate with big at a company near example malls. And then we have the same calorimeter there.

But there we have a big advantage that it's in the clean room with temperature stabilized to within a degree. So it's much, much better. So the calorimeter is working there. The other calorimeter, it took us a while to get it to work because in my case I was using this quad cells with the wire around it with the cement around. And there they are industrial people, they don't like handmade things, want something standard. And the idea was instead of heating from the outside, why don't you heat from the inside? Put a heater inside the tube. Okay. But now they try to find something commercial. So we tried all kind of resistors, we made them, we bought them, nothing worked. Finally, we found recently a ceramic heater that we wanted to go to 1000 centigrade with the ceramic heater.

We went to 1150 degrees with 65 watts only, which is amazing. So the calorimeter works very well now. So now we're doing the same thing as here, but with larger cells. So in order to obtain a better COP. And in the future for this European project, we are building another calorimeter much bigger where we can put one

kilogram of powder because my calorimeter, I put 20, 30 grams over there we can put 50, 60 grams and the new one want to put one kilogram. So if you put one kilogram, you have a lot more heat. And then at one point it should be self heated by the heat they have that are goals for the next two, three years.

Thomas Grimshaw: Good. So you have funding then?

Jean-Paul Biberian: We have funding, yeah. I'm not complaining about funding.

Thomas Grimshaw: Yeah the funding is.

Jean-Paul Biberian: It's sufficient.

Thomas Grimshaw: Sufficient. Yeah.

Jean-Paul Biberian: If I had more money, I don't know what to do with it. Really, I don't want money. People ask, can I help you? Say give me some time. Can I buy time? Give me me 48 hours per day instead of 34.

Thomas Grimshaw: And all awake. No sleep.

Jean-Paul Biberian: No sleep. Yeah.

Thomas Grimshaw: Good. And you've been at this for two years, so you have papers, you reported it. I see say moving forward.

Jean-Paul Biberian: I reported, yeah. Gave.

Thomas Grimshaw: Okay good. And everyone has the recordings of all of-

Jean-Paul Biberian: Of the cons, that's a good thing they've done. I was amazed the way they're organizing that.

Thomas Grimshaw: Yeah, very nicely done. Good pattern to follow in the future. So let's see where we are on time. We're back past 30 minutes again, so I'll stop this one because I have a couple more questions to ask you. So this is Tom Grimshaw. I'm here with Jean-Paul Biberian. It's October 3rd, 2022. And we're at his home across the dining room table at his home here in Avignon. I may have mentioned it, it's October 3rd, 2022. And thank you for session number three Jean-Paul. Now session number four.

Jean-Paul Biberian: Right.

Thomas Grimshaw: Okay. Thank you.

### **B1.5 Transcript of Fifth Segment of the Interview**

Thomas Grimshaw: So this is Tom Grimshaw, again, with Jean-Paul Biberian. This is session number five in our recorded interview, which we'll have transcribed later. It's October 3rd, and we're at Jean Paul's home here in Avignon. So Jean-Paul, I think another next topic of interest is your strong interest and work in biological transmutation. Can you tell us a little about that, when you first started it, when you first heard about it, and what you've done in that field, please?

Jean-Paul Biberian: In 1976, I went to the US as a post-doc, at Berkeley, at the Rose Berkeley lab. And while I was there, somehow I heard about biological transmutation and the work of Kervran. And this is chemistry measuring different elements and stuff like that. This is not my field at all. So that was in the back of my head.

But, in 1989, when cold fusion was announced, it was years after, I remembered that story. I said, "Well, if we can do it by chemistry, biology might be better." So I remember having met Pons and Fleischmann and the laboratory at IMRA. And when we talked, I mentioned to them about biological transmutation. Definitely they knew about it. And they were quite open to the fact that maybe that works also.

Thomas Grimshaw: Okay, let me interrupt, if I may. Where did you see them, when they were here in France?

Jean-Paul Biberian: IMRA, [foreign language 00:01:44]. At IMRA, in France.

Thomas Grimshaw: Oh, okay. Good. Working at-

Jean-Paul Biberian: At IMRA. Toyota.

Thomas Grimshaw: Toyota? Yeah. Okay.

Jean-Paul Biberian: The largest name is IMRA, but it's part of Toyota.

Thomas Grimshaw: Okay.

Jean-Paul Biberian: So they definitely knew about biological transmutations. But when I started my research on cold fusion, I did some kind of analysis by ICP. I uncoupled plasma spectroscopy, mass spec, or light vision, I mean, the different techniques.

So I realized you could do analysis without being a chemist. So I started doing experiments. I met some people with all kinds of seeds. Old seeds, with seeds. I've tried bacterias, or kind of thing like that.

Thomas Grimshaw: Sorry to keep interrupting. Which phase was this? Was this when you're at the university?

Jean-Paul Biberian: No, I was in Grenoble then.

Thomas Grimshaw: You're still in Grenoble with Longchamps? Okay.

Jean-Paul Biberian: Longchamps.

Thomas Grimshaw: All right.

Jean-Paul Biberian: I was doing that on the side.

Thomas Grimshaw: Okay.

Jean-Paul Biberian: Because, I mean, I was not in the Atomic Energy Commission laboratory, but I knew people there. So I could do analysis for free. If you don't have the equipment, you have friends, that solves the problem. That's what I have done. So I've done experiments. Did some analysis there. And I could show that there was definitely changes in composition.

What I did, I had two experiments, one with seeds, for instance with seeds, the other one with seeds. One, I put water in, just distilled water, let it sprout, wait a little bit, that sprout. Put nitric acid in it, to destroy everything. The other one, I put the exact same amount of water, but to sit without letting it grow. Then I put the acid again, so I could compare both of them. Same composition, normally. And I could see there was differences. I have silicon --

Thomas Grimshaw: These were bulk sample elemental analyses?

Jean-Paul Biberian: Same seed at the beginning. One sprouted, but the other one not. I compare them too. I mean, I cannot do only one and one of each. I take five of each to have... Because biology is not something... It's not like physics. There's some variation between one seed and another.

Thomas Grimshaw: Of course.

Jean-Paul Biberian: To have the [inaudible 00:04:20], you need to make several. I did wheat, I did oat, I did all kind of bacterias. And every time there was a change. And, basically, what you could see was silicon going down, calcium going up.

Thomas Grimshaw: Say again? The-

Jean-Paul Biberian: Silicon going down, calcium going up.

Thomas Grimshaw: Okay.

Jean-Paul Biberian: This is what Kervran was claiming. I bought his books and I read them. I could confirm his data. So, afterwards, actually, I work almost 20 years on that field. And then I stopped because no resources. It's expensive.

I met some people who were interested, especially some people in Switzerland. Rudolf Steiner, who has his schools, he was also interested by cold fusion, but by transmutations, because it's in the way he does the agriculture. And there was this lady in Switzerland, her father did positive experiments, but it was not published. So she was looking for someone to repeat the experiments. So she gave me some funding, so I could do experiments, could do the analysis. But you had to pay the analysis.

It's not very expensive, but you have to do... One element cost \$20, but then you have to analyze 10. And then it's seven multiplied by 10. So altogether it give you a larger number. So every analysis got at least 1,000 to 2,000 events for one experiment. So I've done experiments with her. And we had some positive results also. And I met a few people like that, who were interested by the field.

And, finally, I wrote a review paper, and a paper of my own experiments, and published in the Journal of Condensed Matter Nuclear Science. And I stopped there. Now, to go further, you need a lot more money. I mean, I've proved there's something going on, right? To go further away, you need to look at isotopic changes and things like that. Try to change the composition of the...

For instance, when you grow bacterias, you put them in a medium. The medium contains all kind of chemicals that have level part of the bacteria. But if you want more calcium... Or you might change a calcium property. You might increase or

decrease the silicon, for instance, to see what happens if you change composition. For instance, somehow, if you don't give the right food to the bacteria, will they try to turn around and make it by themselves?

If you gave them exact what they need, they will not do any effort to change it. So that if you squeeze them somewhere, so they have no solution, they would transform. That's more costly for them. That might happen. So if I had money, I would do more work in that direction, definitely.

The only problem is that this is something... It's worse than cold fusion, because what will you patent on that? Unless you manage to find a solution to do something that nobody does, it's very difficult. I met people. And that's where I met Vysotskii. Vysotskii is one of the best scientists I know. And he did some biological transmutation. And it's shown that you can change iron to manganese. Yes. No. What? Iron manganese by mass spectroscopy could show it. But he has done a lot of experiments.

And, finally, recently, it's quite a few years ago now, he used the Cesium-137 radioactive, put them in a medium with a lot of mixture of bacteria, and he produces [inaudible 00:08:44] by 138. Could show it with the radioactivity decrease. It's very, very fast. So it's interesting because he has shown it with good instrumentation. He has a good knowhow.

And a few years ago, there was an international conference on biological transmutations in South Korea. Actually, the conference lasted only one day because we were only five people working in the field worldwide. But there was some interest. So that was my chance to go to South Korea. So there are a few people interested, very, very few. If I had funding for that, I would collaborate with people knowing chemistry and biology, mainly microbiology.

Thomas Grimshaw: In France?

Jean-Paul Biberian: In France or elsewhere.

Thomas Grimshaw: Or elsewhere?

Jean-Paul Biberian: Yeah, anywhere. And there's no European project on that, obviously. I mean, nobody knows. If you even talk to biologists, they've never heard about that. Some people have heard about cold fusion, but biological transmutation, nobody knows about that. Amazing. Nobody knows.

There's a company in Marseilles who is specialized in biology. And I went to see them. And they talked about biological transmutations. And the guy told me, the director said, "You know what?" He said, "Once we had these plants we are growing. We did analysis. And there was a problem, because we couldn't find the product we had put in. So we said maybe we made a mistake." Now he knows that it's possibly biological transmutation.

Thomas Grimshaw: Very nice.

Jean-Paul Biberian: One day a guy called me, he said, "Look, we are paid by EDF in France, electric company, to clean up contaminated places." He said, "When we go to room, we

have to break the walls, to remove all the contaminated materials." If you have a solution by putting something on the wall with bacteria, that removes the radioactivity that would be... Even if it takes 10 years, it doesn't matter. It's much better. So I was ready to work with them. And then, all of a sudden the guy was moved somewhere, another place. He disappeared. I don't know where he is.

Thomas Grimshaw: Somebody put the kibosh.

Jean-Paul Biberian: Exactly. So some people are interested. Because, you see, I mean, even if you don't know someone... A friend of you will tell you something. Someone else will tell you something. You ended up knowing things that you are not supposed to know.

Thomas Grimshaw: Yeah. Interesting.

Jean-Paul Biberian: So that's what I can say. Unfortunately, I cannot do much more at this point, unless I have a lot of money. I cannot work on a shoestring. I will not do better.

Thomas Grimshaw: Some people, by the way, feel that way about cold fusion as a field, that we now have to go to big science.

Jean-Paul Biberian: And it's halfway true. I don't know if it's really true. If you have a lot of money, you will pay people that are not motivated enough. And if you are not motivated... If you see a small thing, you say, "Oh, this is nice." If you are motivated, you say, "Ah, maybe there's something there."

Unmotivated people are the worst. They will kill everything. You know what? It's simple. It creates the size of your air bars. That's all, nothing. It's air bars. That's all it is.

Thomas Grimshaw: Yeah. So let's see. Oh, we have more time on this one.

Jean-Paul Biberian: And continue this one.

Thomas Grimshaw: So let's change directions again.

Jean-Paul Biberian: You have another question, I know.

Thomas Grimshaw: Yeah. I've already divulged my question. So in the long course, starting in California, and on to Longchamps for many years, and the University of Marseilles for many years, and now your lab for many years, are there particular experiments or experiences in which you were the most certain that you observed the cold fusion phenomenon?

Jean-Paul Biberian: That's a very good question, because I observed it many times, different techniques. I can ask myself, "Maybe there's an error somewhere." The first experiments I did in Berkeley was showing directly there was excess heat. I could see it, I mean, in hydrogen, nothing, then you have something. Now, maybe there's an error. Maybe I didn't measure temperatures correctly. Maybe I didn't measure power in correctly. But I was sure, at that time, there was something. I'm still sure there was something.

Then the electrolysis experiments I've done with Longchamps, encouraged too. We saw something that's so small, that maybe there's an error. Yeah, that's a

problem with experimentalists. That's a problem. Is there an error somewhere I didn't see?

Then some of the things, I mean, the magnetic field, I don't see the error. I've been looking for it for a long time. My wife, whenever the experiment works, she said, "This is the worst time. Because now we try to find the error." If it doesn't work, it's fine. [inaudible 00:15:06]. But then it works.

Thomas Grimshaw: Let's move on, go to the next thing.

Jean-Paul Biberian: Well, what's wrong? You should not see that. What I see is not normal. When I've done the laser experiment, I mean, I couldn't believe my eyes. The [inaudible 00:15:19] had disappeared completely. And you have all kind of elements instead. It could be contamination. Yes, that's strange. I don't see how you get with nitrogen in the metal. I mean, nitrogen is the worst case. I mean, you cannot break a nitrogen molecule.

So I've seen many experiments. I've done experiments with these powders, I have up to seven watts of excess heat. My air body, maybe 100 milliwatt, maybe 200 milliwatt...

Thomas Grimshaw: Wow.

Jean-Paul Biberian: ... maybe 300 milliwatt, but still lots more. It's way above the background. Even increase the air bars, it's still outside of the air bars. Where in the air [inaudible 00:16:05]?

Thomas Grimshaw: I mean, you'd have to increase the air bars to 3.5.

Jean-Paul Biberian: I say that. Yeah, fine. Yeah, everything is noise. Nothing. Yeah, that's the thing. Now, is it possible? It's not possible. I've done it many times. So I keep on trying to find errors. I don't find them. But maybe I made mistakes.

When I did this long term experiment, where the derm was flowing through the pallium tube, I could see it. Without even correcting for the losses, there was excess heat. So this is not possible either. So I've seen many times with different techniques. That's a good point. Not one technique, several techniques, I have seen excess heat.

Thomas Grimshaw: So, in your case, it's more like the cumulative evidence, as opposed to one or two outstanding pieces of evidence, or experiments?

Jean-Paul Biberian: Yeah. I think there are many experiences that have showed me there is... Every time, I found something abnormal. I cannot believe it's an error every time. I look for the error, sure. I mean, sometimes it's a nightmare for me. Where is the error? I have found errors many times. I have found errors.

With Longchamps once, we had this big electrolyzer, and then we realized that, at noon, the sun was hitting the [inaudible 00:17:40].

Thomas Grimshaw: Yeah. Who would've thought?

Jean-Paul Biberian: Who would have thought that? Once we had the neutral detector, and depending whether we were plugging the plug here or there, you had neutrons or no

neutrons. So just noise coming from the main... I mean, errors happen all the time.

But, many times, I mean, these laser experiments, there's nothing, just of where is it coming from? It's not possible. I can't have that much oxygen, that much nitrogen. Especially nitrogen keeps me... Because I know it's impossible. I mean, the chemistry of nitrogen is difficult. It took years to succeed getting catalysis to produce products of nitrogen. It's a difficult molecule to break.

And this is a very simple experiment. I've done an experiment that didn't work. I tried to duplicate Mizuno's work. Never worked.

Thomas Grimshaw: Randy Mills?

Jean-Paul Biberian: No, no. No, Mizuno.

Thomas Grimshaw: Oh, Mizuno? Okay.

Jean-Paul Biberian: Mizuno in Japan. It didn't work. Randy Mills, I don't know what he does. [inaudible 00:19:03] to find out.

Thomas Grimshaw: Well, is he recently rubbing [inaudible 00:19:08] palladium on platinum on screen?

Jean-Paul Biberian: On the screen of Nikon. But he has other things too. Never saw anything. My airflow calorimeter is extremely precise. I measure zero with great position. So nothing, nothing. I've seen it. I've done it. So it doesn't work every time. It's not like every time I do an experiment, I have positive results. Most of the time, I have negative results.

Thomas Grimshaw: Right. But on the other hand, your hit rate has been higher than-

Jean-Paul Biberian: Well, in 20 years of work, yeah, you have some good... Once a year, good, positive results.

Thomas Grimshaw: Sure.

Jean-Paul Biberian: It's a long time we've been working, so that's the reason. And I do many experiments at the same time. So fancy that, one would work.

Thomas Grimshaw: So if you had infinite time...

Jean-Paul Biberian: Infinite life?

Thomas Grimshaw: ... and money, what would you pursue now? Would it be biological transmutation? Would it be continue the European Union work? Would it be something you did with Longchamps? Or what would you do?

Jean-Paul Biberian: Well, I don't want to have infinite amount of money. That's a good answer.

Thomas Grimshaw: Okay.

Jean-Paul Biberian: It's a headache.

Thomas Grimshaw: If you had adequate money to do anything?

Jean-Paul Biberian: No, I would do biological transmutation, for sure.

Thomas Grimshaw: Really?

Jean-Paul Biberian: Yeah. Because this is very interesting. There, I would hire people, pay them to prepare the biological part. I'm not a biologist, so I don't know what to do with them, to work with people who know. Plus, could pay for good analysis, isotopic analysis, to make sure there are variations, which is not easy to do. Isotopic analysis is not simple, like a push on the button, you know is dangerous. I will do that, on one side.

Then the cold fusion, I will continue on the gas phase. I will continue on gas phase, do more experiments, and more calorimeter. One experiment take one month. Those two. So if you want to do more testing, you need to have more calorimeters. I would build 10 calorimeters in [inaudible 00:21:25] cells at the same time, with different compositions. I would have a better lab, with temperature controlled rooms, much larger than the one I have now.

Thomas Grimshaw: Assistants? Lab assistants?

Jean-Paul Biberian: Ah, yeah, I need to have technicians who can do the software, can repair electronics, repair the vacuum pumps, and things like that. I would need all these qualified people, because I waste a lot of time fixing things, that someone else could do it. That's not my job.

Thomas Grimshaw: Maybe your motorcycle someday?

Jean-Paul Biberian: Maybe someone, pay to fix my motorcycle. You see? I mean, if I had a team of people working with me, I would probably take specialized people, in different fields.

Thomas Grimshaw: Collaborators in this field? Anyone come to mind that you would be particularly interested in collaborating with in a laboratory? Or would you rather work alone?

Jean-Paul Biberian: [inaudible 00:22:19]. I love to work alone, in collaboration with more technical people. I don't want someone who has the same brain as mine. Would not be very interesting. I need people who can think differently than I do think. I will not spend money on theories. It will take another century before we have the correct theory. I mean, I think after one third, we'll not find it. So chances are that that would not be that.

Thomas Grimshaw: Oh, sometimes, thinking of Einstein, I say, "Well, we just need a 23 year old Jewish kid to examine the evidence."

Jean-Paul Biberian: That is true in mathematics. In physics, when you do experiments, you need a lot of background. If you see mathematicians, I actually understand with mathematicians, you need mathematics, with theory.

But when you do experiments, you need a lot of background, to know what you're doing. I mean, you can't go in vacuum system and do vacuums. You don't know it works. You'll have to measure pressure, what kind of gauge you use. You have to learn all these things. So it takes time.

Thomas Grimshaw: So you'd work alone?

Jean-Paul Biberian: I like working alone. Yeah. In collaboration, but alone. I do work always in collaboration, because my partners come from Toulouse. The magnets, I collaborate with two people who come here once in a while, and we discuss the... I like collaborations. I love collaboration. But I want to have my own hands on the experiments. I will never let people do experiments without me. You see, there is tendency to the student to please the professor.

Thomas Grimshaw: Yeah. Not objective.

Jean-Paul Biberian: Not objective. So this is very dangerous. When I was working with Gabor Somorjai, he's in the catalysis field. So his theory was that the crystal, when you have a surface, one [inaudible 00:24:23] orientation, which is a flat orientation, that when the atoms are located like [foreign language 00:24:23]. But if you cut the crystal with an angle, you make steps. And his idea was that the more steps you have, the more reactive is the surface, because the reaction occurs at the step. You understand? I mean, dust goes to the step.

So this is the idea. So this student of him got his PhD with him. Took studies with the flat surface. Then increased the cutting angle, so he had more and more steps. And now there were more steps, the yield increased in his reaction chamber. So he was quite happy with that. Of course, [inaudible 00:25:10] exactly what he was saying. And then he went back to the flat surface, and the reaction was still there.

But to please the professor, he ignored the last measurement, and he left [inaudible 00:25:24] in the basic of accidents, anyway. But his successor, a girl, came, was supposed to repeat the experiments. But it didn't work. Because it was due to the fact that the background in this chamber was going up with time, and nothing to do with the reaction. And she had a hard time because she was not doing what she was supposed to do, to please the professor.

Because, I mean, you work for two years, and you end up saying, "There was no effect," I mean, this goes against the goal of the experiments in the first place. So it's very dangerous to have students working. They might give you false results.

Thomas Grimshaw: Fudge.

Jean-Paul Biberian: I mean, it's the limit of...

Thomas Grimshaw: Yeah. Well, it's like the whole field of cold fusion and its rejection. Human interest.

Jean-Paul Biberian: Human interest. You want to please the professor. So, to please him, you have to give results that correspond to his belief. And I want to know exactly what's happening in that experiment. It's not as simple as it looks, because there are many parameters that are not visible. Maybe you open the door at that point, and something happened. That's why they were young [inaudible 00:26:47].

Thomas Grimshaw: Or the sun spots [inaudible 00:26:48].

Jean-Paul Biberian: When Longchamps was working at Atomic Energy Commission, he had the neutron detector. And during these experiments, he was seeing peaks of neutrons. So I thought there was something going on in the cell. And then you

realize that this was atomic place. So they were moving a source of neutrons in the building.

Thomas Grimshaw: Yeah, anything can happen.

Jean-Paul Biberian: It happens all the time. All the time, you have to be very, very, very careful.

Thomas Grimshaw: Very careful. Yeah, yeah.

Jean-Paul Biberian: That's why these powders have repeated them many times, to make sure there's no error.

Thomas Grimshaw: So no one individual comes to mind, that you would consider a peer to-

Jean-Paul Biberian: To work with?

Thomas Grimshaw: To collaborate with?

Jean-Paul Biberian: Oh, collaborate.

Thomas Grimshaw: I mean, you told me you collaborate, but these are people who feed your experiments.

Jean-Paul Biberian: Exactly.

Thomas Grimshaw: Any peers that you would consider? And I don't mean to put you on the spot. If the answer is no, the answer is no.

Jean-Paul Biberian: No, we could do. Otherwise, make a large laboratory with other people, but very few. There are very few that are capable. I mean, there are not too many people I know, they could develop their own technology.

Thomas Grimshaw: Yeah. Okay, that's fair. Good. Okay. So we've had a nice long day today. I want to take some more photos of your lab.

Jean-Paul Biberian: Yeah. Let's go back. I want to show you this nickel deposit in this tube.

Thomas Grimshaw: Yes. And I want to take pictures of the crystals. I saw the crystals, but I didn't-

Jean-Paul Biberian: You want take the picture? Okay. Let's go picture.

Thomas Grimshaw: Is there anything else, as we prepare to head back to the lab, that comes to your mind, in your experience and experiments in this field?

Jean-Paul Biberian: Yes. Did you hear about the Cincinnati group?

Thomas Grimshaw: Yes, I've heard of them. They died young.

Jean-Paul Biberian: They died young of cancer.

Thomas Grimshaw: And they were theologically driven. They felt-

Jean-Paul Biberian: God was-

Thomas Grimshaw: They thought that God was giving them a command. That's what I know about them.

Jean-Paul Biberian: Yeah. And I don't remember what year it was. We heard about this Cincinnati group. We didn't have no idea who they were. And we ended up hearing that

there were two guys working in the shop. And they came to Italy, to one of these workshops.

Thomas Grimshaw: One of the [inaudible 00:29:33] workshops? I mean the Bill Collins workshops.

Jean-Paul Biberian: Bill Collins workshops. They came with their wives. There were four, six people. I don't know, quite a few people came. And I talked with them. And I said, "Can you send me some samples that I can analyze?" But they send me sample. At that time, I was in [inaudible 00:29:57]. And I put it in the ICP-MS, proceeded with mass distribution. And I saw uranium 235 at 12%.

Thomas Grimshaw: Whoa.

Jean-Paul Biberian: And, uranium, you cannot make it up. Uranium 235, 238, and three masses away. I mean, there's no interference with anything, impossible. So I have seen 235 at 12%.

Thomas Grimshaw: Wow.

Jean-Paul Biberian: And these people died of cancer. And this group in Italy tried to replicate the experiment. [inaudible 00:30:36], the guy died also of cancer. Nobody wanted to touch this thing anymore after that.

Thomas Grimshaw: Well, weren't they trying to neutralize nuclear waste or something?

Jean-Paul Biberian: Yes. Yeah.

Thomas Grimshaw: And somehow they got exposed. But you think the sample that they had given you was one that they had treated, and neutralized, they thought?

Jean-Paul Biberian: They had done something with it. Yeah.

Thomas Grimshaw: Yeah. Well, they were fooling around like Madame Curie.

Jean-Paul Biberian: Well, yeah, but it was not enriched uranium that they're supposed to have. You cannot have it. Even if you want to buy 12% uranium, you cannot. But there was not much. I mean, you cannot have uranium 235. It's 0.7% in nature. You hardly see it. [inaudible 00:31:26].

Thomas Grimshaw: Did they ever give you details of their experiments?

Jean-Paul Biberian: Oh yeah. They had this tube, and [inaudible 00:31:33] to it, they had these other electrodes. But they were using directly the 60 cycle. They were using, I don't know, 300 volt maybe. I know know. They went pretty high. And the whole thing was closed, sealed. So the pressure was going very high inside. And they were using... What were the electrodes they have? What metal was it? Anyway, there was some, but there was no uranium in it.

Thomas Grimshaw: That's interesting.

Jean-Paul Biberian: I have the spectrum, on paper. I'll show you. [inaudible 00:32:23].

Thomas Grimshaw: What'd you do with the sample?

Jean-Paul Biberian: I don't know. It disappeared. I don't know what happened. It's somewhere. No, but that was such a small amount. But it doesn't matter. It was there, percentage wise, which is important, not the amount.

Thomas Grimshaw: Boy, don't get that in the wrong hands.

Jean-Paul Biberian: So many people died with it. So it's dangerous to play with that.

Thomas Grimshaw: Yeah. Like Madame Curie.

Jean-Paul Biberian: Yeah. She died. And even her husband died from an accident. Maybe he was a little bit not clear. Never know. At that time, they had no idea what radiation was. And the strange radiations of the Russians, oh, and you forget that also. I've done so many experiments.

Rutkoyev was taking these nickel and this titanium wires, and he was exploding them in water by using large capacitors, at 3000 volts or something like that. And all of a sudden it was discharging the capacitors. Was brewing like a fuse. And then when he analyzed the composition of the remains, there was a deplete in titanium 48. Could see it many times. Then one day, he added a salt of uranium in it. And to his surprise, when he did the same thing, he had enrichment in 235.

Thomas Grimshaw: Who was this again?

Jean-Paul Biberian: Rutkoyev. The guy was-

Thomas Grimshaw: Oh, yes, I remember that name. Yeah. Yeah, yeah.

Jean-Paul Biberian: Very, very excellent scientist. He went to the nuclear reactor of Chernobyl, visited it. And so the very strange thing, there was a lot of aluminum in the reactor core. Didn't make sense. There's no aluminum. And in a lot of the cold fusion experiments. You find aluminum. Unfortunately, aluminum has only one isotope, 27. So you cannot know if it is abnormal or normal. Anyway, pretty short, let's go back to what it does. It does that.

So I knew a group of people in France who had the same equipment, in Nantes. And there was this guy, unfortunately dead now, who was working with them. And they did this same experiment. They have seen abnormal things also, plenty of abnormal things, lot of hydrogen being produced. I mean, very abnormal.

And one day I told him, "I have uranium salts. Can you put it in the reactor, see what happens?" So they did the experiments. I did the analysis, ICP-MS. And what you see, a decrease of 238, and 235 doesn't move. It seems that this magnetic [inaudible 00:35:25], whatever it is, destroy one of the isotope, the even number of isotope. And just like titanium 48 decrease, 238 did decrease, not the 235. So the enrichment comes not when you increase the 238, but we had decreased the 238.

Thomas Grimshaw: Yeah, to a different metal altogether, not to a different isotope.

Jean-Paul Biberian: No. Yeah. Yeah. I don't know what happened to the 238, no idea. Working to something, I don't know. It's small amounts.

Thomas Grimshaw: But the 235 is unaffected in those-

Jean-Paul Biberian: Yeah, increased in the enriched 235, by depleting the 238. So what can I say? This is an observation. Rutkoyev saw it. I saw it. What can you say after that? I don't know. Very strange things happen.

There was a guy, his name was... We used to work at the French military side of nuclear energy in Bordeaux. And he died now. He was doing experiment with discharges. And one day, he did some of these discharges, and the next day they closed his lab. Because in the atom bomb, they use certain type of X-rays to trigger the fusion reaction. And he had got this fusion, these x-rays. And they closed his lab. They put him in retirement. He was a very good person. He stopped working.

And I forgot to tell you, but once I was talking with Martin Fleischmann. He said, "I know how to make a bomb with cold fusion, but if I tell you that, we do it in the countryside." He was very afraid of being spied upon. The countryside, where nobody going to hear us. And I think he knew about uranium.

Thomas Grimshaw: About the isotope [inaudible 00:37:36].

Jean-Paul Biberian: UD3, probably knew. But, I mean, this guy knew a lot more than I know.

Thomas Grimshaw: When I was doing a project with Mel Miles, he had a tape of an interview with Fleischmann, about the military possibilities of... And I still have that tape. But Fleischmann, by that, he was very worried about...

And there's another theorist who lives very close to Mountain View. He attended ICCF 24. And he became a personal friend because we traveled to Venice together and Padua. But he was one of those who backed away from the field, because of the potential for a suitcase bomb. Yeah. I can't think of his name right now. He's a very interesting guy, a physicist. And he's starting to warm up his interest again, because he was at ICCF 24. And I looked him up after ICCF... See, Padua was '19. That's where I met him.

And he has this theory. I wish I could look it up. But he actually had me take copies of his two papers. And I was at the University of Texas at the time. He said, "I want you to take these to..." My mind is getting tired. The famous nuclear physicist at the University of Texas, [inaudible 00:39:33], he came there from... I'm very embarrassed. I can't think of his name.

Jean-Paul Biberian: That's okay.

Thomas Grimshaw: A very prominent nuclear theorist. And just put him under his door. Actually, I just gave it to his secretary.

Jean-Paul Biberian: And so it-

Thomas Grimshaw: And nothing came of it.

Jean-Paul Biberian: Nothing came?

Thomas Grimshaw: I don't know if he ever even looked at them. I'll have to ask Joan, and she'll remember. No, no, it won't come to me. So, anyway, he was one of those also that was concerned about the high explosive-

Jean-Paul Biberian: Actually, Fleischmann said... He told me, and he talked to many other people too. He wanted to have the field classified, but it was already classified. Not a problem.

Thomas Grimshaw: Yeah. Which we talked about earlier today.

Jean-Paul Biberian: Yeah. With something classified, you cannot say it's classified.

Thomas Grimshaw: Yeah.

Jean-Paul Biberian: Yeah. It's classified. That's why they killed it.

Thomas Grimshaw: Yep. Yeah. That was a nice long prerecorded conversation that we had, about how every country knows everything that's going on in this field.

Jean-Paul Biberian: [inaudible 00:40:51].

Thomas Grimshaw: Yeah, they know. Yeah. Well, this has been a very interesting session in particular. Other things that come to your mind? You gave me two or three very fertile examples about this field as we... We're a little over time, but it's okay, since it's the last session.

Jean-Paul Biberian: Yeah. Then we take photographs. I want to show you photographs of different things they've done, that I haven't showed you yet.

Thomas Grimshaw: Okay. All right.

Jean-Paul Biberian: [inaudible 00:41:23]. Okay.

Thomas Grimshaw: So we'll call this the end of the last session.

Jean-Paul Biberian: Number five.

Thomas Grimshaw: This is session number five. Tom Grimshaw with Jean-Paul Biberian, here in his home in Avignon. And it's October the 5th, 2022. So thank you so much, Dr. Biberian, for consenting to do this project, and to in particular do these recorded interviews, which... As soon as I get them back, I'll send them to you. I mean, I'll have them transcribed, and I'll send you the transcript like I did before. So we'll end this session now. Thank you again.

Jean-Paul Biberian: Thank you.

## **B2. Transcripts of Interview at ICCF-22, September 2019**

This interview was done in two segments.

### **B2.1 First Segment of the Interview**

Tom Grimshaw: Tom Grimshaw here with Jean-Paul Biberian, and it is September 11. We are in Assisi, Italy. Both of us attending the ICCF-22 Conference. And we're taking this opportunity, while we're both here, to do an interview of Jean-Paul's journey to cold fusion, going back to its announcement in 1989 on March 23rd. And Jean-Paul, I thought what we would do, or what I'd do is ask you to tell us what you were doing on March 23rd when you first heard about the announcement from Martin Fleischmann and Stanley Pons. And what was your initial reaction and did you become involved in the field, or what took place for you right after that, please?

Jean-Paul Biberian: Okay, good. On March 23rd, as soon as I heard the news, I realized this was really a major breakthrough. But at that time, I didn't know anything about the electrochemistry. I'm not an electrochemist, and I hated electrochemistry, basically. It's too complicated. Both chemistry and electricity together, it's way too much for me. So, I couldn't do any experiments, at that time. And I remember a few days later, I saw my boss. Everybody had talked about that, obviously, at the university. I was teaching at a university in Marseille. And I saw my boss coming out of the building with his thumb down, saying that the whole thing was over. He was quite happy, I think.

Because this is the worst thing that can happen to a scientist. Because if you have discovered something that big, you have to change your field and go to that new field. And that demands a lot of energy, a lot of learning. I mean, you start on zero, basically. Whereas you had a stature, you were someone, and all of a sudden, you are nobody. So, that's difficult. Psychologically, people don't want change.

So, in 1989, my dream was to go to Utah and talk to them, you know? It didn't happen, you know? But, in 1993, I was a visiting scientist at the Lawrence Berkeley Lab in California, in Berkeley. And my boss there was working in the catalysis. So, I was doing research in catalysis, basically. And I know this guy really liked me a lot. I was there in '76 as a post-doc. And he wanted me to stay in the US, at that time. And he wanted, really, to hire me there. I had a position in France, I went back to France.

Anyway, so, I knew this guy very well. He was hoping to have a Nobel Prize in catalysis, and he never got it. But he was hoping to have that.

Tom Grimshaw: Tell me his name, please.

Jean-Paul Biberian: Officer Gabor Somorjai.

Tom Grimshaw: Thank you.

Jean-Paul Biberian: He is very famous in this field of surface science and catalysis. And what happened, I went back, I was going back and forth to France, because I was doing my teaching in France. I was doing my research in the US. I was really in a complicated situation. My family was staying in France, and I was going back and

forth. So, in 1993, I was back in France. And I met a friend of mine from the same kind of research institute in Marseille. And we started chatting, and at that time, it was really bad to talk about cold fusion. It's like talking about UFOs. Something like really kind of happened, you know?

And for some reason, we started talking about it. And he said, "Oh, you're interested, and I'm interested," both were interested. He's a chemist, but he was not doing anything in this direction. But said, "I know someone at the French Atomic Commission who has done experiments with solid state electrolytes." Oh, then, I realized, this is something I could do, because it was in gas phase, and not electrochemistry with liquids. I am familiar with gas phases, mass spectroscopy, and vacuum technology, that's my field. I was doing research in surface science. So, I knew everything about this kind of experimentation.

So, I got into contact with this guy, whose name was Francis Forgat and he sent me two samples of lanthanum aluminum oxide crystals. He sent them to me in Berkeley. So, I did experiments with these samples, but hiding from the boss. Which was a large laboratory so I could do anything I wanted, basically. And at that time, I had no data acquisition system in 1989. So, I had my two children. So, one was writing the voltage, the other one the current. I made [crosstalk 00:05:08][inaudible 00:05:08] like that.

So, I had started, that was my first work at Berkeley. And I was doing it with hydrogen and with deuterium. And I realized there was a difference between hydrogen and deuterium. So, I decided to write a paper. And I sent it to Jean Pierre [inaudible 00:05:29]. He was the editor of Physics Letters A at that time. He was very open to cold fusion. So I send the paper to him, and he sent it to a referee, who is Jean [inaudible 00:05:41]. He was working at the French Atomic Energy Commission in Grenoble. And Jean [inaudible 00:05:46] receive my paper. He didn't believe what I had written. Said, "I want to do the experiment myself." So that's first time a referee wants to do the experiment.

I moved back to France with my small calorimeter, which was basically standard C tube, 35 millimeter in diameter, with all the electrodes and everything, to do the work. At that time it was easy to take that in an airplane, now I'm not sure I could do that. So I went back to France, and I met Jacques Jean Sean, and he didn't like my design. So he improved the design, he improved the data acquisition system. And the reason why he was so interested, in 1989, he knew Francis [inaudible 00:06:38]. Francis [inaudible 00:06:40] was working in Cadahash where they're building [inaudible 00:06:43].

And he was an engineer, and he wanted to do the experiment with solid state electrolytes. Because in the 60s he had worked on lasers, powerful lasers using crystals. And these kind of crystals, not aluminum oxide and other crystals. And he had noticed different strange things. First of all, when he made them, there was always vacancies of lanthanum in it and these vacancies could allow hydrogen to go inside. And he noticed some strange behaviors so he immediately thought about using them for cold fusion, by applying voltage between two sides of the wafer, and putting two terminals. But when he said to his bosses there that he wanted to do the experiment they said "No, we cannot trust you, we have to send to someone else who can do the experiment."

So he sent it to Lonchamp and Lonchamp did the experiment, and he got some results but Lonchamp thought that it was negative and [inaudible 00:07:49] thought they were positive, same results, same data, their interpretation of the data. That's an issue, how to interpret the data. So Lonchamp was very skeptical about my results. So we started working together, and I even moved to Grenoble when I left the U.S. and did experiments with him for three, four years. And we got results, not as good as I was hoping to. And we saw some things, even maybe some neutrons at one point. Very very small amounts. We published it at different conferences together and that's how I got started. And then I worked with Lonchamp in Grenoble, and Lonchamp was an electrochemist, so I've learned electrochemistry, I mean the simple kind of electrochemistry. Just to one page, no reference or nothing, simple. And Lonchamp had met Martin Fleischmann, they were in France at that time. So he met them and-

Tom Grimshaw: At Technova?

Jean-Paul Biberian: Technova, and they gave him the cells. There are two of these, it carries two cells, and he was doing the experiments. I have learned how to use the cells, calorimetry, and also I was very careful, experimenting with these very precise measurements. So we got results with that, we even did the experiment, the boil off experiments. He's the only one who's done it actually. He's the only person that complete the repetition and implication of the work. It was difficult to do these measurements, but we did it. So that's how I got involved. And then I was, before that actually I was in the U.S. and I met Roth George and Roger Streicher. They have this laboratory, Mountain View, and I was in Berkeley, that's not far. So for a while I would commute from Berkeley to Mountain View to do the experiments with them. We did some measurements, we found that there was excess C2 in this cavitation system. So I learned how to use cavitation experiments.

Tom Grimshaw: Good.

Jean-Paul Biberian: So, slowly, slowly I get involved in different type of experiments. And my favorite experiments are gas phase because that's more like my field.

Tom Grimshaw: Yes.

Jean-Paul Biberian: And I know how to use pumps and I know vacuum and I know all of these elements I learned that by teaching me. [inaudible 00:10:22] So that's how I got involved.

Tom Grimshaw: Okay.

Jean-Paul Biberian: And in 1985 there was the ICCF5 in Monaco.

Tom Grimshaw: Okay, good. So let's stop here for a minute, I have a few questions, and then we'll pick it up again at ICCF5.

So, going back to the very initial announcement when your then supervisor gave thumbs down, it was like he was relieved that cold fusion had been rejected, and that was a very fast process that took place within a year.

Jean-Paul Biberian: Two weeks, something like that.

Tom Grimshaw: Yeah, when you think of the American Physical Society meeting May 3rd, for example. Yes, okay.

So he was relieved, so you were pretty much on your own then and you didn't really...so your first work wasn't until about three years later when you were in California, okay, okay. Good.

And so when you were at Livermore in California in 1993-

Jean-Paul Biberian: Berkeley, California.

Tom Grimshaw: Oh, in Berkeley, thank you.

Tell me again what was your initial involvement with the crystals, you said, and you had gotten the crystals from?

Jean-Paul Biberian: From Francis [inaudible 00:11:44] from France.

Tom Grimshaw: Okay.

Jean-Paul Biberian: From France Atomic Energy Commission.

Tom Grimshaw: Oh, okay, okay.

So you were working on your own then, when you were still there.

Jean-Paul Biberian: Yes.

Tom Grimshaw: Yeah, okay, okay, good.

And then subsequently you became involved with Lonchamp because you had submitted this paper and he was a referee.

Jean-Paul Biberian: Yes.

Tom Grimshaw: Okay I just wanted to be sure I understand the sequence. Okay, and you actually moved your family to Grenoble, to be with Lonchamp, or?

Jean-Paul Biberian: No, actually my family stayed in the U.S. because my kids were going to school there, so I was alone teaching and working and it's kind of messy.

Tom Grimshaw: Yeah I understand, okay. That happens.

Jean-Paul Biberian: I loved it you know, because I was working and I had a good time.

Tom Grimshaw: Good.

Jean-Paul Biberian: And Lonchamp was a great person.

Tom Grimshaw: Okay.

Jean-Paul Biberian: He was a very careful person, he was great, he died from fatigue quite a few years ago but, anyway.

Tom Grimshaw: But he knew electrochemistry, which-

Jean-Paul Biberian: He was electrochemist.

Tom Grimshaw: Yeah, and those were fairly few people who really understood electrochemistry and electrolytic cells. I mean of course, Martin Fleischmann was kind of the dean of electrochemists at that time and then of course Bockris was involved. Now Miles was an electrochemist who worked very closely with Martin Fleischmann. But your preference was gas loading and gas systems.

Jean-Paul Biberian: Yeah.

Tom Grimshaw: Okay

Jean-Paul Biberian: I remember, early on, maybe it was 1994, probably just before the conference in... Actually, interesting story happened.

In 1993 when I came back to France with my calorimeter, somehow someone talked to the local journal. So I ended up having my picture in the front page of the journal, and a full last page explaining the thing. And after that the French Secret Services call me. So I met this guy, we talked for a while, he was a scientist, he was a general in the army, but he was a scientist. We talk about quantum mechanics and everything and a few months later we're at ICCF5 in Monaco, and who I see there? The general was there! And I said, "Wow you're here" He said "Shh I'm not down here". He had another name, you know.

Tom Grimshaw: Secret mission.

Jean-Paul Biberian: Secret mission, thank you.

Tom Grimshaw: But no doubt, what he heard from you in that encounter, motivated him to get more involved and to learn more.

Jean-Paul Biberian: Yeah I mean his was the following "How come the Japanese have a research lab in France, so far from their base?" This is spying, you don't do research 10,000 kilometers away from your home, you know? You do research close to your home.

Tom Grimshaw: Uh-huh, antennae go up.

Jean-Paul Biberian: Yeah, quietly they learned things. Even openly, they learned things. So anyway, that was the reason.

Tom Grimshaw: Well this might be a good point then to pick up a thread where I interrupted you with ICCF5.

Jean-Paul Biberian: Yes, ICCF5 happened, it was in Monaco, I think it was Martin Fleischmann that organized it. And I think they didn't want to do it in France, they were worried about the situation, so they did it in Monaco, safer. Some how its a different country but not really different politically. And so that was there, and they were looking for someone, a French person to be part of the group of people that decides where the next ICCF is at.

Tom Grimshaw: Oh yeah, the executive committee.

Jean-Paul Biberian: Committee, yeah exactly. So they pick me, so since 1995 I have to go to all the meetings, you know. I ended up, because I was the first one, there was nobody else at that time.

Tom Grimshaw: Okay.

Jean-Paul Biberian: Lonchamp was very shy, he didn't like to be out in the open he wanted to work quietly. So I ended up being there. I visited Martin Fleischmann laboratory and I talked with him. And I remember one of the first things I told him, "Well what about biological transmutations" Because actually in 1977 during my first stay in the U.S. I ended up reading a book about that, and plus in the back of my head. And again I'm not a chemist, so doing chemical analysis, I don't know how to do that. Test tubes, I don't know how to use test tubes. But when doing cold fusion, I learned other techniques to do measurements with physical instrumentation, like

ICP mass, ICP optical, all kinds of things that you don't need to have test tube to, much easier. Faster, simpler, safer, better.

Tom Grimshaw: Yes.

Jean-Paul Biberian: So I said well we should do biological transmutation. I talked to Stan Pons and Martin Fleischmann about it, they knew about it. They already knew about that, biological transmutation. And I'm not surprised about the question.

Tom Grimshaw: Mm-hmm (affirmative)

Jean-Paul Biberian: They didn't do any work on that but they knew about it.

Tom Grimshaw: Mm-hmm (affirmative).

Jean-Paul Biberian: So I had the chance to visit the laboratory, and as you know they split in '96, '97, I don't know what year exactly, that range. And Stan Pons was alone at that time, Martin had left back to England. He was ready to hire me. I was so happy to go to work with him, you know, with Stan Pons in his laboratory. But, the lab ended up closing, and I-

Tom Grimshaw: Yeah, there was some kind of controversy with Technova and how they were using the information of something as I recall.

Jean-Paul Biberian: The reason was, that for some reason, people at Technova in Japan, didn't want them to succeed.

Tom Grimshaw: Yeah.

Jean-Paul Biberian: Didn't want them to succeed.

Tom Grimshaw: That's what I heard, yeah.

Jean-Paul Biberian: They told me that, I mean, many times. So they had the data but now they don't even work. So they were doing the exact same thing in Japan as they were doing in France. But, the Japanese were saying it didn't work, even though it was working.

Tom Grimshaw: Ah-hah. Okay. So in France they couldn't even be at odds with what was being said in Japan.

Jean-Paul Biberian: They were Japanese, so they weren't going to listen to an American guy.

Tom Grimshaw: Right.

Jean-Paul Biberian: And they ended up closing. Because some people didn't want to succeed. I mean there were all kinds of political reasons in the company. So they didn't do it then. So what Stan Pons told me, I'm a friend of him, I'm one of the people he can talk to.

Tom Grimshaw: Very good.

Jean-Paul Biberian: I have his phone number, email.

Tom Grimshaw: He's still living in France?

Jean-Paul Biberian: Yeah, he is living in France. I meet him sometimes. I mean it's been two years since I meet him but I exchange email sometimes.

Tom Grimshaw: Good, good.

Jean-Paul Biberian: Sometimes people want to write him so they send me mail forwarded to him.

Tom Grimshaw: Good for you, yeah.

Jean-Paul Biberian: Usually it never ends up to anyone, especially all the job lists we want to get away from.

Tom Grimshaw: Yeah, yeah. It's not surprising to have negative memories.

Jean-Paul Biberian: Yeah. He has very negative memories. He told me that. He was in my house, TV cameras around me, their guarded. Trying to make... he hated that.

Tom Grimshaw: Yeah. Very unfortunate.

Jean-Paul Biberian: By the way, [inaudible 00:19:15] Said how deep was the hole. The concrete, he showed me, he said "that big and that deep."

Tom Grimshaw: And this was after it had gone through the lamp table.

Jean-Paul Biberian: Yeah.

Tom Grimshaw: Yeah, amazing.

Jean-Paul Biberian: Show me, I'll show me with me hand, about 40 centimeter, 50 centimeter wide and 15 centimeter deep.

Tom Grimshaw: Amazing.

Jean-Paul Biberian: Anyway, so they were scared after that, they didn't want to touch and scare away the electrodes after that. That was it. They were very careful by then.

So anyway, that's how it got started. So I worked with Lonchamp for until 2000 and in 2000 he had to retire because of administration. In France, it's very critical, when it's time to retire, you have to retire.

Tom Grimshaw: Oh, mandatory retirement.

Jean-Paul Biberian: Mandatory retirement. You cannot say "I want to work until I die."

Tom Grimshaw: Yeah.

Jean-Paul Biberian: So, that meant I couldn't stay there and I moved to Marseille. I brought all the equipment with me in a truck and started my own laboratory.

Tom Grimshaw: Okay.

Jean-Paul Biberian: But without any funding, basically. So I had friends I could make it with somehow. I did work there until my own retirement. I was forced to retire. I was 66, that was the maximum I could do. So I moved to Avignon with my family. Actually I married between that. And then I moved to Avignon and made my own home laboratory. Now it's good I can work 24 hours, seven days per week.

Tom Grimshaw: Good. Okay, so Lonchamp retired in you said about 2000.

Jean-Paul Biberian: 2000.

Tom Grimshaw: Okay. But you've been very active in the field and so after you stopped doing experiments with him in Grenoble, then you opened your own lab. Was that soon after?

Jean-Paul Biberian: Immediately after.

Tom Grimshaw: Immediately after.

Jean-Paul Biberian: At the university.

Tom Grimshaw: Okay. At the university.

Jean-Paul Biberian: In Marseille.

Tom Grimshaw: Okay. In Marseille. And that was until you retired.

Jean-Paul Biberian: Yes.

Tom Grimshaw: Which was in what year?

Jean-Paul Biberian: It was in 2012.

Tom Grimshaw: 2012, so 12 years of experience in the university. And so you were publishing papers in that 12 year period, also. Okay. And hosting ICCF conferences and [inaudible 00:21:52] with other experimenters and other people in the field and since 2012 you've had your own laboratory and have been continuously doing experiments during that time?

Jean-Paul Biberian: Yes. I couldn't stop. It was like a poison, or like a drug. Which one is best?

Tom Grimshaw: An addiction.

Jean-Paul Biberian: An addiction.

Tom Grimshaw: Opium.

Jean-Paul Biberian: Yeah it is like it.

Tom Grimshaw: Okay. Very good. So part of the adventure here is, and I'll see this when I see your CD, is develop a timeline and I think you pretty well defined it here. And so we'll recognize the phases of your research and the techniques you were using the signatures that you were employing. [inaudible 00:22:47], as you were watching it. So let's do a little bit of backward in time now, In your own laboratories, which would be seven years since 2012. What methods and equipment have you been using to achieve the effect and what have you been using for signatures of its occurrence?

Jean-Paul Biberian: Because of my limited resources, the only thing I could do was measure temperature. Basically, because that's cheap. So, the only thing I could do was measure temperature and no equipment to measure gamma rays, couldn't even do a microscope, because the university has the equipment and I can't do that. When I was in Grenoble, I could do some ICPMS experiments because I had access to some equipment there, I mean France basically works on the [inaudible 00:23:40] not unofficial.

Tom Grimshaw: Right.

Jean-Paul Biberian: So I could do some ICPMS experiments, both in the field of biological transmutation and catalysis of different things. For instance, there was a Cincinnati group, remember that group.

Tom Grimshaw: I've heard of that group. Tom Claytor worked with them at one point. Yep.

Jean-Paul Biberian: Unfortunately they both died of cancer, but

Tom Grimshaw: Okay. That's unfortunate. They were looking up transmutation for nuclear waste for mediation if I recall correctly.

Jean-Paul Biberian: Yeah, but they gave me some of their sample [inaudible 00:24:19] ICPMS and I saw uranium peak in too big, 235 and 238, and 235 is 0.7% of the other one, normally. In my case, it was 12%.

Tom Grimshaw: Oh, wow.

Jean-Paul Biberian: That's a lot more than you can get.

Tom Grimshaw: In nature.

Jean-Paul Biberian: In nature or even in a regular plants. Only the military has 12%, so I don't know how they got 12%. So there reactions, they were working with... 232 is...

Tom Grimshaw: Plutonium

Jean-Paul Biberian: No, no, the one before. Who did they want the reactors with that now? 232, 23.

Tom Grimshaw: I don't remember myself, so you are going to look it up on your phone, good for you.

Jean-Paul Biberian: All that matters here. It's important to have it. Okay, here it is. Oh no, no. I'm not good at using these complicated telephones. Where is uranium? Oh, here. Thorium.

Tom Grimshaw: Thorium, yes.

Jean-Paul Biberian: They were using thorium.

Tom Grimshaw: Okay.

Jean-Paul Biberian: They were using thorium and maybe uranium, I don't know. Anyway, that was interesting to look at that.

Tom Grimshaw: Mm-hmm (affirmative). So, go ahead.

Jean-Paul Biberian: Yeah, so when I was in Grenoble, I did a kind of experiment with biochemical transmutation that was rich with bacteria. Every time I was seeing something abnormal. Especially increase of calcium and decrease of silicon. I published the report on that, I didn't publish everything I was doing one by one because that's not enough and then recently I published 20 years of research of biological transmutation.

Tom Grimshaw: Very good.

Jean-Paul Biberian: So that cannot be lost. I don't know if it's very precise but it is better than nothing. At one point you can publish part of your work.

Tom Grimshaw: Sure.

Jean-Paul Biberian: When I was in Marseille, I had my idea about the mechanics. It is well known that you don't do an experiment for an experiment, you have an idea behind it.

Tom Grimshaw: All right.

Jean-Paul Biberian: So my idea was the following, if you take a form of palladium, and you put gas on one side and vacuum on the other side, but Deuterium becomes a molecule and get to the surface, disassociates, because it is a good catalyst for association with hydrogen, then Deuterium atoms go inside, glue their electron, or partially. They are [inaudible 00:27:32], go to the other side, get the electron, find another Deuterium, mix the molecule and get out. So it's the noble way of doing things, right? So I was thinking, if cold fusion is happening when they're some dynamic in

the system. Aesthetic, nothing happens. You need dynamic situation. Then what I was thinking that if you can fuse two nuclear atoms. Now, the only way was seeing at that time was the electrons creating. Because you have electrons creating then you can get them closer.

Tom Grimshaw: Overcome the cooling barrier.

Jean-Paul Biberian: Because of the electrons. And as you know, the electrons are not spinning at a perfect radius. They are probably tending to be very close to the nucleus. The electrons are very close. So if you have a nuclear atom on the other side of the wafer, at the time I'm going out, you have a D atom with a [inaudible 00:28:39] sometimes very close, and at the same time you have a [inaudible 00:28:44] coming, and if there are enough D's on the surface, then once in a while, one would interact with the D electron and the nucleus. That's my idea.

So, I have two [inaudible 00:28:54], you need to have lots of these on the surface. Without making molecules. And other the other side you need a high flux of D plus so that you have a chance to have something. That is my idea in my head. So, in order to have more D's on the surface, one way is to put a thin sputum of gold so that you stop the recombination. Because that will not recombine on their own. So if you stop recombination, you stop consumption. So you can have a lot of D's and if you have a high flux rate, reduce the temperature, then the yield will be higher. That is my thinking. It's not a model. You need a model anyway.

Tom Grimshaw: I understand.

Jean-Paul Biberian: Some models are wrong, some are useful. [crosstalk 00:29:50] Science is not the truth, it's the model. Science is not giving the truth.

Tom Grimshaw: It's the limitations of the human mind.

Jean-Paul Biberian: Yeah, [inaudible 00:30:01] it's impossible. That is my understanding. So I take a palladium cube, I used by people doing hydrogen purification. You put dirty hydrogen on one side and heat it up and it comes out clean hydrogen on the other side. So I got one of these tubes, which had Deuterium in it. Heat it up, and I had built a carimeter, a metro carimeter, because we have a workshop in the university and I know the guy in the workshop so he did it for me.

Tom Grimshaw: So you know.

Jean-Paul Biberian: [inaudible 00:30:44] from the lab. [inaudible 00:30:49] anyone else. People don't realize it. I managed to do this experiment and I exceeded that way. And I published it actually. And at that time, there was a young guy called Nicola [inaudible 00:31:08]. And this guy is a young person in his late 20's and he said "I want to work on cold fusion." I said "I cannot hire you." He left his job, he was near Leon, and he left his job said "I want to work on cold fusion." I said "I cannot hire him." When he came, said "okay, I am unemployed. I get money from unemployment and I will work with you for free." SO for two years he worked with me.

Tom Grimshaw: Volunteer.

Jean-Paul Biberian: Volunteer. And it happened at ICCF in Russia. My mother got a stroke, and I couldn't go to Russia. So he went to present the work we had done. He was young and [crosstalk 00:31:58]

Tom Grimshaw: Recognition.

Jean-Paul Biberian: Recognition.

Tom Grimshaw: Very nice.

Jean-Paul Biberian: Thanks to my mother.

Tom Grimshaw: Yeah.

Jean-Paul Biberian: So that's how I got some help. He knew more about chemistry than I do. And also one day, I forgot to tell you that I was talking with Stan Pons and said "come to my house." He gave me all the equipment he had, all chemicals. Electronics data acquisition system, he gave me everything he had cause he didn't want to keep it. He didn't know what to do with it. [inaudible 00:32:28.] He had electrodes.

Tom Grimshaw: Amazing.

Jean-Paul Biberian: Yeah the truck was full of equipment.

Tom Grimshaw: Wow. That's the way it happens sometimes. Things close down and then what happens to the equipment? It happened with Skinner, by the way.

Jean-Paul Biberian: Yeah, I know. Skinner, I believe it. But I'm too far from Skinner. But I'd love to have some equipment.

Tom Grimshaw: Yeah.

Jean-Paul Biberian: So that's lots of electrodes, palladium, I mean that kind of thing. So, I've done lot of this work with diffusion of deuterium through the palladium walls.

Tom Grimshaw: With the gold plating on the vacuum side.

Jean-Paul Biberian: On the vacuum side and everything. And I forgot to tell you one thing. When I was working in Grenoble, when Lonchampt retired, I stayed there for a few months working there, I think it was ICCF7 in Vancouver, I don't remember. I think it was seven.

Tom Grimshaw: Yes.

Jean-Paul Biberian: And there was someone gave a talk saying you could use gold atoms instead of platinum atom. So when I went back to Grenoble, I used a gold atom and ran an experiment with gold atom, I said "why not." Gold, platinum, it may be gold. A few days later, there were no more gold. It completely disassociated, there were no electrodes anymore. No atoms. And the palladium was gold plated.

Tom Grimshaw: Yeah. So the atoms migrated from the anode, to the

Jean-Paul Biberian: To the Palladium

Tom Grimshaw: On the [inaudible 00:34:12] side. Amazing. Yeah.

Jean-Paul Biberian: Wonderful red, gold, yellow. So I left it for a while and then I wondered what this is maybe [inaudible 00:34:23]. I should do it with another platinum atom. So I put the platinum atom and started running it. I Went all the way to boiling and when I reached boiling it went so fast. Never seen anything like that.

Tom Grimshaw: Excess heat.

Jean-Paul Biberian: Excess heat. Too much. I couldn't measure it, just too much.

Tom Grimshaw: Yeah, yeah.

Jean-Paul Biberian: So after that I try it again with gold. I could make it the way like the first time. Try different ways of make it deposit gold.

Tom Grimshaw: It didn't want to deposit then.

Jean-Paul Biberian: No. First time it worked. It was beautifully gold plated I don't know what I did the [inaudible 00:34:58]. I mean that's wonderful. That why I was interested in gold.

Tom Grimshaw: Okay.

Jean-Paul Biberian: Gold is interesting because its kind of a rectifier. Like a dial. Hydrogen go in, because with electrochemistry, you disassociate the molecule because you put the edge directly, you have edge toward it.

Tom Grimshaw: And the oxygen-

Jean-Paul Biberian: And the oxygen goes away.

Tom Grimshaw: Goes away.

Jean-Paul Biberian: And that goes inside because it is [inaudible 00:35:23] but cannot go outside because it needs to make a molecule to go out.

Tom Grimshaw: Mm-hmm (affirmative). Okay.

Jean-Paul Biberian: So you block it.

Tom Grimshaw: Okay.

Jean-Paul Biberian: [inaudible 00:35:34] So using gold is great.

Tom Grimshaw: So it served as the seal you were looking for.

Jean-Paul Biberian: Exactly.

Tom Grimshaw: To accumulate, to concentrate, the monotonic, I mean the monotonic Deuterium. Okay.

Jean-Paul Biberian: So that's why when I went to gas phase I did the same thing. Depositing gold. To block the de recombination. So if you have a tube, a closed tube obviously, put Deuterium, it will go inside the walls of the tube. Some will go out obviously always. But it will slow down by a lot.

Tom Grimshaw: Yeah, the coating is not perfect, of course.

Jean-Paul Biberian: Yeah, never perfect.

Tom Grimshaw: Yeah, of course.

Jean-Paul Biberian: So adding a pinch of [inaudible 00:36:22] clean. But that's a good idea to block it. Anyway that is how I worked on that. I worked also at that time, there was the Stan Pons [inaudible 00:36:43] with condensation. And with Lonchamp, we decided to do something similar, but not the same. The way they did it, we did it with heat [inaudible 00:36:57] instead. So we used the large cell. About 50 centimeter long. And then inside we put a condenser, and were running cold water coming out as hot water. And we did it with the design and the first time [inaudible 00:37:18] I can't remember exactly what journal it was. We run it but it started leaking. So

that's why we decided to do it in glass instead. So when I was in Marseille, I built several of those cell and did some experiments with this apparatus.

And in 2004, I was organizing ICCF11 and one morning I arrived to my lab and the first thing I look at this screen, the computer screen. I don't know how I am, I don't see things. My wife [inaudible 00:37:58]. I look at the screen and then I look at the cell which was all broken. Instead of looking at the cell, I looked at the screen. Obviously there was no more cell.

Tom Grimshaw: Yeah.

Jean-Paul Biberian: [inaudible 00:38:12]. It was all broken. So I thought it was an explosion. It was an explosion. And it was running at low power. I didn't understand what happened. Maybe it was a nuclear explosion, maybe not. I published it at some point. I don't know what happened.

Tom Grimshaw: Again, it's very characteristic of this field is that these allonomous events almost always, it seems, occur when no one is present.

Jean-Paul Biberian: It was during the weekend-

Tom Grimshaw: During the weekend or overnight. Yeah.

Jean-Paul Biberian: It's good it happened when I wasn't there. There was glass everywhere.

Tom Grimshaw: Yeah.

Jean-Paul Biberian: After that, I decided not to do this experiment again.

Tom Grimshaw: Yeah?

Jean-Paul Biberian: Unless I had a shield around me, it was too dangerous.

Tom Grimshaw: Yes. Well, yes. Okay. Well, good. Let me ask a question. I think you pretty well brought me up to date for the last seven years, working in your laboratory. And I'd like to come back and do a more systematic sequence in a subsequent interview.

Jean-Paul Biberian: Okay.

Tom Grimshaw: Just to make sure I have the sequence correct.

Jean-Paul Biberian: Okay.

Tom Grimshaw: But, I always like to ask this question: can you think of three, maybe six, maybe more, maybe less, events in your experiments where you were the most certain that you saw the cold fusion? Saw the Lenner effect?

Jean-Paul Biberian: That is the million dollar question. I hate that question.

Tom Grimshaw: You don't have to answer it, but I always like to ask it. Because it's very interesting. Usually some people have one or two events that really sticks in their mind.

Jean-Paul Biberian: Okay. Two levels. When I was working with Lonchamp, we had good results, but at low level power. So you have to be careful because of the milliwatts. You have to be very careful in doing the measurements. [inaudible 00:40:21] Actually at one point, I was talking with Lonchamp and I said "well, we have a problem. We don't know if it works or not." The easiest way to do that is to reverse [inaudible 00:40:31]. So the same cell, everything identical, so we see if it works. And when we did that, there were more heat waves.

Tom Grimshaw: Ohh. Very challenging to explain.

Jean-Paul Biberian: Yeah it's platinum [inaudible 00:40:52]. And actually when I talked to Stan, one day a long time ago, he said that he had the same thing. Platinum was producing excesses. Now that was one of the questions people were asking all of the time to them. Did you make blanks with head light water? And they were never really clear about what they did because sometimes it works.

Tom Grimshaw: Sometimes the blank produces excess heat.

Jean-Paul Biberian: Excess heat. That's the problem.

Tom Grimshaw: That is a problem.

Jean-Paul Biberian: Because you don't know what works and what doesn't work. So anyway, so at that time, we had many experiments showing excess heat with this [inaudible 00:41:32] but at low level. The one I did with the diffusion of hydrogen and palladium, that one gave a lot of excess heat. For a long time for several days.

Tom Grimshaw: With the gold.

Jean-Paul Biberian: With the gold with the palladium. And that's maybe more comfortable with that one. When I see my wife is doing sociology or psychology with me, when I have a good result, the first thing I try to do is find the error.

Tom Grimshaw: Of course.

Jean-Paul Biberian: Where is the error? I want to find the error.

Tom Grimshaw: I don't want to be a fool.

Jean-Paul Biberian: Yeah. I want to be the one that finds the error not someone else.

Tom Grimshaw: Right, exactly.

Jean-Paul Biberian: So my problem all the time is: did I really see it or maybe there was something maybe I missed something, maybe something went wrong. So I understand my point. It's very difficult.

Tom Grimshaw: It's a difficult question.

Jean-Paul Biberian: It's a difficult question and I've seen it. But, sometimes I can't repeat it. There's a problem. Now, for instance, if you deposit gold in this tube. I mean, you never do it twice the same way.

Tom Grimshaw: The other characteristic of this field is almost identical circumstances results in no effect.

Jean-Paul Biberian: Do you think it works? Are you so happy, I am happy it works and the second time to do it, it doesn't work.

Tom Grimshaw: Yep. Materials variability-

Jean-Paul Biberian: Recently, I've been working with [inaudible 00:43:11] and Nissan. Nissan has a research program with [inaudible 00:43:15]. So it's collaboration [inaudible 00:43:20] has no laboratory to build oxygen research. So I do the experiments. They buy me the equipment. Nissan gave me the powder. I do the measurements. I double up the calorimeter. I think I've become very good at making calorimeters.

Tom Grimshaw: Mass flow, usually.

Jean-Paul Biberian: I did mass flow and this time I did heat flow.

Tom Grimshaw: Okay.

Jean-Paul Biberian: With [inaudible 00:43:44]. So I simplified the system. People put a lot of [inaudible 00:43:49] around thousands of them with [inaudible 00:43:51], you can buy them. But I like to build things by myself completely. So what I did, because I'm using cylindrical cells, so there is cylindrical symmetry, so the same thing in all directions. I don't need to put [inaudible 00:44:07] everywhere. It's in one direction, that's enough. So, just because I was saying, same in all directions.

Tom Grimshaw: Of course.

Jean-Paul Biberian: So made a prototype, a long time ago, when I was in [inaudible 00:44:19, my lab. [inaudible 00:44:23] inside and 17 outside, an insulator in between. Very simple. Cheap. I made the [inaudible 00:44:32] myself. Then, with a guy from Grenoble, we decided to do the same thing, but much better quality. The guys is an engineer. He knows how to make the drawings. [inaudible 00:44:46] outside with high quality materials with aluminum casing. Everything perfect. Mine was [inaudible 00:44:53] and his was much better. With 50 [inaudible 00:44:56] instead of 17. Much better. And I'm trying to remember, I can go up to 800 [inaudible 00:45:04] without any problem.

Tom Grimshaw: Yeah.

Jean-Paul Biberian: One of the issues with the gas and experiment is the high temperature. And all metal leaks out hydrogen, especially stainless steel. About 700 something, it starts leaking. SO we tried different things and we couldn't find a solution so I said "let's use quartz." Quartz is good, cheap, simple.

Tom Grimshaw: Tight.

Jean-Paul Biberian: Tight. [inaudible 00:45:32] and its a lot cheaper than the machine.

Tom Grimshaw: Yeah, yeah.

Jean-Paul Biberian: And it's already got the tube and the solar is all we have to do. So I made some with quartz. The Japanese had this powder with [inaudible 00:45:54]. So they gave me the sample. I put 20 grams in the cell. I measure the excess heat with temperature. I can measure up to 350, 400 degrees. A good [inaudible 00:46:11] with temperature. Put 40 grams in it, twice more. That's good.

Tom Grimshaw: Hey, so far, so good.

Jean-Paul Biberian: I can double it as a 24, 40, but with 80, zero. I was sure in December last year, that I will have it heat by itself. Because it produces more heat than I need to get the temperature. Then my inclination is perfect with vacuum.

Tom Grimshaw: So this has worked with Nissan [inaudible 00:46:42] in your own laboratory.

Jean-Paul Biberian: In my own laboratory.

Tom Grimshaw: Oh, okay.

Jean-Paul Biberian: Even before Nissan came to visit my lab, twice already.

Tom Grimshaw: Very good.

Jean-Paul Biberian: Because they don't have a campimeter with high temperatures. Mine can go to 800 degrees, there's is 350.

Tom Grimshaw: Okay.

Jean-Paul Biberian: There is very massive, mine is light. I've been doing calorimetry for 30 years now.

Tom Grimshaw: Okay.

Jean-Paul Biberian: And it's easier for me because I'm alone.

Tom Grimshaw: Yeah.

Jean-Paul Biberian: They have a group of people discussing for year. Years of discussion before changing one nub.

Tom Grimshaw: Yeah, yeah. Well I had the interesting feedback on working in Japan also from Mel Miles. He worked at the New Hydrogen Energy Laboratory for, well, several months.

Jean-Paul Biberian: Yeah.

Tom Grimshaw: I think six months. Very good.

Jean-Paul Biberian: I am pretty sure I had good results. I gave you three numbers, gave results. But I don't have one experiment I can repeat every time and it works yet. I am so close.

Tom Grimshaw: Well that would be called a lab rat.

Jean-Paul Biberian: I know.

Tom Grimshaw: If you had such a thing.

Jean-Paul Biberian: If I had such a thing I would have [inaudible 00:47:57] do whatever I want. To tell you the truth.

Tom Grimshaw: Yeah.

Jean-Paul Biberian: It's crazy. [inaudible 00:48:01] lab rat. You have the means and have the technology.

Tom Grimshaw: Yes. The holy grail.

Jean-Paul Biberian: Unless you do something just no application industrially, then you have a lab rat. Activities to measure heat at large amounts care about lab rats. Ask anyone to come and give you that at work.

Tom Grimshaw: It's a mystery talking to different people who've been in the field a long time, as you have. It's very interesting to see the spectrum of ideas of reproducibility or lack of reproducibility. The interaction between lack of reproducibility and inadequate explanation, I mean, poor Peter Hailstein. He has a graveyard of explanations. But, like you, people have good ideas. Your idea sounds quite similar to one Mel Miles has. That is on the surface and as a result of migration through the material and of course I just had an interview with Chino and they were using commercial tubes of like you just described that they had on hand. They had purchased these tubes for hydrogen purification.

Jean-Paul Biberian: Exactly.

Tom Grimshaw: And that's what he used in his initial experiment. Okay so this has been an excellent first interview. I usually go for about 30 minutes, we're at 49 now, so thumbs up, very good. So we'll stop this interview and perhaps have a second one and I will step through it to get the sequence down.

Jean-Paul Biberian: Because at this point we miss a second type of experiments with the beads.

Tom Grimshaw: With the beads. Okay.

Jean-Paul Biberian: And with have another work on beads.

Tom Grimshaw: Okay.

Jean-Paul Biberian: With Lonchamp and myself later on.

Tom Grimshaw: Okay. Well let's pick that up in the next interview. So, I'm going to wrap this one up because I don't want too much invested in just one file. So it's Tom Grimshaw here with Jean Paul Biberian and we are talking about his cold fusion journey and his experiments. It's been a very fruitful interview and thank you Jean Paul. I should also mention in closing that this is September 11, I believe.

Jean-Paul Biberian: 2019.

Tom Grimshaw: Thank you. September 11, 2019. Thank you. We're at ICCF22 in Assisi. So if all else fails we'll know when that happened. So again, thank you Jean Paul, and we'll stop here.

## **B2.2 Second Segment of the Interview**

Tom Grimshaw: Okay, Tom Grimshaw here with Jean-Paul Biberian. It is September 11, we are at ICCF-22 in Assisi, Italy. The weather is beautiful, very sunny, very comfortable temperature, very Mediterranean kind of day today. The purpose of our recording today is to do a second interview with Jean-Paul on his journey through cold fusion, beginning back with the March 23rd, 1989 announcement.

And, Jean-Paul, you've been one of those in the field that's been active almost from the very beginning. And so I'd like to suggest we go back through your career item by item, phase by phase, as you remember it, and what you were doing.

And then either at the end of this interview, or maybe at a subsequent interview, talk about your contributions in the field as editor of the Journal of Condensed Matter and Nuclear Science, which is another very, very important way of which you have contributed to the cold fusion field. Okay?

So go ahead, Jean-Paul. We'll retrace a little bit back to March 1989. Please let us know where you were and what you were doing, and when you became involved in the field.

Jean-Paul Biberian: Well, on March 23rd 1989, I was working as a professor at the University of Marseilles. I was teaching physics and my research was surface science. I was looking at the position of atoms and the surfacing materials. What happens to them when you add another one atom of different kinds. I love these kind of things, two-dimensional crystallography.

I cannot think three-dimensional. I can only think two-dimensional. So that part's good for me. So I loved it. I really enjoy this work. I've been doing that for years, and I really like it. But when the news came out, for me it was like, this is it. In the life of a scientist, if it happens once in your lifetime, you're happy, you know?

So for me, I was feeling we're back in the beginning of the twentieth century when they discovered quantum mechanics and relativity and these things were happening so fast. And I had the same feeling we are after something very important.

So when I started working in cold fusion, it was in 1993. And we started studying electrolytes. And, [inaudible 00:03:13].

(silence) [inaudible 00:03:13]

And it didn't publish there, but I started to [inaudible 00:03:15] letters A with Jean Pierre Vigier, which sent it to Lonchampt for review, and we asked him to come with the equipment to do the experiment. That's how it got started. And...

Tom Grimshaw: Excuse me, I'm going to probably interrupt a few more times this time. What was the nature of the work that you were doing in California when the announcement took place, please?

Jean-Paul Biberian: My field was surface science, so I was doing low energy electronic diffraction and I was supposed to analyze the exact position of the atoms of the surface with some computer programs. And, at that time my boss was Gabor Somorjai. He wanted me to work on this research project with iron and some catalyst thing. I told him, this is interesting, but cold fusion is more interesting. He said, "don't do that. If you do that you will lose your credibility. And if you do that, I don't want to have my name associated with your name anymore." So that's what I did. We broke up after that. I wanted to work in cold fusion.

Tom Grimshaw: That happened very commonly in the field, but I think yours is the most straightforward example that I've heard where he told you that he didn't want to be affiliated with you any longer if you pursued this field and congratulations to you for your stubbornness for staying with the field.

Jean-Paul Biberian: Well, actually the field is so important. I have no credit, because so important. [inaudible 00:04:56] I'm going to wait for someone else to pick it up, I want to be part of those dreams. This is the most important thing that is happening today, in science. It's not going to the moon that's important, this science is very important for science and for applications in the world of energy, we need that for everything in the world. Otherwise we'd have wars and the wars are made forever, I don't see the end of that.

That's how we started. And then we started working with Lonchampt in Grenoble where I learned how to do electrochemistry experiments, when I was there, I think it was 1996, that SETI came up with these beads about one millimeter in diameter, covered with nickel and palladium. It was very exciting. It was 1995, actually, in December they had a demo in Los Angeles. It happened that I was there and went to see the demo, that day I was seeing the cell working and there was 500 watts production. I was there. I saw it. The day before, it was one kilowatt. After that, it went down to 500 watts, and then it kept going down with days.

Tom Grimshaw: Excuse me for interrupting again. When you said, SETI, who were the principle players? Was that Russ George and Les Case?

Jean-Paul Biberian: No. It was beads made by SETI, I can't remember his name, come back to me.

Tom Grimshaw: That's okay.

Jean-Paul Biberian: I think Dennis Cravens built the cell. It was a three-stage cell, a bigger cell. The cell that SETI was using was a single cell and he made a triple cell, in series, and I think he put some magnets in it, but I'm not sure, I could ask him afterwards. Now it's [inaudible 00:06:57] experiment. I saw it working. It was kind of jittery. The power was noisy, but why not?

Anyway, so we had, Lonchamp, we said we want to duplicate this experiment and there was a meeting in Chicago, the year after, I think 1996, and we bought a set of beads. It was the cell the beads, everything. We paid four of five thousand k, U.S. dollars. I don't remember exactly the price. We bought it, anyway.

We came back with the beads, but there was such a small amount of beads that we were afraid that if we miss it, we waste them, you know?

Tom Grimshaw: So who were you with in Chicago when you got the beads? Was that Lonchamp?

Jean-Paul Biberian: No, Lonchamp stayed. He didn't travel, he didn't speak English, so I went there. To visit...we had a meeting. And by the way, Bill Collis was there he was not allowed to go in the room. He was just kind of dictating.

Tom Grimshaw: Oh my, okay.

Jean-Paul Biberian: Anyway, we decided to make our own beads, to learn how to use them. We found a company in Toulouse in France who was capable of something very similar.

We told them, well, I don't know how they did there, it was slightly different. We tried them, we saw a little bit. But such a small amount of excess, not like the 500 watts. It was in milliwatt range and you need a magnifying glass to see the difference between the blank and the reaction.

So we arried for awhile, tried different things.

Tom Grimshaw: And Lonchamp?

Jean-Paul Biberian: Yes, Lonchamp. Then, Lonchamp left and while I was there I decided to do a long term experiment. I built two identical cells, with the beads we have. One with light water, one with heavy water. I run them for six months, continuously, and after that I did the analysis. I looked at the analysis of everything.

I found a kind of...I never published that, maybe I should one day, I still have the [inaudible 00:09:21] I was alone actually, I found a kind of element in it, it was hard to conclude. I was not looking for heat, I was looking for transportation. But the beads have a tendency to break. The deposit was breaking up, so you end up having a lot of cloud dust everywhere.

Tom Grimshaw: Coming off the beads?

Jean-Paul Biberian: Coming off the beads because there's adhesion of the metal on the plastic beads.

Tom Grimshaw: Not a good bond.

Jean-Paul Biberian: Not a good bond, especially when you had hydrogen in it, the lattice expands, so it breaks up. It's not easy to do that. But actually, I still have the original beads. I never used them.

Tom Grimshaw: Well, if we do another stage in this project, we'll take pictures and document those items that you still have in your possession. Just as I did with Ed Storm's, as I mentioned, the cells that he used during the years of his experiments he still has, so took pictures, and they're part of the record.

Jean-Paul Biberian: So when I tried making bigger cells with more beads, because I could have a lot of beads, was cheap, we could make them for other applications, so I made large cells, never got any good results. I still have them somewhere in my shelf of used cells that are not used anymore.

Tom Grimshaw: So, when you were with Lonchampt, then, you were doing the bead work? Then, what was the other work?

Jean-Paul Biberian: Solid state electrolyte.

Tom Grimshaw: Solid state electrolyte. Tell us a little bit more about that.

Jean-Paul Biberian: Solid state electrolyte is [inaudible 00:11:05] he did that with something in the back of his head. The idea that if you make vacancies, lanthanum, the oxide of lanthanum is  $\text{La}_2\text{O}_3$ . That means that you have three bonds with lanthanum. So, if you remove one lanthanum, and you put hydrogen in it, to balance the bonds, you need three hydrogen. Lanthanum, as well as aluminum, has only one balance. Only three, it cannot change. Some metals change, you know, but this one does not change.

The idea that you have lanthanum, you have removed five percent of the lanthanum, and what happened? The color of this crystal changes. If you have the same amount of lanthanum and aluminum it is white. Transference. But if you remove some of the lanthanum, it becomes red. And when you put hydrogen, it goes back to white. Amazing. People don't even know about that. It's not published, nobody knows it. Actually, recently, I bought lanthanum aluminum oxide from a dealer, a similar crystal, and it was white. I heated it up in air, it became red. They didn't know there were vacancies. Because, when they make them, there's always hydrogen in their system. They don't even know.

Tom Grimshaw: They don't know that there's hydrogen replacing lanthanum in the crystal structure.

Jean-Paul Biberian: And then when I put in hydrogen, it comes back white. It was a commercial. I was looking for some...there were vacancies. They don't even know there were vacancies. I could publish a short note about that somewhere in a journal, anywhere. It is so fun, it works.

Anyway, we tried different things. We tried to manufacture our own crystals. We subcontracted people trying to make them. Because we wanted to have a large amount of lanthanum vacancies because the more vacancies we have the more hydrogen we put inside, deuterium. The idea was, because you have oxygen all around, you have a whole vacancy you can put deuterium in it, at least three, and you have oxygen with electrons, if you have an electron orbiting the hydrogen it will slow down by the electrons of the oxygen, as if the epsilon will be larger.

Epsilon sub R would be high. The idea that you have muon catalysis, the electron would be heavy, it would spin closer to the nucleus and then they can fuse.

If you have the [inaudible 00:14:09] electrodes, the catalytic side is negative so it will attract geoplus on the catalytic side, you will have more than three, we can have maybe four or five, we don't know. So you have vacancies with a lot of hydrogen. I like this theory, it fits somehow, it fits Einstein's theory too, vacancies, they're all vacancies. There you can make the vacancies, you see.

So, I have been working on that, studying from day one, I am still doing it, more or less, because I try different things later on, with powder...

Tom Grimshaw: Have you seen the effect on through excess heat or other signatures in the crystals?

Jean-Paul Biberian: Oh yeah. I've seen the excess heat several times.

Tom Grimshaw: Good.

Jean-Paul Biberian: I even published it. I want to do more actually, I have to do more on that experiment. The good thing about this thirty second, they work at high temperature. They are high temperature conductors. So, you have to go 500, 600, 800 degrees or even more. This is very good for applications.

Tom Grimshaw: Far more than you can do in an electrolytic cell.

Jean-Paul Biberian: Exactly. That's why I like it. I am limited in equipment, basically.

Tom Grimshaw: So, Lonchamp retired? Mandatory retirement, and so your time at Grenoble where you did some additional work, his experiments were done so you had to move to a different phase. So you went back to your home university in Marseilles.

Jean-Paul Biberian: I brought all the equipment I had in a truck. I had huge, one meter and a half cylinders of deuterium gas. I brought it back to Marseilles with me. Anyway, I had all the equipment, the furniture, the desks, tables, everything, electronics, tools. I was fully equipped to do work.

Tom Grimshaw: So you had the lab?

Jean-Paul Biberian: I had the lab.

Tom Grimshaw: Space available?

Jean-Paul Biberian: Yeah, and I use it until I retired myself where it was impossible to keep going, when you're retired you're worth zero, you know? Younger people want to take your lab space and everything. It's impossible. Too much pressure.

Tom Grimshaw: Let's review the years. What year did Lonchamp retire?

Jean-Paul Biberian: In 2000, I think.

Tom Grimshaw: In 2000, okay, so it had been since 1993 that you'd been working with him, more or less. And then in 2000, he retired, you returned to Marseilles until you retired [crosstalk 00:17:04]

Jean-Paul Biberian: In 2012.

Tom Grimshaw: In 2012, okay. Tell us a little bit more about what you did when you returned to Marseilles, during that seven year period.

Jean-Paul Biberian: Okay, when I was in Marseilles, I deviled up to master charometer. I wanted to make sure the measurements were correct with the gas phase, so I built this charometer. I built four of them, identical, at the beginning, I wanted to use several of them, so I did that to do the gas phase experiments with diffusion through the walls of a tube, and other things I could try. Once I have the charometer, anything I could put inside, I could use it. I needed vacuum pumps to do that [inaudible 00:17:47] electrochemistry when the gas phase comes, it gets more expensive. Then I don't continue to the charometer for electrochemistry working at[inaudible 00:18:08]

Why is it interesting to work at boiling? One thing is the temperature, that's not all. If you have boiling on the cathodes you have lots of bubbles of water, but not of hydrogen, of water...

Tom Grimshaw: Steam.

Jean-Paul Biberian: Yes, steam. And what happens if you have gas bubbles, the electricity cannot go through the gas bubble, so it goes next to it. The interface between two bubbles, maybe, or wherever it can. This thing is changing all the time, because bubbles are not stable. So, the current is changing all the time, locally, and doing that, you have high density of current between bubbles. So even though you have the same average current, locally, it can be very high. And this is very important because in order to boil you need to have high current densities. So, that's why it's becoming interesting to work at boiling.

Tom Grimshaw: Mm-hmm (affirmative)

Jean-Paul Biberian: I was doing mass flow experiments not like heat flow, like Pons and Fleischmann were doing with Caris9 they were measuring temperatures between two insulators and I was measuring water in, water out. I know how to do that, I had the equipment to do that. At that time, was it Russia?

Tom Grimshaw: 2011.

Jean-Paul Biberian: 2011, before that there was something else. I tried again the beads. I tried different designs. I made cells, tried to measure better.

Tom Grimshaw: And your electrolytic cells were the type that had the tubes of deuterium and you had applied the gold trap on the inside of, on the vacuum side of the tube?

Jean-Paul Biberian: Yeah.

Tom Grimshaw: Okay.

Jean-Paul Biberian: I continued working with solid state electrolytes, also. Lanthanum aluminum oxide. I tried to make them better, with more vacancies or adding some impurities inside. I was doing these kinds of things. Basically that was the three types of experiments I was doing together.

Tom Grimshaw: Okay. And was it during this, your Marseilles period, that you worked also with Fleischmann and particularly, Pons, from TechNova? Was it during that period?

Jean-Paul Biberian: Actually, that was in 1996, when I was still in Grenoble with Lonchamp. When Stan Pons invited me to go to work with them, but that was just before they closed up the lab.

Tom Grimshaw: Okay.

Jean-Paul Biberian: It never happened, but good reaction sequence. I had a good reaction sequence maybe with Stan more than with Martin, I had a good relationship with Martin, but it was much easier with Stan. I still have a good relationship with him.

Tom Grimshaw: We'll talk about that. He may be interested in doing a similar project, maybe not?

Jean-Paul Biberian: Actually, he doesn't want to talk to anyone.

Tom Grimshaw: Yeah, I understand.

Jean-Paul Biberian: I hope that one day I get in there with a microphone and get to record something if he let me record it.

Tom Grimshaw: Well maybe we can make a trip there together.

Jean-Paul Biberian: I hope so, I wish he would talk more. He wouldn't want to say much.

Tom Grimshaw: Okay, so that's what you did during your Marseilles period, and then you reached mandatory retirement. Then you moved to another city and opened your own laboratory.

Jean-Paul Biberian: Near Avignon, and we are renting an apartment, a piece of a house in the countryside and I was commuting, for the first few weeks, going to Marseilles every two days, an hour and a half to go and come back, it was way too much. I talked to the landlord who is a friend of mine, I said I need a laboratory, you know? He said, "eh, do it there," he showed me a place about a hundred meters from the house. I bought a two-car, a thirty six square meter garage, and I built a lab from scratch.

Tom Grimshaw: So you discontinued your lab[crosstalk 00:22:37]

Jean-Paul Biberian: I brought everything I had in Marseilles there.

Tom Grimshaw: Oh, okay, I understand, I had it backwards.

Jean-Paul Biberian: I brought things from there, everything. What happens to a lab like that, when someone quits, they put everything in the garbage. It's old equipment nobody could use twentieth century computers. So, it goes to the garbage. Nobody cares about my equipment.

Tom Grimshaw: So you pulled back to Marseilles then, that's where you were up to this point.

Jean-Paul Biberian: I was in Marseilles, and I moved to Avignon where I installed my lab and where I started working, continuing working. Especially with Rossi, at that time there was Rossi stuff.

Tom Grimshaw: Okay.

Jean-Paul Biberian: I tried different things, didn't really work. I had some friends that told me Rossi is using magnetic fields, and using pulsing the current. So he's pulsing magnetic fields, we should make something with magnets. One easy way to make a variable magnetic field is to have permanent magnets, but you have to wheel and rotate variable magnetic fields. You can get a very powerful magnet. One Tesla worth of power.

Tom Grimshaw: Mm-hmm (affirmative)

Jean-Paul Biberian: That way you can have a rotating magnetic.

Tom Grimshaw: This is still in Avignon?

Jean-Paul Biberian: Oh, so your garage was in Avignon? I'm sorry to be dense about this. So you left Marseilles permanently then, and went to Avignon at this time.

Tom Grimshaw: Yes.

Jean-Paul Biberian: Okay, thank you. Yes, in 2012-2013, Avignon.

Tom Grimshaw: Okay.

Jean-Paul Biberian: So, two friends of mine built a wheel made of wood with magnets glued on, took a test tube, put nickel powder in it, vacuumed, and introduced hydrogen, and super heated it up with a wire, so we could look at temperature, and we started drawing a curve of temperature versus power. To our big surprise, at 350 degrees about, there's a jump of 40° within one watt. Then we realized 350 is close to the critical temperature where nickel becomes paramagnetic instead of being ferromagnetic.

Tom Grimshaw: Okay, interesting.

Jean-Paul Biberian: We did many experiments always the same place, 350...358. The persistence isn't that precise.

Tom Grimshaw: Is there a change in the crystal structure when it goes from ferromagnetic to paramagnetic?

Jean-Paul Biberian: At least electron structure.

Tom Grimshaw: Electrons, okay.

Jean-Paul Biberian: We are so excited, we could have a machine that produces heat at 350 degrees.

Tom Grimshaw: High quality heat at that temperature, yeah.

Jean-Paul Biberian: Wow. So exciting. We tried to improve, to amplify. Then we built a better machine with more powerful magnets.  
[inaudible 00:25:50](silence)[inaudible 00:26:33]  
...high temperature.

Tom Grimshaw: Oops!

Jean-Paul Biberian: I think it's a discovery by itself.

Tom Grimshaw: Yeah? Is that what you hope?

Jean-Paul Biberian: It certainly is. Let's try another material with a lower critical temperature. And one which is very convenient is gadolinium. Gadolinium's critical temperature is 27 degrees or something, very room temperature, which is not very practical. If it is hot or cold in the room, it will change...  
Chinese sell you everything you want, I got some pretty cheap, I mean sixty euro for [inaudible 00:27:21] grams of gadolinium. We tried with the gadolinium but the temperature is so close to room temperature, it's hard to work with. I'm still stuck with that.

Something we were very excited about these magnets, we discovered things, not what you wanted.[crosstalk 00:27:41]

Tom Grimshaw: Such is science, yes?

Jean-Paul Biberian: Instead of heat, we think we are making cold and also...wait I didn't tell you everything. When the hydrogen is done the same thing, there is no hydrogen. I was a little off, especially gadolinium. With hydrogen, the change is critical temperature.

Tom Grimshaw: Mm-hmm (affirmative)

Jean-Paul Biberian: Critical temperature goes up [inaudible 00:28:05] hydrogen. I'm sure nobody knows about that. Just put hydrogen and gadolinium to check the critical temperature. They make [inaudible 00:28:16] to check the temperature. Nobody ever does hydrogen. I think it's another paper one day.

Tom Grimshaw: Yeah. You have many of those on the back burner.

Jean-Paul Biberian: On the back burner.

I'm doing that, I'm doing solid state electrolytes, this magnet stuff...

Tom Grimshaw: You mentioned in our previous interview, work with nisin and Renault.

Jean-Paul Biberian: Yeah, nisin and renauld heat thermochemistry, which is very precise. It can go to high temperatures, so it's very important. I like this charometer, it's a very good charometer.[inaudible 00:28:52] I think it's a good design, a very simple design, it's very good. So I'm using it. I tried different things, also, besides nisin powder, tried also other powders, but the nisin powder is a very good powder.

Tom Grimshaw: Okay. Are there collaborators, or people that you worked with or for during that period. Did you say something about the Cincinnati group?

Jean-Paul Biberian: The Cincinnati group, I met them here at one of the workshops. Nice people, you know. We talked, and I asked them to send me some samples I will analyze. That's where I found the uranium was twenty percent to thirty five.

Tom Grimshaw: Right.

Jean-Paul Biberian: Twenty percent is a lot.

Tom Grimshaw: Yeah, ugh.

Jean-Paul Biberian: I still have the spectra, I can show you.

Tom Grimshaw: Even the Iranians would like that?

Jean-Paul Biberian: Maybe not that many atoms, low level. In terms of science, it's important. I forgot something else. Ourutskoyev. In 2011, before that, I was invited to give a talk in Paris by George Rorschach. And this guy he has developed the theory of magnetic monopoles, like magnetic monopoles. His theory, like magnetic monopoles are excited states of neutrinos. I don't know what that means, that's what he says, I don't know. Ourutskoyev, was the third team to be sent to Chernobyl to analyze their nuclear accident. He went there and he found different [inaudible 00:30:41]

He found that there was pipes bringing vapor from somewhere to the reactor, and the pipes were bent. He realized that there was a lot of aluminum. Remember, this

investigation people are talking a lot about aluminum. Every time they do, they find aluminum. Lot of aluminum. The fuel was enriching 235, a lot more than it should be, and then he made the connection with Rorschach's work about magnetic monopole.

A magnetic monopole is a very powerful magnet because there is only one pole. The other poles cancel the field. So, when you have a magnetic monopole, it is neutral, it can go very close to a nucleus. If it goes very near 235, 238, the one that's not active, you will break the U-238.

So what he heard, was that there were two explosions in Chernobyl. The first one was the electrical explosion accident. When you make an electrical reaction, you create these monopoles, they go through all the metal pipes there are, and they go all the way to the core of the reactor. They started making the 238 active, that's why it exploded. They made a presentation at ICCF-11 in Marseilles and [inaudible 00:32:12]. They understood that, it's very important. Any reactor in the world could have the same problem.

Tom Grimshaw: Monopoles.

Jean-Paul Biberian: So, there was, they did something, this guy, Ourutskoyev, was burning small wires of titanium in water. What he did, he had capacitors, 3000 volts or more, large number, and obviously passed the current through it so the titanium blew away in water. They analyzed and they found all kinds of new elements, copper, I don't remember which ones. And the distribution of titanium was different, it was not the natural distribution.

On one point, you put uranium in the cell with the water. What happened? It was reaching 235, to the explosion. The idea was, you produce these magnetic monopoles that interact with the nucleus of everything. There's a group in France, who have the same equipment as the Russians.

So, they did the same experiments. And I was in contact with the guy who was doing these experiments, and I asked him to put uranium in it. I gave him the salt of uranium, put in the machine, then break the liquid, I brought it to an ICPMS [inaudible 00:33:48] believe it or not, the 235 didn't move, but the 238 went down. So we got enriched 235. Not by increasing 235, by the decrease of 238.

Tom Grimshaw: Mm-hmm (affirmative)

Jean-Paul Biberian: That's what we observed. So we have done the same thing. So this is extremely important, but nobody wants to believe it. And actually, after 9/11, you know, we had a big explosion in a chemical factory. It was the combination of these materials that made it, I'm not sure of the chemistry...When you get the report I will tell you exact from [inaudible 00:34:30]

Tom Grimshaw: Nitrogen and phosphorous are the main things in fertilizer plants, of course.

Jean-Paul Biberian: They were making fertilizers for...so, they had this factory and they had an explosion, it was the 21st of September, ten days after 9/11.

Tom Grimshaw: Mm-hmm (affirmative)

Jean-Paul Biberian: So what they thought was an accident, but the product was not dangerous by itself. And nobody could figure it out, why it exploded. To this day, nobody knows why it

exploded. It was a big, big accident in Toulouse. I mean, 29 people died and it was destroyed everywhere. It was a big accident. [crosstalk 00:35:18]

Tom Grimshaw:

Most

Jean-Paul Biberian:

There was same thing as in Chernobyl. There was two accidents next to the place where they store these chemicals. There is a factory making fuel for the French rockets [inaudible 00:35:36]. And there was a short in one of the transformers.

Tom Grimshaw:

Mm-hmm (affirmative)

Jean-Paul Biberian:

Maybe ten seconds afterwards, there was the other explosion. People knew about it. People heard it. First explosion, they went down, and second explosion broke all the windows. They tried to say there was only one accident, but there was two. People were recording things, here and there, for some reason.

Tom Grimshaw:

Boom-boom.

Jean-Paul Biberian:

Boom-boom. There are two booms and, depending on the distance, you know the two booms are really at the same time. We knew it, but they didn't want to say there were two because the other one was making the fuel for the rockets and they didn't want to close it down. We need that.

If they said there was a problem there, they would have to close it. Anyway, we thought maybe we had the same thing in magnetic monopoles. Magnetic monopoles, because they're near the river, which is a good conductor for electricity because it is humid. So what [inaudible 00:36:42] did, he took an aluminum box, put the powder in it, two meters away from his wire, he exploded the wire, and when he opened the box, everything had evaporated.

Tom Grimshaw:

Mm-hmm (affirmative)

Jean-Paul Biberian:

At two meters away. They went to see Total, the one in charge of this place. They said, "we know what happened to your factory." They said, "we don't want to hear about your display and that's it."

Tom Grimshaw:

Yeah, typical. Total.

Jean-Paul Biberian:

They don't want to make a big mess about that thing, sully the scientists...or whatever, that's it. Not want to look at it. This kind of accident happened many times before, in the past. The explosion on the Mississippi River in the 19th century, a food boat exploded.

Tom Grimshaw:

There was a triggering.

Jean-Paul Biberian:

There was a triggering, but nobody knows why it exploded. Something that's not supposed to explode. They're not even mixing chemicals, they try mixing all kinds of chemicals to make it work.

Anyway, so I was very much involved with this also. I didn't do the experiment, I did the analysis.

Tom Grimshaw:

Okay. Tell us a little more about your friendship with Stan Pons. Where did it start, how did it evolve, and where is it today?

Jean-Paul Biberian: I talked to Stan Pons, I think, in 1993. I called him up today, and asked him what's happening, are you sure, yes, yes, we know why it's electrodynamic theory about it. Then when I came back from the U.S., I visited the lab over there.

Tom Grimshaw: TechNova.

Jean-Paul Biberian: At TechNova, he very friendly and he wanted to hire me to work with him. And we become friends like that. I don't know why or how. For some reason he likes me a lot and we talk. I got to see him once in awhile. I ask him to come visit my lab. I sent him a picture of my lab's wooden garage. We have an HP just like the garage has HP.

Tom Grimshaw: Very good. So, he went to southern France because of the religious connection that he had from his background in the United States in North Carolina, I think I read that somewhere.

Jean-Paul Biberian: I'm not sure I think that Emirate proposed either to go to Japan or to France, they were the two places they had laboratories, and they'd prefer to go to France than to Japan.

Tom Grimshaw: Okay.

Jean-Paul Biberian: That's the only reason I think. He's from an Italian origin, anyway.

Tom Grimshaw: Okay, good. You mentioned, very briefly, work that you had done when Rossi was doing his demonstrations. Can you tell us a little bit more? Did you know Rossi? Did you work directly with him or were you working with someone else?

Jean-Paul Biberian: I never met Rossi. Actually, twice, I almost met him. You remember Krivit? Steve Krivit wanted to visit him. He said that we'd talk to Rossi, that he was going to the south of France, to Italy, he said, "can I come with Jean-Paul?" And Rossi said no. He didn't want me to go and see.

Tom Grimshaw: Yeah.

Jean-Paul Biberian: A second time, someone asked, who was it I don't remember, Rossi again, and he said no. He didn't want me to go there. He didn't want me to see this.

Tom Grimshaw: You know too much.

Jean-Paul Biberian: I know too much, exactly. I know it works. I know the problem that comes.

Tom Grimshaw: This is very typical of that individual, of course.

Jean-Paul Biberian: So, I never met him. I've seen the videos, the demonstrations.

Tom Grimshaw: But you did nickel-hydrogen experiments at about the same time.

Jean-Paul Biberian: Because of that.

Tom Grimshaw: Because of that. Can you tell us a little bit about what you did? There was a kind of spurred-by or because-of the Rossi announcements?

Jean-Paul Biberian: Okay, that kind of nickel, you know. We tried large size, micrometric-sized nickel. It didn't work well. So we tried nanometric size, I bought some twenty nanometers powder of nickel from a German manufacturer. We...you have to understand something there, I think that's my next theory, it's almost the same as the first one. You need some excitation. My tube [inaudible 00:41:27] electrolysis is by the

variation of current on the cathode. If you have large sized crystals, powder, you need some excitation. Just like real way of doing, you have to excite these pulses...

Tom Grimshaw:

Triggering.

Jean-Paul Biberian:

Triggering. You need something, otherwise, it won't work. If everything is stable, nothing happens. But if you have nanoparticles, just like the Japanese are doing, with five nanometers particles of palladium or nuclear alloys, then you are in a different state. You are in a quantum state. There, the temperature is high enough, the vibration will be there, so the whole thing will shake. When you have small particles, you don't need excitation because excitation is automatic.

So, that's my understanding now, I don't know, maybe I'm wrong. Because these things breathe, more or less, the temperature, maybe they are in quantum state where they are all together, I don't know. Things can happen with small particles. I don't know. That's the idea. Work with small particles and temperature. Then you don't need excitation. That's why the workers are at [inaudible 00:43:04] work, they use nanoparticles, and that's why it works.

That's why I try twenty nanometers nickel. That's where we found this magnetic effect, which is cooling. So something is still missing. Also, the temperature was not high enough, maybe. So there are many more things to be done in that direction. I cannot do everything at once.

Tom Grimshaw:

Right, yes. So, you did the nickel-hydrogen with a nano powder for what, a few months, a year or so?

Jean-Paul Biberian:

Oh, no, I did two years.

Tom Grimshaw:

Two years, okay.

Jean-Paul Biberian:

So, I made the first machine, then the second machine, then testing.

Tom Grimshaw:

And that would be still at Marseilles, because that's where you [crosstalk 00:43:43]

Jean-Paul Biberian:

No, that's at Avignon.

Tom Grimshaw:

That's at Avignon because you retired in 2012.[crosstalk 00:43:49]

Jean-Paul Biberian:

That was 2011, Rossi.

Tom Grimshaw:

Yeah, okay. Well, anyway it was after you retired.

Jean-Paul Biberian:

After I retired, yes. My new lab. That was very exciting. I think there's something to do with nickel powder. But, what I don't know yet.

Tom Grimshaw:

It certainly upset the field a little bit when nickel-hydrogen came in, because everyone was using palladium-deuterium and now...what had been controls suddenly became cells.

Jean-Paul Biberian:

I know, even platinum is radioactive, you know?

Tom Grimshaw:

Yes, you mentioned earlier in this conversation.

Jean-Paul Biberian:

I use it for my own experiments and also for Pons and Fleischmann experiments. They tried making blanks with platinum [inaudible 00:44:35] working. So, what's working, what's not working? Who knows.

Tom Grimshaw: Who knows. Very mysterious still. Thank you again. I think we have covered the landscape very nicely. A little differently, which makes them complement each other. And so this has been another delightful conversation. From here, we'll do the compilation of your papers, I have your CD and these interviews, we'll start to put together a narrative, a report of the stages of your work and we'll see if we want to add to it later on with hard copy files, electronic files and so forth.

Jean-Paul Biberian: Okay, sure.

Tom Grimshaw: Tom Grimshaw here with Jean-Paul Biberian. We've had a delightful interview about his cold fusion journey going back to 1993, a few years after the 1989 announcement, and right up to the present, in your current lab in Avignon. So, thank you Jean-Paul, take care.

Jean-Paul Biberian: Thank you.

### **B3. Transcript of Interview with Ruby Carat, February 2018**

Ruby: Greetings, listeners. Welcome to the Cold Fusion Now! Podcast. Where we bring you the latest developments in the science and engineering of cold fusion LENR. I'm your host, Ruby Carat.

I'm speaking with Dr. Jean-Paul Biberian, a Professor of Physics at the University of Marseilles, Luminy, France. Where he began researching cold fusion in 1993 until he retired to work in his own private laboratory.

Dr. Biberian is the Editor-in-Chief of the Journal of Condensed Matter Nuclear Science and author of Fusion in All Its Forms: Cold Fusion, ITER, Alchemy, Biological Transmutations, published in French and English. Dr. Jean-Paul Biberian, welcome.

Jean-Paul: Thank you.

Ruby: Well, I'd like to begin with the recent interview you had with the French press. Can you tell us about CNews and what prompted their interview?

Jean-Paul: Well, CNews is a news channel, they just have news all the time. And actually I never watch TV. So I never knew about Cnews. Never knew it existed. A journalist called me, asking if I wanted to have an interview. I said sure, about cold fusion. I said no problem. I go to Paris and we have the interview. He was a nice guy, was very open, and is a positive person. He was not going to challenge what I was saying. So that was very convenient and very fun. Actually, very fun experience, very relaxing one.

Ruby: And what was the context that they were interested in cold fusion?

Jean-Paul: Well, they're interested by the applications, obviously. Well, it is very important for people everywhere in the world, France in particular, to have a new source of energy. He was very interested by that, not really by the scientific side.

Ruby: We are all waiting for technology, but there's still a lot of science to figure out. Now you have done many experiments in your career, from plasma discharge to thin film transmutations. Out of all of the experiments, which of them do you view as the most important, and why?

Jean-Paul: I started working intensively with Georges Lonchamp in Grenoble. And I've done some replication of Pons and Fleischmann type of experiments with electrolysis, but I think what's more important is gas phase experiments, because temperature is very important factor. You don't want low temperature, low grade heat. You want high temperature in order to transform it later into electricity. So the only solution there is at the moment, the most practical one is to work in gas phase. As you know, Nickel and Palladium melt at high temperature.

It is possible to work at high temperature if we use those metals. But they're not the only ones. I work with proton conductors. We work at high temperature as well. So I think the future is in gas phase experiments, more than electrolysis or water based experiments or plasma physics. Plasma is very unstable and difficult to control. I'm more interested in gas phase experiments, even though I'm doing all kinds of experiments at the moment in my lab. I'm running electrolysis as well, but I'm more focused in gas phase. I think this is the future.

Ruby: Jean-Paul Biberian, you are the Editor in Chief of The Journal of Condensed Matter Nuclear Science. How have experimental trends been reflected in the journal articles and also what trends do you see in the journal for the future?

Jean-Paul: We started the journal, more than 10 years ago. Exactly 10 years ago, the first volume came out. It took two years to have the second volume. So it was a really slow process at that time. Things are spinning up and I'm amazed by the number of papers waiting in my list of papers to be published soon because more people are interested. And not only theoretical papers, but also experimental papers. So this is very good news because what we lack is good experiments.

Now, as you know, this field is very unique because there's both scientific side and the industrial side. It's... People are split into being open and talking about their results and keeping them secret in order to get funding from all kind of sources. I don't know. I think there is more than what is being published in the field of cold fusion at the moment. People are being more and more secretive indicating that there are breakthroughs coming up and soon we get news. I get good news.

Ruby: Let's talk about your book Fusion in All Its Forms. What inspired you to write this personal story of cold fusion history and how did Stanley Pons come to write the preface?

Jean-Paul: Interesting question. There was no book in French. First of all, about cold fusion. There were a few number of books in English, but none in French. That was my opportunity to write one. But I'm not a good writer. I don't like writing. I'm not a good writer at all. And so it took me quite a few years and attempts to succeed. I wrote the first test, second one, third one. And finally, I wrote my own story. It was easier. So telling not I was... I did it on a subjective side and not objective side. I wanted to tell my story about my life in cold fusion basically. That worked pretty well and the idea of a preface by Stan Pons, when I needed someone to write a preface. I thought Stan is a good candidate. I knew...

I met Stan in 1993 the first time I think. We became very good friends very quickly and at one point I was even ready to go to work with him in Sofia Antipolis in 1995, 1996 at that time. But then the lab closed up and the whole thing fell down, but I get good relations with Stan once in a while. I mean maybe every two years I go and talk to him and we have a good time. So it was... I said, maybe I will ask him to write a preface for my book. And he did. I was very happy about it. That was the first time after maybe almost 20 years that he did something officially.

Ruby: Mm-hmm (affirmative)

Jean-Paul: So that's good news for me and for other people. If you read the preface, it's very interesting.

Ruby: Yes. Stanley Pons, of course, living in France since the early 90's has not returned to the US since. He has a tremendous story to tell as well. But Dr. Biberian, a new French Society of Condensed Matter Nuclear Science dedicated to LENR research, has just recently formed. Can you say what's behind the exploding interest in Cold Fusion in France?

Jean-Paul: It's quite interesting for I don't know what reasons, somehow people ask me for TV interviews or internet type of interviews. I'm very popular on the french side of cold fusion. When people dig into cold fusion, they end up with my name and I'm very open. I give my email address, I give my phone number. People call me or write me. I have a number of maybe 500 or 600 contacts of people interested by cold fusion. Some people by curiosity, some more involved. We realized there are a lot of people interested in cold fusion in

France, and we don't know where they are. So maybe we should make some group of those people. There is a similar group in Japan, there's one in Russia, but there's nothing like that in France.

So with Mathew Barach, we decided to have a society to unite all these people. And last year we had our first meeting, which was really a success. 50 people came up. That was very good. We were impressed. We had very good talks also. For instance, there was a group of two Michelle B, Jacque who made their first experiments of Cold Fusion in 1989 with electrolysis. And they found... They were specialists in neutron measurements and they measure neutrons. So...

Ruby: Oh, wow.

Jean-Paul: That was very exciting because this was never published before. That was a chance to publish this data. I was happy with. There are some other people that have found accidentally, some abnormal effects with Nickel. Nickel fumes and he couldn't reproduce it obviously, but he found it. He had some sort of accident he couldn't explain.

So all these people were involved [inaudible 00:10:14] in without knowing it. They didn't know the field existed, even at the beginning and now we could put them together. So next meeting will be in March 2018 and it'll be in Paris so that more people can come. And we hope to have more people than we had here in Avenu last year. So, it's a good start. We need some kind of organization to be together. We have a mailing list also, a Google group. I'm sorry. A Google group where we can exchange ideas. So, that's useful also.

Ruby: We'll be right back after this. Be sure to mark your calendars for the next International Conference on Condensed Matter Nuclear Science, ICCF-21 being held in the Lory Student Center at Colorado State University in Fort Collins, Colorado US. The conference runs next summer, June 3rd, through the 8th 2018. For more information and registration go to [www.iccf21.com](http://www.iccf21.com).

We're speaking with physicist, Dr. Jean-Paul Biberian on LENR research in France. Well, what are you working on right now?

Jean-Paul: Okay. I have four, five, six experiments going on almost simultaneously. I'm working on, if I tour my lab, mentally speaking, that work is left right. There is a plasma discharge experiment with microwave. This is an experiment that has been created by George Egely from Hungary. He gave me one of his devices and I've done some experiments with carbon powders and I've seen, by electron microscopy, transmutations.

So at the moment, I've done some experiments and the analysis is underway by ICP to measure exactly the composition because the analysis by electron microscopy is not accurate enough. It's too local. So I need the bulk analysis.

Ruby: Mm-hmm (affirmative)

Jean-Paul: So that's important for at least for transmutation purposes.

Ruby: Wow.

Jean-Paul: Then I do experiment with nickel and alloys of nickel, with hydrogen oritarium, and I've seen some excess heat at certain circumstances where I cannot reproduce it exactly every time.

And what's important seems that the temperature is important. It doesn't happen at low temperature, but at higher temperature.

Ruby: Mm-hmm (affirmative).

Jean-Paul: Second is, I have developed a new type of calorimeter, which is heat flow calorimeter, which is extremely sensitive to, excess heat. I can measure accurately and at high temperature. I can go up to maybe 800 degrees centigrade and maybe more. And there I tried different types of powders from palladium powder to nickel powders and Alloys.

Ruby: Mm-hmm (affirmative).

Jean-Paul: Then I'm doing an experiment called... You know, In 1996 Stan Pons at the ICCF I don't remember six I think, he gave a talk about the ICARUS 9 calorimeter.

Ruby: Mm-hmm (affirmative).

Jean-Paul: Which is his experiments, and I talked with Stan Pons. I wanted to reproduce this experiment. So he said, okay, we can do it. And we've managed to find the guy who did the construction of the cell.

I had two cells made identical to the one he used 20 years ago and at the moment, I'm doing experiments with that apparatus. I have some indication there is some excess heat but I'm not... It's a long time. These experiments are very long...

Ruby: Mm-hmm (affirmative).

Jean-Paul: Because you have the palladium electrodes for a month before starting to see anything. So I'm using some of the electrodes that he gave me. And the last one I'm using now is a gold palladium alloy. Nobody has used this kind of electrode. And gold is very important because there has been demonstration that gold layers at the surface can create some special conditions. So this is the experiment I'm doing now, and then I have experiment. And then finally I'm doing also biological transportation experiments with, bacteria.

Ruby: Wow. [crosstalk 00:15:18].

Jean-Paul: Well, so that keeps me busy from early in the morning to late at night, seven days a week.

Ruby: Wow. It sounds very exciting. Every single experiment we could put a whole team on. Well, I wish you much luck with your experiments and thank you for being with us, Dr. Jean-Paul Biberian.

Jean-Paul: Thank you very much.

Ruby: We've been speaking with physicist, Dr. Jean-Paul Biberian, the Editor in Chief of The Journal of Condensed Matter Nuclear Science, an author of Fusion in All Its Forms on the status of LENR research in France. Find new episodes of the Cold Fusion Now! Podcast@[www.coldfusionnow.org](http://www.coldfusionnow.org) and on iTunes. Until next time, I'm Ruby Carat.