DOCUMENTATION OF CONTRIBUTIONS TO THE COLD FUSION FIELD BY ABD LOMAX

A PROJECT OF THE LENR RESEARCH DOCUMENTATION INITIATIVE

First Published Version

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Contents

1 Introduction

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 immediately recognized. Humankind's need for a source of cheap, clean,inexhaustible and safe energy seemed to be permanently satisfied. However, LENR 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 LENR shows that its potential benefits may yet be realized.

Because it is a "pariah" science, LENR has attracted relatively few new investigators to the field. Many of the researchers became active in the months and years after the 1989 announcement. Now 30 years later an increasing number of these investigators are leaving the field. The results of their many years of LENR investigation are at risk of being lost, which would be extremely unfortunate not only for the field, but also potentially for the future of humanity.

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

Abd Lomax has contributed to the LENR field in many ways. An LRDI project has been undertaken with him to document these contributions. The objectives of the Lomax LENR Contributions Documentation Project (LLCDP) are to conduct an interview with him, describe his Cold Fusion Community website and associated wiki, develop a timeline of his LENR activities and present a list of holdings in his LENR library. A photo of Mr. Lomax with his daughter, Lucy, is shown in Figure 1–1.

Unfortunately, Mr. Lomax experienced severe health issues, including a COVID-19 infection, in the first part of 2020. However, the project was nevertheless completed.

Thanks go to Dr. David Nagel for facilitating the initiation of the LLCDP.

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

[2] LENR Research Documentation Initiative: Collection, Organization, Description, Archiving of LENR Research Records. www.lenr-documentation.org.

Figure 2-1
Abd Lomax with His Daughter, Lucy
Photo Downloaded from Mr. Lomax's Facebook Page[3]

2 Interview and Podcast

As part of the LLCDP, interviews were conducted with Mr. Lomax regarding his activities in the LENR field and other events in his professional life. The interviews, which took place on January 25 and 28, 2021, have been transcribed. The transcriptions are provided in Appendices A1 and A2. They have been reviewed with Mr. Lomax and substantially edited from their original form.

Mr. Lomax was also interviewed by Ruby Carat for her "Cold Fusion Now!" website[4]. The interview was about a LENR-related lawsuit. It took place in 2018 and is described on the website asshown below.

> APRIL 13, 2018 BY EMMA RUSSELL
>
> Abd ul-Rahman Lomax on the Cold Fusion Now! podcast
>
> Abd ul-Rahman Lomax created the blog coldfusioncommunity.net and spent the bulk of 2017 using it to document the Andrea Rossi-Industrial Heat lawsuits.
>
> In episode 09 of the Cold Fusion Now! podcast, he talks with Ruby about the dream partnership that ended with suspicion and the drama of a Miami, Florida trial court.
>
> Abd ul-Rahman Lomax sat in Richard Feynman's lectures at Cal Tech in 1961 through 1963. In 2009, he began challenging Wikipedia about their bias regarding cold fusion. Since then, he's been involved in the cold fusion/LENR field. He was published in the 2015 special LENR issue of *Current Science* journal on the correlation of excess heat and the production of helium with the paper "Replicable cold fusion experiment: heat/helium ratio".

[3] https://www.facebook.com/abd.lomax

[4] 4 https://coldfusionnow.org/cfnpodcast/.

The transcripts of the interview and podcast have been reviewed for Mr. Lomax's LENR activities timeline in Section 4. A transcript of the interview podcast is in Appendix B.

3 Cold Fusion Community Website and Associated Wiki

A principal way that Mr. Lomax contributed to the LENR field was through his website and it's associated wiki. The URLs are as follows:

http://coldfusioncommunity.net/
http://coldfusioncommunity.net/w/

The title of the website is "Cold Fusion Community, Supporting Low Energy Nuclear Reactions Research" (CFC Site). A description is included on the site and is shown below. It has a weasel as its logo, also included below.

This WordPress blog is being used to create resources for the community of interest in cold fusion. This is an activity of Infusion Institute, Inc. (III). However, III is not responsible for content here; rather this is the personal responsibility of users and administrators. I will, however, respond to lawful take-down notices, so that the site remains in compliance with law. Some content may be hosted, however, under a Fair Use claim. Content here is owned by the users who created it; editors of content, if any, have voluntarily contributed that work to the owner.

The CFC Site was apparently started in November 2016, and the most recent post was in September 2019, with one additional post in March 2020. Each page has content on the left side and the following topical areas on the right side:

Search	Categories
Meta	All Posts & Misc.
Recent Posts	Blogroll
Recent Comments	Portal
Archives	Search Site

The "Archives" topic indicates a total of 302 posts over the 30 months of posts from November 2016 to September 2019. The listing under the "Categories" topic is shown in Table 5-1.

The wiki that is associated with the website, entitled "CFC wiki" was apparently initiated in June 2020. It includes about 527 topics, which are listed in Attachment C. The attachment is from the "List of pages" ("All pages" link) of the "Special Pages" of the wiki. The CFC wiki is self-described on the main page as shown below.

> In Alcoholics Anonymous, there is a saying: "All it takes to create an AA meeting is a resentment and a coffee pot." The same is true for wikis. Often resentment is the motive, but such creations often don't last, and maintained resentment is a formula for disempowerment. Rather, a motive that recognizes that something is missing, and leading to an inspiration to create this, can sometimes generate transformation. The founder (and chief cook and bottle-washer at this point) for CFC wiki is Abd. CFC will not last unless there is community support. However, Abd is not quite dead yet.

Information in the website and wiki has been reviewed for development of a timeline of Mr. Lomax's LENR activities. Because of his health issues, management of Mr. Lomax's CFC Site has been transferred to the LENR Research Documentation Initiative. Attempts to transfer the CFC wiki have unfortunately not been successful.

Table 3-1

CFC Site Categories and Number of Entries

Abd ul-Rahman Lomax (6)	Brillouin Energy (2)
Anglo Pyramidologist (4)	Coolessence (1)
Article reviews (49)	E-catworld.com (10)
Authors (20)	Ego out (8)
Fleischmann (8)	Infusion Institute (2)
Hagelstein (1)	ISCMNS (5)
Holmlid (3)	lenr-forum (116)
Kowalski (9)	lenr-forum admin (15)
Lewan (5)	MFMP (1)
McKubre (1)	Nature (3)
Miles (1)	New Energy Times (9)
Morrison (3)	Quora (1)
Rothwell (1)	RationalWiki (3)
Shanahan (12)	SRI International (1)
Storms (1)	This blog (23)
Takahashi (1)	Wikipedia (15)
CF resources (14)	Critique (1)
Fun (18)	Wikiversity (4)
Pants on fire (6)Hot fusion (5)	Planet Rossi (97)
Law and legal process (8)	Rossi v Darden (114)
LENR history (26)	Rossi v Darden trial reports (7)
LENR theory (7)	Science and Health (3)
Fukai phases (4)	Scientific Method (36)
Widom-Larsen (4)	Pseudoskepticism (12)
Non-LENR energy claims (3)	U.S. governmental LENR study (2)
Off-topic (2)	Uncategorized (2)
Organizations (172)	

4 Timeline of LENR Activities

At the time of the 1989 LENR announcement, Mr. Lomax was working as an electronics designer not far from Berkeley, California. He began his activities in the field in 2007, when he attempted to improve the Wikipedia article on "Cold Fusion". A timeline of his activities since 2004 has been prepared from the interview transcripts and his Cold Fusion Community website. It is shown in Table 4-1.

Table 4-1

Timeline of Abd Lomax LENR Activities

2007	Cold Fusion on Wikipedia
2007	Galileo Project Confirmation Kit
6/2011	CF/LANR at MIT, Cambridge, MA
7/2013	ICCF-18, Columbia, MO

2/2105	Current Science Paper
4/2016 to 7/2017	Rossi-IH Trial
11/2016	CF Community Website Started
4/2018	Cold Fusion Now! Podcast
6/2018	ICCF-21, Fort Collins, CO
3/2109	CF/LANR Workshop at MIT, Cambridge, MA
6/2020	Cold Fusion Community Wiki

Mr. Lomax became involved with the Galileo project, which was originated and managed by Steven Krivit[5], in the 2007 timeframe of the project. The overall objective of the Galileo project was to verify the LENR findings of the US Navy SPAWAR researchers using CR-39 plastic radiation detectors. As part of his Galileo project work, Mr. Lomax spent $10,000 developing kits and oversaw a young person conducting a LENR experiment with one of the kits. Unfortunately, the experiment was not successful because of an experimental error. Part of the procedure was to etch the plastic with an alkaline solution. The error occurred when the plastic was etched more than called for in the experiment.

In 2011 Mr. Lomax attended the Cold Fusion/Lattice-Assisted Nuclear Reactions (CF/LANR) Colloquium at the Massachusetts Institute of Technology. While there he gave an ad hoc presentation entitled "Why an image of the Chimera Heats up Researchers and Leaves Skeptics Cold". The term "chimera" refers to the erratic and mysterious appearance of LENR. An excerpt from the report for the colloquium[6] describing Mr. Lomax's contributions is shown below.

> Abd ul-Rahman Lomax (Lomax Design Associates) presented, "Why an Image of the Chimera Heats Up Researchers and Leaves Skeptics Cold," on his analysis of one group of LANR experiments. These were conducted by Michael McKubre and Fran Tanzella at SRI International, for the Electric Power Research Institute. SRI measured the excess power of two paired cells driven in a series electrical circuit, to compare heavy water and light water [the cells known as "P13" and "P14"]. In one of the three runs, the deuterium cell did show a clear excess heat, well above noise, sustained for three days. Lomax concluded that the full experimental record demonstrates highly loaded palladium deuteride can yield a difficult-to-control, but experimentally clear, heat effect. The "chimera" nature of cold fusion is his term for the "poorly understood conditions."

Mr. Lomax attended ICCF-18 in Columbia, Missouri in 2013. In 2015 he contributed a paper to the Indian journal "Current Science"[7]. The February issue of the journal was edited by Mahadeva Srinivasan and Andrew Muehlenberg and was devoted to LENR papers. The abstract of the paper is shown below, and a copy of the paper is in Appendix D.

> Cold fusion effects have often been called 'unreliable', even by those convinced of their reality. The chaotic nature of material conditions, so far, has made ordinary reliability elusive. However, the Fleischmann-Pons experiment produces more than one effect, and two major ones are heat and helium. Miles, in 1991, measured both, and found that they were correlated, within an order of magnitude of the ratio expected from deuterium fusion. Miles was amply confirmed, and precision has increased. While there are outliers, there is no experimental evidence contradicting the correlation, and only the exact ratioremains in question. In this, we have direct evidence that the effect is real and is nuclear in nature; the mechanism remains a mystery well worth exploration.

[5] http://newenergytimes.com/v2/news/2006/NET19.shtml.

[6] JET Energy Staff, 2011. The 2011 Cold Fusion/Lattice-Assisted Nuclear Reactions Colloquium at the Massachusetts Institute of Technology – Part 2. Infinite Energy, Issue 99, p. 33. September/October.

[7] Lomax, A., 2015. Reliable Cold Fusion Experiment: Heat/Helium Ratio. Current Science, Vol. 108, Issue 54. February.

Mr. Lomax attended ICCF-21 in Fort Collins, Colorado in 2018, where he recorded and subsequently transcribed a number of the presentations. He also participated in the CF/LANR Colloquium at MIT in 2019.

One of Mr. Lomax's most significant LENR activities was his observations and reporting of the LENR-related lawsuit and trial between Andrea Rossi and the firm Industrial Heat (IH). The lawsuit was filed by Rossi against IH in April 2016 and was settled out of court in June 2017. The dispute was over the results of an approximately year-long test of a LENR-based device developed by Rossi. The relationships and events between the parties began with LENR demonstrations by Rossi in 2011 and are viewed by many as both complicated and dramatic[8].

Mr. Lomax attended the trial and developed a collection of the associated documents, which are posted on his Cold Fusion Community website[9]. They are organized as shown below.

Introduction
Docket
  Files 2016 April–June
  Files 2016 July-September
  Files 2016 October–December
  Files 2017 January–March
  Files 2017 April-June
Neutral analysis pages
Discussion and opinion links
Credits

As noted in Section 2, Ruby Carat interviewed Mr. Lomax in April 2018 for a podcast on her Cold Fusion Now! website. The topic was his experience and findings from observing the trial between Rossi and IH. The interview transcript has been reviewed for the LLCDP, and the following major topics were noted.

- An agreement between the two parties was made in 2012 in which IH paid Rossi $1.5 million as a deposit.
- IH paid Rossi an additional $10 million for providing a reactor that would be subjected to a year-long test.
- If the test was successful, Rossi would receive another $89 million from IH.
- In return IH received rights to Rossi's technology for sales in "half the world", while Rossi retained rights for the remainder.
- The conditions and monitoring of the test evolved over time, including the location and verification process.
- The dispute arose during the test when IH did not accept the test methods as verification of the technology.
- Rossi subsequently filed a lawsuit in 2016 for non-payment of the $89 million.
- As the jury was being prepared for the trial, a settlement was reached at the last minute.
- Rossi was able to keep the rights to his technology, and his reactors were returned to him.
- Rossi's $89 million claim against IH was abandoned.

[8] Macy, M., 2016. Reporting a Lawsuit in LENR. Infinite Energy, Issue 127, p. 8. May/June.

[9] http://coldfusioncommunity.net/rossi-v-darden-case-files/

Mr. Lomax also made many LENR-related observations on the private CMNS Google Group email list, one of the most significant communication venues of the LENR field[10]. The LENR posts on the email list have not yet been captured or organized, including those of Mr. Lomax.

5 LENR Library

Mr. Lomax accumulated many of the most important books and publications in conjunction with his work in the LENR field. This library has been inventoried for the LLCDP. It consists of three categories of items: 1) hardbound and softbound books; 2) conference proceedings and related items; and 3) magazines.

The 29 books in the Library (not including 10 duplicates) are listed in Table 5-1. The 11 conference proceedings and related materials are shown in Table 5-2. Most of the magazines are issues of "Infinite Energy". Approximately 88 issues (not counting duplicates) have been inventoried (Table 5-3). The following additional magazines are also in the Library.

> Time Magazine, November 2, 2015. Cover Story: Fusion: Unlimited Energy. For Everyone. Forever. (It Might Actually Work This Time.)
>
> C&EN, Chemical & Engineering News, November 7, 2016. Cover Story: Cold Fusion: Not DeadYet – After 25 Years, the Intrigue Continues.
>
> 21st Century Science & Technology, Winter 2004-2005. Cover Story: Cold Fusion: The Experimental Evidence.

Because of Mr. Lomax's health issues, he has provided his library materials to the LRDI.

6 Project Methods

The methods used in the Lomax LENR Contributions Documentation Project are based on general LRDI procedures that are modified to meet the specific requirements of individual projects[11]. The LLCDP is being performed according to accepted project management practices[12]. The overall LRDI procedure is set forth in an article in Infinite Energy[13]. Memoshave been prepared to record progress as shown below. These memos provide the primary basis for this LLCDP report.

Date	Subject
1/30/2021	Transcripts of Interviews on Contributions to the LENR Field
3/12/2021	Lomax LENR Library
4/15/2021	"Cold Fusion Community" Website and Associated "CFCwiki"

[10] Lietz, H., 2014. Purpose, Members, Rules, and Technical Details of the CMNS Mailing List. August 21. https://iscmns.org/CMNS_mailingList_Rules.pdf.

[11] Grimshaw, T.W., 2019. Collection, Organization, and Documentation of LENR Research Results: Guideline. January.

[12] 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.

[13] Grimshaw, T., 2020. Documenting Cold Fusion Research: Preserving a Vital Asset for Humankind. Infinite Energy, Issue 150, March/April 2020, p. 9-13

5/7/2021	Interview with Ruby Carat
5/27/2021	Lomax LENR Timeline

Table 5-1.

Lomax LENR Library Book Holdings (Except Conference Proceedings)

1. Arata, Y., Date, Toward of the Establishment of Solid Fusion As a Perpetual Energy for Humankind. Privately Published. 2 Copies.
2. Beaudette, C, 2002, Excess Heat: Why Cold Fusion Research Prevailed. Second Edition. Oak Grove Press. 2 Copies.
3. Bockris, J., and A. Reddy, 1970, Modern Electrochemistry, Volume 1. Plenum Press.
4. Bockris, J., and A. Reddy, 1970, Modern Electrochemistry, Volume 2. Plenum Press.
5. Eski, E., and A. Jack, 2011, Cool Fusion: a Quantum Approach to Peak Minerals, Nuclear Waste, and Future Metals Shock. Amber Waves.
6. Friedlander, M., 1995, At the Fringes of Science. Westview Press.
7. Hoffman, N., 1995, A Dialogue on Chemically Induced Nuclear Effects. American Nuclear Society.
8. Huizenga, J, 1992, 1993, Cold Fusion: The Scientific Fiasco of the Century. Oxford University Press. 2 Copies, 1 Newer.
9. Kleinknecht, K., 1998, Detectors for Particle Radiation , Second Edition. Cambridge University Press.
10. Kozima, H., 2006, The Science of the Cold Fusion Phenomenon: In Search of the Physics and Chemistry behind Complex Experimental Data. Elsevier.
11. Krivit, S. and N. Winocur, 2004, The Rebirth of Cold Fusion: Real Science, Real Hope, Real Energy. Pacific Oaks Press. 3 Copies.
12. Lewin, M., 2014, An Impossible Invention: The True Story of the Energy Source That Could Change the World. Privately Published. 2 Copies.
13. Lewin, R, 2005, Making Waves: Irving Dardik and His Superwave Principal. Rodale.
14. Lewis, F., 1967, The Palladium Hydrogen System. Academic Press.
15. Mallove, E., 1991, Fire from Ice: Searching for the Truth Behind the Cold Fusion Furor. John Wiley & Sons.
16. Martelucci, S., et al., 2008, Cold Fusion: The History of Research in Italy. Focus Technologies.
17. Marwan, J, and S. B. Krivit, 2009, Low End Energy Nuclear Reactions and New Energy Technologies SourceBook. American Chemical Society, Washington DC. 2 Copies.
18. Marwan, J, and S. B. Krivit, 2009, Low End Energy Nuclear Reactions and New Energy Technologies Source Book. Volume 2. American Chemical Society, Washington DC.
19. Mizuno, T., 1998, Nuclear Transmutation: the Reality of Cold Fusion. Infinite Energy Press. 2 Copies.
20. Park, R., 2000, Voodoo Science: The Road from Foolishness to Fraud. Oxford University Press.
21. Peat, F., 1989, 1990, Cold Fusion: The Making of a Scientific Controversy. Contemporary Books.
22. Rothwell, J., 2005, Cold Fusion and the Future. Privately Published.
23. Seize, C., 2008, Sun in a Bottle: The Strange History of Fusion and the Science of Wishful Thinking. Penguin Books.
24. Simon, B., 2002, Undead Science: Science Studies and the Afterlife of Cold Fusion. Rutgers University Press.
25. Srinivasan, S. and A. Muhlenberg, 2015, special Section: Low Energy Nuclear Reactions. Current Science Journal. Vol. 108, No. 4. 25 February 2015. 2 Copies.
26. Storms, E., 2007, The Science of Low Energy Nuclear Reaction: a Comprehensive Compilation of Evidence and Explanations about Cold Fusion. World Scientific.
27. Storms, E., 2014, The Explanation of Low Energy Nuclear Reaction: An Examination of the Relationship between Observation and Explanation. Infinite Energy Press.
28. Taubes, G., 1993, Bad Science: The Short Life and Weird Times of Cold Fusion. Random House.
29. Wallace, J., et al., 2012, Terrestrial Nuclear Processes: Zero Momentum Light Element Reactors. Casting Analysis Corp.

Table 5-2

ICCF and Other LENR Conference Items in Lomax LENR Library

1. ICCF-10. 10th International Conference on Cold Fusion. (Condensed Matter Nuclear Science).2003. Proceedings.
2. ICCF-12. 12th International Conference on Cold Fusion. Proceedings. (Condensed Matter Nuclear Science). 2095.
3. ICCF-14. 14th International Conference on Condensed Matter Nuclear Science. 2008. Agendaand Abstracts.
4. ICCF-14. 14th International Conference on Condensed Matter Nuclear Science. 2008. Proceedings, Volume 1. 2 Copies.
5. ICCF-14. 14th International Conference on Condensed Matter Nuclear Science. 2008. Proceedings, Volume 2. 2 Copies.
6. ICCF-15. 15th International Conference on Condensed Matter Nuclear Science. 2009. Proceedings.
7. ICCF-16. 16th International Conference on Condensed Matter Nuclear Science. February 6-11,2011. Abstracts.
8. ICCF-16. 16th International Conference on Condensed Matter Nuclear Science. 2011. Proceedings.
9. ICCF-17. The 17th International Conference on Cold Fusion. 2012. Program and Abstract Book.
10. ICCF-21. 21st International Conference on Condensed Matter Nuclear Science. 2018. Programand Abstracts.
11. Anomalous Nuclear Effects in Deuterium/Solid Systems. 1990. AIP Conference Proceedings 228.
12. Asti Workshop on Anomalies in Hydrogen/Deuterium Loaded Metals. 1997. Proceedings.
13. Eighth International Workshop on Anomalies in Hydrogen/Deuterium Loaded Metals. 2007. Proceedings.
14. International Low Energy Nuclear Reactions Symposium, ILENRS-12. 2012.

Table 5-3

Infinite Energy Magazines in Lomax LENR Library

Volume	Issues	Year
4	24	1999
11	61, 62, 63, 64,*, 66	2005
12	67, 68, 69, 70, 71, 72	2006
13	73, 74,*, 76, 77, 78	2007
14	79, 80(3), 81, 82, 83, 84(2)	2008
15	85, 86, 87, 88, 89, 90	2009
16	91, 92, 93, 94, 95, 96(2)	2010
17	97, 98, 99, 100, 101, 102	2011
18	103(2), 104, 105(2), 106, 107, 108(2)	2012

19	109, 110, 111, 112, 113, 114	2013
20	115, 116, 1 117, 118, 119, 120	2014
21	121, 122, 123, 124, 125, 126	2015
22	127, 128, 129, 130, 131, 132	2016
23	133(2), 134(2), 135(2),*, 137,*	2017
24	139, 140, 141,*, 143, 144	2018
25	145, 146, 147, 148, 149	2019
26	154	2020

*Missing: 65, 75, 136, 138, 142
Total: About 88 (not counting duplicates)

7 Summary

Abd Lomax became interested in LENR in 2007 when he worked on the "cold fusion" article on Wikipedia. He has made many contributions to the field in the years since, particularly through his website and wiki. He attended many of the conferences and other professional events to keep abreast of LENR developments. He reported in detail on the Rossi-IH lawsuits, trial and settlement. He also provided many observations of the field in the CMNS Google Group blogsite.

Appendix A1. Interview Trancript, January 25, 2021 (Parts 1 and 2)

Note: This interview has been reviewed with Mr. Lomax and substantially edited from its original form.

Part 1

Thomas Grimshaw: Okay. I think we're on the air, so to speak. And I'll start by saying that this is Tom Grimshaw. I'm speaking with Abd Lomax. Do I have a correct pronunciation of your first name?

Abd Lomax: It's Abd.

Thomas Grimshaw: Okay.

Abd Lomax: Abd Ul-Rahman. But my legal name is Dennis Lomax.

Thomas Grimshaw: Okay. Thank you. And so what we're doing is we're going to do an interview with Abd on his work in the cold fusion field. And this is a part of an overall project or an initiative to document the records for cold fusion or low energy nuclear reactions, L-E-N-R or LENR. I must say that today is January the 25th, 2021, and we're sometime in the afternoon. And so with that introduction, Abd, why don't you start the process by telling us a little bit about where you were when you heard about the announcement of cold fusion in March of 1989, what you were doing and what you did in the early period after that announcement?

Abd Lomax: Well, at the time it was announced, I was an electronics designer and I was living with my wife in Kensington, just North of Berkeley, California. And I read about the research. I knew it was a long shot, but I decided to buy palladium futures at Credit Suisse. And we bought $10,000 worth of palladium to be stored in the Credit Suisse vaults. And that's what they did. They were doing that in those days, it was a metal account, a certain amount of metal. And then you could sell it and you could recover your money by ordering them to sell it or buy it from me. And I wasn't right at the beginning. The price had already started to go up, but we ended up closing out – breaking even I'd say – sometime later.

Thomas Grimshaw: Okay.

Abd Lomax: I had taken physics at Caltech from Richard P. Feynman, and I knew that we didn't have enough math to calculate solid state, at least we didn't in his day. And so I knew it was not impossible. I also thought it was unlikely but not impossible. And then some years later, quite a few years later, I was a Wikipedia editor. I was very active in Wikipedia. I was interested in Wikipedia as an experiment in community process. I noticed that a website that posted cold fusion papers, lenr-canr.org, Jed Rothwell's site, was blacklisted on Wikipedia. And I looked into that and it was a unilateral action by an administrator who believed cold fusion was bogus and it violated policy. And I pointed that out and he basically told me what I could do with myself. He was not a very polite guy.

Thomas Grimshaw: Yeah.

Abd Lomax: And that ended up in the arbitration committee and they ruled that he had violated policy. He was reprimanded and they complained to me that I didn't pursue process quickly enough.

Thomas Grimshaw: Okay.

Abd Lomax: Which is funny because I was trying to avoid going through all that by presenting arguments and presenting the case. But anyway, long story short, eventually I was banned on Wikipedia by him and his friends. And I went to Wikiversity, where it was possible to write about cold fusion. And I did that for quite a while, until that was attacked by the same people coming from Wikipedia, and that violated Wikiversity policies right and left. But it turns out that the problem of wikis is they may have great policies, but the policies are only as good as those who enforce them.

Thomas Grimshaw: Right.

Abd Lomax: And what happens is people ended up gravitating towards positions of power who don't necessarily recognize, understand, or, in this case, respect the original vision of academic freedom that was Wikiversity.

Thomas Grimshaw: Right. Okay.

Abd Lomax: So I was kicked off of Wikiversity and that caused me to start coldfusioncommunity.org and then the wiki with the material that I had posted on Wikiversity.

Thomas Grimshaw: Okay. I'm going to jump in…

Abd Lomax: It's coldfusioncommunity.org/wiki. Unfortunately, it is no longer available.

Thomas Grimshaw: Okay.

Abd Lomax: I get kicked out of places because I confront administration. I'd already been kicked off of, what's it called? It's a discussion site, LENR Forum.

Thomas Grimshaw: Yes.

Abd Lomax: An administrator deleted a bunch of material without warning or possibility of recovery and I objected and his response was to ban me.

Thomas Grimshaw: Okay.

Abd Lomax: When that was done, I started my blog, coldfusioncommunity.net. I don't know how long it'll stay up, but the bill's been paid so far, so far so good. I don't really have access to all that stuff because of the password problems.

Thomas Grimshaw: Right, right.

Abd Lomax: ... can recover it, but I have to have a computer and we just bought one, but it turns out that Windows Surface Computers are essentially unusable.

Thomas Grimshaw: Oh, okay.

Abd Lomax: He bought me a computer, Surface. Very pretty, very nice, very cheap. Even though they cost over 2,000 bucks for new, because they're lousy, Microsoft made a lousy computer.

Thomas Grimshaw: Yeah. So let me jump in, if I may Abd, going back to when you first heard about-

Abd Lomax: I'll get back to cold fusion. Yeah.

Thomas Grimshaw: Yeah. Well, I want to go back and ask you a couple of questions. When you first heard about it and you bought the platinum on a website-

Abd Lomax: Palladium. I bought $10,000 worth, but the price didn't rise like I thought it would. I bought it at Credit Suisse, and after a year or two, sold it for about the same price.

Abd Lomax: Yeah.

Thomas Grimshaw: My bad. Were you working with anybody at that time or were you just working on your own, or?

Abd Lomax: I had a design business. Electronics design.

Thomas Grimshaw: Oh, okay.

Abd Lomax: Freelance.

Thomas Grimshaw: Okay. Okay, what was the name of your business?

Abd Lomax: Lomax Design Associates.

Thomas Grimshaw: Okay. Thank you. And then when was the timeframe when you got involved with the Wikipedia, do you recall the approximate year or so?

Abd Lomax: It would be approximately 2004, 2005.

Thomas Grimshaw: Okay. Okay. So between 1989 and 2004, you didn't really do very much in the cold fusion field?

Abd Lomax: Once in a while I looked online and saw a bunch of discussion of cold fusion. It didn't look very promising, and it looked like a bunch of amateurs. I didn't see the scientific stuff.

Thomas Grimshaw: Okay.

Abd Lomax: People talking about, there's oil company conspiracy to suppress it and all that nonsense.

Thomas Grimshaw: Yeah. Yeah.

Abd Lomax: And so when I got interested, when I got involved with, when I saw this blacklisting, I looked at the article and started trying to improve it from the point of view of Wikipedia policy and neutrality and fair reporting of what's in the reliable sources. And I was immediately attacked.

Thomas Grimshaw: Yeah?

Abd Lomax: And that eventually led to my ban.

Thomas Grimshaw: Okay. So.

Abd Lomax: Yes, go ahead. They said I was a cold fusion fanatic. It's not true. I didn't believe in it.

Thomas Grimshaw: Yeah. Okay.

Abd Lomax: I thought it was possible, maybe, but unlikely.

Thomas Grimshaw: Yeah, I hear ya. So what I'd like to ask now, I want to test to be sure that this recording is working okay. What I'd like to ask to do is to hang up and then I'll call you back in a couple of minutes. Because I-

Abd Lomax: Okay.

Thomas Grimshaw: All right.

Abd Lomax: Okay, call back.

Thomas Grimshaw: Okay, thank you. Bye.

Part 2

Abd Lomax: How's it working?

Thomas Grimshaw: Okay. Good news. It's recording just fine.

Abd Lomax: Great.

Thomas Grimshaw: So we can proceed ahead.

Abd Lomax: Okay, so I started looking into cold fusion and as I read the papers and the evidence, the thing I noticed, first of all, was helium. And I noticed that the article mentioned helium, but only said the negative stuff about helium, which was from the DOE report, and it was nonsense. It was just plain nonsense. And so I started trying to make the article more accurate by actually quoting the report. They said, "That's too much information," you know... they just take all kinds of excuses for excluding reliably sourced information.

Thomas Grimshaw: Right.

Abd Lomax: If they don't agree with it. And so-

Thomas Grimshaw: May I jump in real quick?

Abd Lomax: Yes.

Thomas Grimshaw: I need to start, which I didn't do, sorry. I need to start by saying this is Tom Grimshaw. It's January 25th. And this is an interview with Abd Lomax that covers his involvement in the cold fusion field. And this is recording number two on January 25th. So, sorry for the interruption Abd, but were you talking about the Wikipedia article when you were just now talking?

Abd Lomax: Yes.

Thomas Grimshaw: Okay.

Abd Lomax: I was talking about how I got interested in learning about helium early on.

Thomas Grimshaw: Okay.

Abd Lomax: If helium is being produced proportional to the heat, that is direct evidence that what is happening is not some mistake, it's fusion. If the ratio is the theoretical ratio. And I noticed that, what's his name? The famous John R. Huizenga had noticed that. He was very impressed by that result, as he should have been, but he thought that it would probably not be confirmed like a lot of other results in cold fusion, something's published and then nobody can confirm it.

Thomas Grimshaw: Right.

Abd Lomax: But that had been confirmed. So it was no longer a question of the reality of cold fusion, cold fusion may still be utterly and totally impractical with present technology, but it's real.

Thomas Grimshaw: I agree.

Abd Lomax: And so, what am I going to do with this? There was the Galileo project run by Steve Krivit and I read all that. And the materials for that project were cheap and I could buy everything for a kit for a Galileo project kit and sell it at a profit of 50% profit for a hundred bucks. And I thought this would be great. What if some students could run this kit and it's a way to get the information out there.

And if some Senator has a kid who tries it, maybe it'll make a difference in government.

Thomas Grimshaw: Sure. So, about… Remind me-

Abd Lomax: ...and sold the components. I sold almost nothing. One kid bought the kit and a few other materials, a few hundred dollars. And so I put about $10,000 into the materials and all this stuff, and my income was about $600.

Thomas Grimshaw: Oh, wow. So remind me if you would, please. What was the timeframe of that? I can't remember when…

Abd Lomax: That was 2007, probably 2008.

Thomas Grimshaw: Okay. Thank you.

Abd Lomax: Something like that. I announced it on the Google list, and Ed Storms referred the student, actually.

Thomas Grimshaw: Okay.

Abd Lomax: I bought it and the student ran the experiment and something happened when he developed the solid state nuclear track detectors, you put them to alkali and etch them. And they were almost totally etched away, ruined.

Thomas Grimshaw: Okay.

Abd Lomax: We don't know what happened.

Thomas Grimshaw: Okay.

Abd Lomax: But I did find a triple track in one little section that was not etched, but triple tracks occur by background radiation, neutron radiation background. So it didn't mean anything.

Thomas Grimshaw: Okay.

Abd Lomax: It was fun.

Thomas Grimshaw: Okay. Now, remind me, you said that you had gotten booted off of Wikipedia and then Wikiversity, and then you-

Abd Lomax: Eventually got blocked from Wikiversity in 2015 the first time, and I was eventually blocked in a de facto sense in about 2017.

Thomas Grimshaw: Oh, okay. All right. And then you formed your own wiki to associate with your Cold Fusion Community website. Tell us a little bit about that, please.

Abd Lomax: I set up a wiki to hold the material that was deleted on Wikiversity. They just deleted stuff without ... I was given an opportunity to recover some, but they deleted other things that were considered fringe. And they decided that fringe research, anything fringe, requires the approval of the ethics committee, which didn't exist. This was just the imagination of a bureaucrat who'd been elected many years before and had been very inactive, but he was a friend of the people from Wikipedia that were attacking this.

Thomas Grimshaw: Oh, okay.

Abd Lomax: And then they complained that I was doing all these nasty things that I actually wasn't doing. I did one thing that was troublesome with a single user, but I tried

to help him make it better. And they complained to the Wikimedia Foundation, and I ended up being globally banned by Wikimedia Foundation from all 700 of their websites.

Thomas Grimshaw: Wow.

Abd Lomax: And I sued them, and that lawsuit was waiting for a decision on a motion to dismiss, and the judge took over a year to decide. And when he finally decided to dismiss the case, I was already in the hospital. There's no way I could handle appealing it, and all that stuff. I could've appealed, I think his decision was incorrect.

Thomas Grimshaw: Yeah.

Abd Lomax: But it was just useless. So that's the end of that.

Thomas Grimshaw: Oh, okay.

Abd Lomax: And then I continued reading in the field and writing about it, writing about what I find and the most interesting thing that I found recently. Oh, I also did a lot of work, making all the papers available as split papers. So you could download just the paper you wanted to read instead of a gigantic file of all the papers, which would take a long time to download.

Thomas Grimshaw: Okay.

Abd Lomax: So I split those files and made an index. I did it for all the conference proceedings and other compilations. Until I had the stroke.

Thomas Grimshaw: Okay. Now, tell us a little bit more about your wiki site. I think you told us earlier the name of it, and how is it organized?

Abd Lomax: Well, there's two sites. There's the blog, which is coldfusioncommunity.net. And the blog has two kinds of blogs. It's a WordPress blog and they have two kinds of pages. They have posts, which are organized by date. So that's where you should express your opinions, right? It's all dated material.

Thomas Grimshaw: Okay.

Abd Lomax: And then I have pages which are used for information and they're sorted by categories and stuff like that.

Thomas Grimshaw: Right.

Abd Lomax: And I did document a lot of stuff on the website, that doesn't have anything to do directly with cold fusion.

Thomas Grimshaw: Okay.

Abd Lomax: It has to do with these people that impersonated other users (as part of the attack on Wikipedia), it involved Wikiversity, sock puppets impersonating other users to attract negative consequences. And that continued also on Rational Wiki. So there's a long story there, and I documented all this stuff. That's what I did, was document things.

Thomas Grimshaw: Okay.

Abd Lomax: I give evidence.

Thomas Grimshaw: Right.

Abd Lomax: Not just conclusions, but evidence. And then they would say you have no evidence. Right. And everything I was publishing was evidence, almost everything. Occasionally there was a sentence of opinion. So anyway, this reminds me of all this stuff recently about Donald Trump and belief and evidence and proof and how people don't understand the difference between evidence and proof. You can find evidence for anything. But to prove it is another story.

Thomas Grimshaw: Yep. So you had two sites. You had the coldfusion.net and what was the other one?

Abd Lomax: It's the same domain only then slash wiki. And that's a wiki, it has material on cold fusion, but also on other stuff, other things that I'm interested in. Like Sudoku. I'm a master at Sudoku.

Thomas Grimshaw: Yeah. What again?

Abd Lomax: Sudoku, the Japanese number puzzle.

Thomas Grimshaw: Oh, Sudoko. Yeah. Sudoko, okay. Now I got you. Okay.

Abd Lomax: I developed a method of solving Sudoku that doesn't involve memorizing a vast zoo of patterns. Very simple technique.

Thomas Grimshaw: Good for you.

Abd Lomax: Analyzes the puzzle from two different points of view at once, which it turns out it's very powerful. People think it's guessing, but it's not. So anyway, so I've got the books here. I mean, it's one of the things I occupy my time with here is I had the most difficult books published for ordinary solving and I've solved the world's hardest Sudoku. But that requires, because there's a way it's constructed, that actually took Ariadne's thread, exploring many avenues and gradually building up the pattern of the puzzle and took me a day of work, full day of work to solve that one. But now it's back to cold fusion.

The most interesting thing... I started working with videos from the conference in Fort Collins. I took those videos and I made transcripts of some of them, which was really valuable. I've done that before, make transcripts of talks and you really learn the material when you do that. So I worked on Ed Storms' presentation, and I would've done them all eventually, but I had a stroke. I did a presentation by the guy, Michael Staker (he's a metallurgist), who was working on the phase structure of palladium hydride and deuteride. And I looked at that and I looked at Ed Storms' critique of that. And I found all the sources used by those people. And then I saw Mike McKubre did a paper on the phase issue at the conference in Italy. And I took all the sources, and I made the sources (or at least the abstracts) available. I listed them and gave the abstracts for all the sources. And I actually have the files, but all that is inaccessible right now, but eventually you should be able to get that back.

I think there are phases beyond the Fukai phase, where superabundant vacancies (SAVs) exist.

Thomas Grimshaw: So is that by chance up on your Wiki or on your website?

Abd Lomax: …

It was-

You know, it's just like, yech! So anyway, this is the thing, the really exciting thing. I think I know why cold fusion was so difficult to replicate. The problem is not exactly the material. The problem is the state of the material. Specifically the state of the deuteride with this form, it looks like under some conditions, which do exist in cold fusion work, under some conditions a gamma or delta phase will form, which is much more dense than the ordinary hydride in terms of the material, the crystal structure changes.

What's really interesting is the change, which is normally created in the original research that discovered these phases at very high pressure, five gigapascals. When you remove the pressure, the structure remains until the material is heated beyond about 600 or 800 Fahrenheit or 600 or 800 C, centigrade actually. So this material can accumulate. So with repeated stressing of the material through the loading, and de-loading. This new material phase, or a material forms. It may form with co-deposition, it may form immediately, but probably only a small percentage of the material. But that would be why co-deposition produced results immediately.

I think there is a high deuterium concentration in the delta or gamma phase that occurs in very small amounts on the surface.

It's really exciting. And McKubre agrees with me. I don't know if Storms has come around at all, but he was really against it.

Thomas Grimshaw: Was that the so-called Fukai phase you're talking about?

Abd Lomax: Fukai, yeah. Fukai discovered the phases. They're called the Fukai phases. They're really just super abundant vacancy phases, and vacancy is misleading because when the phase is formed, they're not vacant at all. They're formed because the loading of the hydrogen is so high that it forces the palladium (or whatever metal is being used) to rearrange its structure to accommodate more hydrogen or deuterium, as the case may be. I don't think the Fukai phases have ever been made with deuterium other than accidentally (adventitiously). And I think it could be dangerous. I say to people, if you're going to try a Fukai experiment with a diamond anvil press to get five gigapascals, make sure it's a very small sample.

Thomas Grimshaw: Right. Yeah. I hear ya.

Abd Lomax: Because they might be nuclear active immediately.

Thomas Grimshaw: Yeah. Yep. Okay. May I jump in and ask a few more questions?

Abd Lomax: Yeah.

Thomas Grimshaw: Okay. So one of the things I'll try to do is kind of put things in a time sequence, as you'll notice. So you did your work with Wikipedia and then Wikiversity (while still on Wikipedia), and had that experience with them. And then you created your own website that also has the wiki on it. And you posted your findings on that website with the wiki. What was next after you had that series of experiences, did you start developing theory? Their description that you just gave to me, for example, on the super condensed phase or the-

Abd Lomax: I have no theory of how the fusion occurs and I don't think we're close to explaining it. It’s a mystery. There is a difference between getting the right conditions and understanding the phenomenon. The Fukai phase is not a theory,

it is the nuclear active environment. I think perhaps Takahashi's multibody idea is the best available.

Thomas Grimshaw: Okay. So tell me, just in terms of sequence, after you finished your Wikiversity and so forth, what did you…?

Abd Lomax: I got involved with a lawsuit for a while. And then I wrote about Fukai phases and created a page that lists all the sources. That's on the blog. If you google coldfusioncommunity.net, Fukai, F-U-K-A-I, you will find that material.

Thomas Grimshaw: Right. Okay, good. And so the timeframe for doing that work was basically from the time that you developed your website, up until the time that you had your stroke yet?

Abd Lomax: It would be after the Fort Collins conference.

Thomas Grimshaw: Okay. ICCF 22, then. Yeah.

Abd Lomax: Yeah.

Thomas Grimshaw: Yeah. No, that was ICCF 21. I'm sorry. Yeah.

Abd Lomax: Yeah.

Thomas Grimshaw: Yeah. Okay. And so, that's the main thing you've been working on…

Abd Lomax: ... the main thing I worked on. And now I'm working on recovering the use of my body and things like that. Surviving being in a care facility. I got COVID, I died, I coded in the hospital, they brought me back and then they treated my heart. I wear a heart monitor defibrillator implanted in my chest. Yeah. COVID really whacked me. But I didn't feel a thing.

Thomas Grimshaw: I did not know that your COVID was that serious. So you actually-

Abd Lomax: It was very serious, yeah. And I became hallucinatory for a while. It's funny. I could see things that others couldn't see. And I still don't know if some of those things were real. Some of the things I saw were not real. Probably not, except that they were connected with reality in some ways. So there were... it's complicated. There were things that actually happened that sound like I'm paranoid, but they actually happened.

So it's really interesting to have been in that phase where I lost my mind in a way. And they wanted to take me to the hospital because I had developed symptoms of COVID, I developed symptoms. Apparently they thought I was having heart problems and they thought I had diarrhea. And I probably did, since they take care of you that way. I didn't want to go because I said, "They lose your stuff", which is true, when you transfer from one facility to another, stuff gets lost. It happens many times. But nevertheless, they saved my life by putting me in the hospital. If I had not been in the hospital when I coded they wouldn't have been ready here for that.

Thomas Grimshaw: Yeah. Yeah. So tell me what, your heart went into arrest and they had to-

Abd Lomax: Oh, it means your heart stops. In my case, I died, and they have a few minutes to bring you back. You know what I mean, brain damage starts in about 10 minutes or maybe earlier, but you've got a few minutes to start up the heart again, unless the person is cold if they're in cold water. They can survive a long time with no breathing and no heart. I died. I mean, really, I died. I remember I

knew I was dying. I was not conscious of anything around me, but I knew I was dying. And I remember saying, "Where's the white light?" I said that to myself. "Where is the white light?" And there was no white light. People who believe in that say, "Well, it wasn't your time."

Thomas Grimshaw: Yeah. Well, that's right.

Abd Lomax: It wasn't, because they brought me back. I had no pain. No pain at all.

Thomas Grimshaw: Wow. Wow. Well, let's take this opportunity Abd, and I'd like to have another interview session. Not today, of course. But I wanted to ask you what's the best way? Is it for me just to call and see if you have time or do you want to set a time or what's the best procedure?

Abd Lomax: The best way is for you to call, because my time, each day I don't necessarily know what I'm going to be doing the next day. I don't know if I have therapy. Like I didn't have therapy today. I thought I would. I actually thought I would have therapy yesterday on Sunday and it didn't show up. And I talked to one of the therapists and she didn't know what was happening. She didn't know why I'm not scheduled.

Thomas Grimshaw: Yeah. Okay. Well, let's-

Abd Lomax: [inaudible 00:24:39] what's going on.

Thomas Grimshaw: Well, today is Monday. I'll call you on this cell phone and you can just tell me if it's a good time and-

Abd Lomax: If you ever have trouble reaching me on the phone, I gave you my room number.

Thomas Grimshaw: Right. Okay.

Abd Lomax: … because I have to hold the phone in my arm, yet my hand gets tired very quickly.

Thomas Grimshaw: Okay. Well, I actually tried that number and someone else picked up. So I called the switchboard, the main office, and they gave me a different number from the one that you gave me. The one they gave me was, let's see it. And what we ought to do is after we finish this phone call, we ought to test it and see if it works.

Abd Lomax: What did they give you?

Jeez. They do this, they change the phone numbers and don't tell anyone.

Thomas Grimshaw: Okay, well, let's do this. I'm going to go get-

Abd Lomax: I can find my phone number, what I can do is, no, I thought I could find my phone, my number, but I can't. The reason is that I can't dial my cell phone from the phone.

Thomas Grimshaw: Oh, okay. Well, let's do this. I'm going to end the recording. And then I'll call you back on this other number and see if you-

Abd Lomax: Try the new number. When you tried the original number what happened?

Thomas Grimshaw: Somebody else answered it and didn't know who you were.

Abd Lomax:	A couple of days ago, it was working. They didn't change it yet, if they've changed it again.
Thomas Grimshaw:	I'll call you back in a few minutes and I'll end by saying, this is Tom Grimshaw. This is Tom Grimshaw. I'm recording this interview with Abd Lomax it's January 25th. This is our second session and Abd, I'll call you right back. Thank you.
Abd Lomax:	Thank you.
Thomas Grimshaw:	Take care. Bye.

Appendix A2. Interview Transcript, January 28, 2021

Note: This interview has been reviewed with Mr. Lomax and substantially edited from its original form.

Thomas Grimshaw: Making sure that we have merged call… Yes, we do. Okay, so I'll start with the usual introduction. This is Tom Grimshaw. I'm interviewing Abd Lomax about his working and contributions to the cold fusion or LENR field. I would also say that it's January 28, 2021. And Abd as I mentioned, in previous call, I suggest we pick up the thread where we left off in our last call. What I remember is we were talking quite a bit about your encounter and struggles with Wikipedia and associated websites, so maybe we could pick it up there Abd. And just tell us what you were doing in the cold fusion field after that time.

Abd Lomax: Okay. Well, after that, I started working on the blog more regularly and I reported on the Rossi affair. I attended the trial in Florida. The lawsuit, Rossi versus Darden.

Thomas Grimshaw: Right. Industrial Heat. And-

Abd Lomax: So, I was there in Florida. And people generously supported me sending donations for my expenses. I took a bus, which is much cheaper. And so that was interesting. And I followed Industrial Heat's efforts. Industrial Heat did continue to stay involved with the field. But I don't know what's happened lately. They may have lost interest. I don't know.

Thomas Grimshaw: Okay, so let me jump in. When you said you were recording the results of attending the trial. And that was on your blog, you said, remind us from our last call. What was your blog at the time and where are those entries located?

Abd Lomax: coldfusioncommunity.net

Thomas Grimshaw: Okay.

Abd Lomax: It's not very well organized. You have to search. You got to search, but I posted all the court documents and everything.

Thomas Grimshaw: Okay. Good and as I recall, I saw you at ICCF-21 in Fort Collins, Colorado. Is that correct?

Abd Lomax: Right. And is that again, I flew there because I was able to be picked up by a friend in Fort Collins. I stayed just the night before the conference and then he delivered me to the conference and he actually attended.

Thomas Grimshaw: Oh, okay. Good and was there anything that you did at the conference in particular? Or did you just have conversations with friends or tell us a little about what…

Abd Lomax: I had conversations and I also reported, I also put up the videos with links to the videos with transcripts. I started doing transcripts, I never finished that. But I did some transcripts, it's really useful to do work like that when you do a transcript of the talk, you really learn what the talk was about. Transcripts that merge the lecture slides. So, you could see the slides, you could watch the video, you could see the transcript and do all that. And I did that kind of work. I also worked with

the *Journal of Condensed Matter Nuclear Science*, all the issues of the Journal. I split them up into individual files. And there were certain conference reports going way back. And again, working with those files. I really learned what has happened in the field.

Thomas Grimshaw: Good. Good. And I can't remember the exact timing, between the trial between Rossi and Industrial Heat on the one hand and ICCF-21 on the other hand. Do you recall which came first?

Abd Lomax: The Rossi stuff came first.

Thomas Grimshaw: Okay. And do you did you attend... well let me backup. And did you attend ICCF conferences prior to the ICCF-18 or what was the next one previously?

Abd Lomax: I attended on a press pass in Columbia, Missouri. That's where I met Duncan and others. I don't remember what I did as CFA press team member, but I was there.

Thomas Grimshaw: Okay.

Abd Lomax: I was one of the... remember the video of the test of a device by, what's the name of that company that was, Defkalion.

Thomas Grimshaw: Yes.

Abd Lomax: It was the Defkalion video, which was an enormous waste of time. I mean, watching a LENR reactor work at low temperature, relatively low temperature, and it's like, McKubre said it's like watching paint dry; there was nothing to see.

Thomas Grimshaw: Right. Yeah. Okay-

Abd Lomax: Any I think that there's really nobody that is close to, anything that could be commercial.

Thomas Grimshaw: Right.

Abd Lomax: What people have done is to create, sometimes, demonstrations of an effect. They be may very engaged. But it's never a lot of heat. It's never impressive heat. Compared to what came before. Sometimes the Japanese are doing some interesting work. And again, I haven't been following that lately.

Thomas Grimshaw: Yeah. So, I'll remember right? That's where I first met you. It was at ICCF-18. We actually sat at the same table. During the banquet, you probably don't remember that. But I do. And what about before ICCF-18. Did you attend other earlier conferences?

Abd Lomax: I went to a conference at MIT. It was the first conference I went to. It was put on by Mitchell Swartz at MIT.

Thomas Grimshaw: Okay.

Abd Lomax: There's some record of that and I gave a paper at that conference – at least one of those. I've been to two and a two or three of those conferences. And I did deliver a paper which is available somewhere about, I call this the... there's a word for it. The name of a fantastic monster that appeared, sauntered in and licked Mike McKubre's face. That was in the P13, P14 or P15 experiments. Where McKubre saw a clear signal, unmistakable signal of excess heat when a run that had been run three times same per input power protocol. And the first two times there was no excess heat. The third time, the only difference being that the material was

more mature, material had been loaded and deloaded several times. And the signal appeared.

Thomas Grimshaw: Okay.

Abd Lomax: And that was scientifically extremely interesting. But again, we were talking a few hundred milliwatts at most.

Thomas Grimshaw: Right. And how did you describe that experiment Again? Please I missed that.

Abd Lomax: I can't think of the name of the mythological animal. [Note: It was later identified as the *chimera*.]

Thomas Grimshaw: Okay.

Abd Lomax: It appeared and licked face and walked out again.

Thomas Grimshaw: Okay. All right. And I'm familiar with those MIT conferences put on by (Mitchell) Swartz. And I in fact, I did actually see you at the one in March 2019. But I don't think you gave a paper there, you must have been at an earlier one.

Abd Lomax: There was a very interesting report there from Mitchell. I've not seen a paper from it. But he reported detecting a signal, a deuterium line, RF signal from his experiment. See, everybody was trying to look for proof that the effect is real. But being able to measure the effect independently for me, that is fascinating. And I don't know what else happened. What happened was that after that.

Thomas Grimshaw: Okay, now, did you attend any of the other ICCF conferences that you recall?

Abd Lomax: No.

Thomas Grimshaw: Prior to the one in Columbia, Missouri. ICCF-18, with a press pass.

Abd Lomax: No.

Thomas Grimshaw: Okay. All right. And then-

Abd Lomax: But I've looked at all the papers from all the conferences.

Thomas Grimshaw: Okay.

Abd Lomax: The early ones are very interesting conferences. There were lots of scientists taking it very seriously.

Thomas Grimshaw: Yes. Absolutely.

Abd Lomax: And a lot of scientists confirming what was by that time known, which was the effect is very difficult to create. And so you can do a lot of experiments and get negative results. And it's meaningless. Only positive results are meaningful. Until you get a really clear protocol that works either every time almost all the time. McKubre got close with the replicating the work of the Israeli company. Energetics Technologies.

Thomas Grimshaw: Yes, sir.

Abd Lomax: Yeah. That work was reproduced by McKubre and Violante in Italy. And the interesting thing is, it was relatively reliable, but it was still variable. I think most experiments showed some heat. It varied all over the map from insignificant to impressive. In one experiment that was impressive, still not near enough for commercial application.

Thomas Grimshaw: Right.

Abd Lomax: If people were in this to get rich from commercial application, they were barking up the wrong tree. The focus must be on the science first

Thomas Grimshaw: Yep. They have to understand the science first.

Abd Lomax: My priority was first to establish the science. That's what I pointed out. And Rossi was a fraud. It's not surprising that somebody would do that.

Thomas Grimshaw: Yep. So, let me ask you this picking up the timeline again. You went to I think was ICCF-18 in Columbia, Missouri. And then you attended the trial between Rossi and Industrial Heat. And then you mentioned something else, and it's slipped my mind right now. I'm trying to pick up the timeline. Remind me what-

Abd Lomax: ICCF-21.

Thomas Grimshaw: Right. Okay. And then-

Abd Lomax: I did a lot of documentation for that.

Thomas Grimshaw: Right. And what about-

Abd Lomax: I spent a lot of time on all the papers. I developed spreadsheets. So, I could split the papers and create a table of contents that was linked to each paper and so forth. Unfortunately, they were lost when my backup drive was lost.

Thomas Grimshaw: And that's up on your blog, is that correct?

Abd Lomax: Right. The spreadsheets, but not the process.

Thomas Grimshaw: Okay. Good.

Abd Lomax: I tried to get young people involved to help. So, I really dropped the ball. A lot of people gave me their name and address at ICCF-21. And I never followed up on that list.

Thomas Grimshaw: Okay. So-

Abd Lomax: Bottom line, what was happening, I was getting more or less incompetent to complete projects.

Thomas Grimshaw: Okay.

Abd Lomax: I needed help.

Thomas Grimshaw: So, was there anything else that you can think of after ICCF-21 in Fort Collins, that you were doing in the field or any other project?

Abd Lomax: Yes. I think I told you in the other interview, I looked in particular at the work of, I forget his name, it was Michael Staker, but he's a metallurgist, who did a cold fusion experiment with positive results. And who believed that he understood why the material was so variable. I believe that he understood what was happening, which is that phases were forming beyond the beta phase that everybody thought was the most likely when highly loaded. These are called the Fukai phases. Because they were discovered in high pressure experiments, five or 10 gigapascal experiments. And with high pressure and heat, above the point where the crystal structure becomes mobile, the annealing point, pressure and temperature above the annealing point, neither one alone would cause this. There had to be high pressure combined with an annealing temperature about 800 C.

And the material goes into a new phase which holds a lot more hydrogen. That was discounted by Storms, and it easy to understand why he would doubt it. Because there isn't high pressure and high temperature in cold fusion experiments. But it's also been shown by Fukai and others that you can get the formation at lower temperature with codeposition for example. And McKubre's, idea was that the repeated loading and deloading stress and material under conditions of high hydrogen partial pressure. And so that would allow a limited or modest amount of formation of these advanced phases. And so, my plan of action at that point was to form known Fukai material, which has a lot of superabundant vacancy regions. Form known Fukai material, and then load that material with deuterium and look for excess heat.

But McKubre's idea was to try to search for Fukai material in existing cold fusion experiments. I argued against that. The problem with that was that the amount of Fukai material was very small, and you detect Fukai material with X-ray diffraction. And you'd have to be very sensitive with your X-ray diffraction, I don't think it's going to work.

So, what can work is to make Fukai material and there could be ways and approaches of doing that. You might be able to do it without a diamond anvil press by confining LiHAlH4 with palladium in a high hydrogen atmosphere. Confine a palladium hydride in a container and take it above the dissociation temperature, a few hundred degrees, and it will release a hydrogen and if the container is very, very well sealed and very strong. You might make bulk Fukai phases, and then you can deload the material with a little bit of heat. If you load the material with a few hundred degrees centigrade of heat, maybe up to 800 centigrade and the material will... If you get to annealing the material, the hydrogen isn't there, the material will collapse back to normal crystal phase.

But if you take it up to a few hundred (300 to 400 degrees centigrade), where the hydrogen will all escape the material, you allow it to escape, and then it should soak up deuterium like a sponge. So, that's my concept.

Thomas Grimshaw: Okay. And how did you-

Abd Lomax: When I first came up with that concept of loading palladium with hydrogen and then deloading it to form the Fukai phase, I didn't know if I should announce it. And I called a friend from Canada – David French, a patent attorney – who has passed on. And he didn't think was worth keeping it secret. So I did announce it.

Thomas Grimshaw: Okay. And how did you record this? Was this on the Google group? Or How were you?-

Abd Lomax: I would have posted on the Google group and I documented the Fukai information on the blog.

Thomas Grimshaw: Okay. Good. Well, I'm going to-

Abd Lomax: When you search coldfusioncommunity.net. If you search it for Fukai, you will find documentation.

Thomas Grimshaw: Okay. Very good. And so you were posting both on the Google Group in your own blog, and during this time-

Abd Lomax: Right, the Google Group is private. So, that was limited.

Thomas Grimshaw: Right. And so the work you were doing with the Fukai and the superabundant vacancy material that you were helping to investigate, coming up with ideas and so forth... What are the things can you think of that you were doing up until the time you became ill?

Abd Lomax: Well, I visited Alan Goldwater or Alan Goldstein, I think Goldsmith, in Monterey. And he was going to try to make some material by confinement. I said, "be careful" he said yes, he was going to do outside or inside a chimney in case it explodes.

Thomas Grimshaw: Okay.

Abd Lomax: If his ceramic container explodes. And I don't know what he did, haven't talked to him since then. I also visited McKubre's partner, what was his name? Fran Tanzella.

Thomas Grimshaw: Right.

Abd Lomax: I visited Tanzella. And that was a nice visit. I got more of the story of what happened with their SRI. They junked the mass spectrometer. And closed down the lab and who knows why. They couldn't afford to maintain it, but they were... I think all that work was supported. So, I don't know what's going on.

Thomas Grimshaw: Yeah.

Abd Lomax: To keep a lab together that would not seem to be difficult, but they made the decision.

Thomas Grimshaw: Yeah. SRI has its own business model. And the lab didn't survive. I know a little bit about that story, but okay. So, you visited Fran Tanzella, other things that come to mind that you accomplished during that time?

Abd Lomax: So, on the way back from Florida, I stopped in Washington DC. And that was Nagel and the other researcher, David Kidwell.

Thomas Grimshaw: Nagel is at George Washington University I think.

Abd Lomax: He (David Kidwell) once worked in Naval Research Laboratory.

Thomas Grimshaw: Yep.

Abd Lomax: He's appeared in ICCF. He was the one that debunked the... well, I wouldn't say debunk but he found contamination in the -- I have to remember a lot of names-- in the Iwamura experiment.

Thomas Grimshaw: I'm sorry, the which experiment?

Abd Lomax: The experiment where Iwamura loaded, where he ran deuterium through layers of palladium layered with calcium and other materials. And he found elemental transmutation and again that work has been only weakly reproduced. And it's not really... Any nuclear effect is considered exciting. It gives no clue as to the mechanism.

Thomas Grimshaw: Yep.

Abd Lomax: And until we know the mechanism, most work is going to be more or less useless.

Thomas Grimshaw: Yeah. I agree with you. And I think what you're referring to, in the attempts to confirm … findings.

Abd Lomax: Right. It was occurring and very interesting, when I saw that experiment. (When) I first saw the Iwamura experiment I said "Oh, my god, they've done it." Because I was impressed. Because the transmutation followed a pattern of... as if helium nuclei were being added in multiples. Transmutations were always a multiple 4 nuclei (2 atoms) of atomic weight. And basically they were transmissions if you fuse deuterium with elements in combinations of eight nuclei.

Thomas Grimshaw: Right.

Abd Lomax: And most interesting theoretical work in the field has been Takahashi's tetrahedral symmetric condensate theory. I think he's close. And if some crystal condition can cause the formation of a Bose-Einstein condensate, which is conceivable, then you have a theory a mechanism.

Thomas Grimshaw: Right. So, remind me where did you actually make presentations at, which conferences do you recall?

Abd Lomax: The conference at ICCF-18 was where I thought this is what's his name? His theme was no joy, no joy, joy, no joy. It was quite a distinctive presentation. Reflecting the frustration in the field. You think you've got it and then you don't. You think you got it then you don't.

Thomas Grimshaw: Yep. Okay. And did you make a presentation at that conference or any conference or anything?

Abd Lomax: No.

Thomas Grimshaw: Just checking. Right. Now, I also remember that you made a lot of contributions on the CMNS Google Group. Tell us a little bit about your work on that blog?

Abd Lomax: I just commented on what was being discussed. And again, I run into trouble, I often run into trouble with people who are attached to a particular position. And so I became critical about comments about superabundant vacancies, There were critical comments of McKubre and Staker. They kept saying that vacancies couldn't be the cause. But they were basing that on it couldn't be the nuclear active environment – not the vacancies. Therefore, it must be cracks. And I don't see that cracks would reliably create any conditions that would work. An exterior mechanism was not physical, let's put it that way. And I didn't see that it would impress physicists, particularly at all.

Thomas Grimshaw: Okay.

Abd Lomax: So, there was obviously a possibility material would crack and the cracking would increase. And then when the cracking gets to be too much, the gas would escape and in fact (the reaction) could be shut down. So, I said, it's still on the table. It's not been disproven. Until we know how to reliably make materials that work, every theory is possible, because you might not understand it completely. So, Takahashi didn't look at all possibilities, how the vacancies would form. Ordinarily these wouldn't work, particularly, although there's some possibility that at a low rate you could get something from ordinary vacancies.

Thomas Grimshaw: Okay.

Abd Lomax: Oh, and I also had some debates, let's call them… What's the late doctor who had the company and he would offer himself as a consultant on nuclear and lithium batteries, because he thought the batteries were creating conditions for fusion that was explaining battery failures. And in his theory with Alan Widom, with a transmutation theory, which was never presented with real data that would show... They patented neutron shield. That would shield from neutron radiation expected from transmutation. And they were asked if that it had ever been tested. And they said, "No, it can't be tested can't because it forms into surface of materials. And you couldn't image it." And I pointed out that you could image it. Edgewise, informative patches that appear and disappear, which is true. And nuclear active sites would appear and disappear. You could see them twinkling in infrared cameras.

That's real. If you imaged it sideways, so that your image is across the surface, you should be able to see the effect, should be able to see darkening patches and in the light. And so he said it was impossible, but it would have been possible, but nobody ever did it.

Thomas Grimshaw: Okay. Yeah. You're talking about Lew Larsen there, I think-

Abd Lomax: Lew Larson, yeah.

Thomas Grimshaw: Yeah.

Abd Lomax: He got very upset at me.

Thomas Grimshaw: Oh, he did. Okay.

Abd Lomax: Yeah.

Thomas Grimshaw: Yeah. All right. Other people that you worked with, or corresponded with or interacted with in the field over the years?

Abd Lomax: Well, I had conversations with what's the name of that young woman who did a lot of reporting on... oh, what's her name?

Thomas Grimshaw: Are you possibly thinking a Marianne Macy?

Abd Lomax: No. I met Macy. I met her husband, Michael Melich

Thomas Grimshaw: Christy Frazier?

Abd Lomax: Macy told me some stories about Rossi that really confirmed the situation.

Thomas Grimshaw: Yeah.

Abd Lomax: And how they supported him early on.

Thomas Grimshaw: Yep.

Abd Lomax: Very much supported him. And the person who is a blogger and who started managing the ICMNS website. ICCF no longer publishes its own papers.

Thomas Grimshaw: Right.

Abd Lomax: They're published on lenr-canr.org as a compilation entire after you write your papers. So, they stopped publishing individual papers. So, they left the practice of scientific journals which do publish online copies of all your papers.

Thomas Grimshaw: And the individual you're thinking of, I believe is Ruby Carat.

Abd Lomax: Yes, Ruby Carat. Yay. Ruby got a little upset with me, because of my activity with some of the scientists in the field, I think. And my criticism of the CMNS not publishing papers. So, there were moves, there were attempts to ban me from the Google Group list. It went nowhere.

Thomas Grimshaw: Okay. Well, I remember that you wrote quite extensively on some of your posts.

Abd Lomax: Yeah, my posts were long, if I intend to summarize and if I intend to write polemic, I'll be brief.

Thomas Grimshaw: Yeah.

Abd Lomax: But studying something in detail with evidence is what I would usually do. I'd link to evidence, it's going to be lengthy, it's not a quick read. And a lot of people don't like that. They want quick.

Thomas Grimshaw: Yeah.

Abd Lomax: And what I say is, "Don't read it" and if it's any good somebody will comment, I want you to read that. And then you can go back because of the archives, you can go back and read it. At least, and you could ask questions. So, that was the problem on Wikipedia, I would comment on a material on the discussion page for the cold fusion article. And people thought it was too long.

Thomas Grimshaw: Yeah.

Abd Lomax: And that I was trying to dominate, by forcing people to read long papers, you can't force people to read papers.

Thomas Grimshaw: No, you can't.

Abd Lomax: Impossible but that was the excuse Wikipedia used to ban me.

Thomas Grimshaw: Yeah. So, let me ask you this question. If you get well and become very active again in the field. And you could think about the future of cold fusion. What do you think, would be the correct way to pursue the effect and future experiments and theory development?

Abd Lomax: Well, it's still the same as what I call Plan B, pursuing the science. Plan A is that an inventor rescues us by producing a product that you can buy at Home Depot. That's Plan A, right?

Thomas Grimshaw: Right.

Abd Lomax: Plan B is we validate through science, repeat experiments. So as experiments have been done… Repeat experiments that have already been done. Repeat with better instrumentation and show what's happening. And the one that I chose, as the most promising, was measuring heat correlated with helium. Heat-helium correlation is the only reliable signature. And for that experiment, you didn't need to have reliable material. You just have to have access to a mass spectrometer to test and measure helium. And that was taken up by Rob Duncan, at Texas Tech. And again, I don't know what's happened to that work. They haven't published much, (although) I think something has been published. But I haven't read it. So, I don't really know what's going on.

Thomas Grimshaw: Yeah. They-

Abd Lomax: I was disappointed because, Duncan claimed, talking to me. They were having no trouble of reproducing the effect. Their success looked really good. (The) possibility of success looked good at the beginning, because they had Mike McKubre and Vittorio Violante on the team. They were going to fly me to Texas, because I was an author in the field. None of that happened. With McKubre, I don't know what happened with him. He either left after they … the contract. But he was not treated well apparently.

Thomas Grimshaw: Yeah.

Abd Lomax: So again, the story of cold fusion personalities and premature conclusions and failure to follow the science… And interest in trying to get commercial level heat. It's killed the field. The science is really interesting. And I thought, if I put it on my paper published in (the journal) Current Science, (the) cold fusion reproducible experiment. It's a reproducible experiment. You could follow any of the protocols that occasionally produced results and make your reproducible experiment. And that's what Melvin Miles did. He didn't get heat most of his experiments. When he did get heat, the heat was correlated with the helium. That is essentially conclusive.

Thomas Grimshaw: Yes, sir-

Abd Lomax: Huizenga did recognize it in his second edition of his book. Again, there was no follow up on all this stuff.

Thomas Grimshaw: Yep.

Abd Lomax: It just gets scrapped and people forget about it and keep trying to pursue the world's need for cold fusion power. It is theoretically possible if someone can find a way. And the approach that I would say is you make nuclear active material in bulk. Not just a tiny bit.

Thomas Grimshaw: Okay.

Abd Lomax: Make grams that have nuclear active material. And you can control the reaction by feeding the deuterium, you feed deuterium at a rate that keeps the heat generation low. And it should work for quite a while. So, there's my idea. For what it's worth.

Thomas Grimshaw: Okay. Well, I'm certainly familiar with the heat and helium work of Mel Miles and his co-worker-

Abd Lomax: [inaudible 00:41:23] How do people measure helium? McKubre's M4, where they measured helium, and they got a figure that was 104% of the theoretical.

Thomas Grimshaw: Mm-hmm.

Abd Lomax: An experimental error was considered, which cancels that. It's only one measurement. And this is the work with the Les Case material, which was in the 2004 Energy Department report. It was badly reported, and badly understood. It was describing not an electrolysis experiment. It was gas loading. And the material was lost. So, they couldn't reproduce it. A janitor cleaned it up apparently. Coconut charcoal.

Thomas Grimshaw: Right.

Abd Lomax: And again, they got a value that was consistent with that experiment. They got a value that was reasonably consistent with theoretical.

Thomas Grimshaw: Yes, sir. Okay, well, any final thoughts? Before we wrap up, I know you've been a strong figure in the field. Over the years-

Abd Lomax: The part of returning to activity, my apartment is going to be given up, I can't keep it. And all the material is going to go to Dave Nagel. I hope if I can get it together to ship to him all my library and material. I don't expect to be doing more work in the field. It's just the damage from the stroke was too deep. I'm recovering to the point where I can transfer myself from the bed to a wheelchair, wheelchair to the bed or to a toilet. But I'm still essentially bedridden and wheelchair bound. I don't expect to be doing lab work. And I'd be happy to talk and advise anybody at any time. Anytime I can do that now.

Thomas Grimshaw: Okay. Let me ask you-

Abd Lomax: I told you about it. I didn't tell you about Storms (telling) his student that I was making kits. I designed and made (them) when I was still banned on Wikipedia. I looked at the Galileo experiments, which had been run by Steve Krivit. I looked at those experiments. And I tried to create a replication of that. In hindsight, my replication attempt was a mistake. Because replication of those experiments was essentially meaningless for detecting a lot of radiation under … conditions. So (it's) too difficult to get any real information out of that.

Thomas Grimshaw: Yeah. So-

Abd Lomax: I did do that, and the student ran the experiment. And when he developed the detectors he developed a nuclear track detector CR-39. You develop it with an alkali. I used a different material, LR-116. …thought it would not be sensitive enough, but I believed it would (produce) some radiation. It's used for radiation detection. And when (the student) developed them, there was an accident. Most of the material was white. There wasn't any material, any detector material left on the surface of the plastic. So, that failed for that reason.

Thomas Grimshaw: Okay. So I didn't know that you actually had a laboratory where you were doing experiments.

Abd Lomax: I had a home lab. It's just my apartment.

Thomas Grimshaw: Okay. Remind me what is-

Abd Lomax: I had equipment.

Thomas Grimshaw: Yeah.

Abd Lomax: And I was planning on setting up with a microphone, I had a digital oscilloscope where I should be able to capture those little pops that the SPAWAR reported – power making sound essentially – and I had a microscope that I could be in this experimental cell. I had it arranged where I could observe a wire directly. The palladium wire, it was a gold wire plated with palladium. I could observe the wire directly, and I thought I might be able to make a video showing flashes of light correlated with pops – high frequency pops that have to come down translate to audible frequency. It could have been easy to do. But again, I never actually ran the kits.

Thomas Grimshaw: Okay.

Abd Lomax: I got involved with other things. And again, that would have been fascinating video, don't you think?

Thomas Grimshaw: Absolutely.

Abd Lomax: I don't think anybody ever did that. Record sound looking for 100 kilohertz signals, record sound. I sort of thought could have done megahertz signal. So, it should have been fine. And you probably want to use the better detectors in the microscope, you want something to get really good data – transients, transient flashes, photomultiplier, et cetera.

Thomas Grimshaw: Mm-hmm. So, that work that you did in the lab was part of the Galileo project, which was an attempt to-

Abd Lomax: It was an extension. It was after Galileo. It was an extension. I think the Galileo report, which details the protocol and all that stuff. I think, Steve Krivit removed that from his website.

Thomas Grimshaw: I believe that's true-

Abd Lomax: I don't know if a copy exists anywhere.

Thomas Grimshaw: Yeah. And did you do other work in your home laboratory in addition to the followon to the Galileo project?

Abd Lomax: I thought about doing work using the Galileo protocol, but I didn't do it. I thought I might get some uranium, a uranium salt. You can buy uranium salt, U-238 salt you can buy online. And I thought of taking that and plating a gold wire with uranium salt and then palladium using codeposition. And the uranium would function as a neutron amplifier. So, that was just an idea that I toyed with.

Thomas Grimshaw: Okay. Well, I certainly want to thank you for this interview. You've been a really active, strong force in the field. And thank you for that as well. Dave Nagle and I are very interested in capturing what you've done, as we mentioned in our introductory conversations, and I do hope you're able to preserve your library materials and your laboratory materials.

Abd Lomax: Yeah. That'll go to Dave Nagle, and he'll decide where to put them. Otherwise, it's going to end up in a dumpster when the apartment is cleared.

Thomas Grimshaw: Right. Yeah. And I've been having conversations with Nagle about that we need to figure out how best to capture that material while it's still available. So-

Abd Lomax: Right. We've got a short time.

Thomas Grimshaw: Okay.

Abd Lomax: Few months, maybe.

Thomas Grimshaw: Yeah. Well, we'll be staying in touch. Before COVID hit, I have made trips to people like yourselves as a part of this initiative to document as much as possible. And because of that-

Abd Lomax: Because of COVID I can't have visited here, the people can stand outside and talk to me on the phone. And then we can look at each other through the window. But there's no visitors allowed in the facility. Although there is a room at the end that might be used for an in-person meeting, but we can do on the phone pretty much what can be done.

Thomas Grimshaw: Yeah. I agree. And then by the time we make provisions. Meanwhile it's still available to secure your material, to protect it, perhaps the vaccine will have progressed to a point where it will be safe to travel and secure the material. That would be my hope.

Abd Lomax: I also had a lot of material and equipment, I bought a drill press and I had a guillotine paper cutter that's big heavy equipment. It has other uses. That's in the basement. That's not stuff worth shipping because you can buy it.

Thomas Grimshaw: Right.

Abd Lomax: You can buy stuff like that online.

Thomas Grimshaw: But certainly the cold fusion publications and so forth, your collection area is a treasure. We have to-

Abd Lomax: Yes. Some of those books are not available. Very difficult, Very, very expensive.

Thomas Grimshaw: Yep. I'll be staying in touch as will Dave Nagle. And as the spring goes along and as hopefully you get better, maybe we can make arrangements for securing the material to make sure it's protected.

Abd Lomax: We got to do it before I get better.

Thomas Grimshaw: Okay.

Abd Lomax: It's a slow process, so it'll have to be put together and my son will have to put together or somebody will have to be hired to do it.

Thomas Grimshaw: Yeah.

Abd Lomax: And hopefully my phone continues to work.

Thomas Grimshaw: Right.

Abd Lomax: Because my phone bill is being paid still out of my bank account and I can't access the account. Because that accident where all my passwords were lost was really crucial.

Thomas Grimshaw: Yes. Tell me, may I have your son's name and contact information. Perhaps I could talk to him directly about securing your library.

Thomas Grimshaw: I'll call you right back.

Abd Lomax: Okay. Call me right back.

Thomas Grimshaw: Okay. Good deal. Thanks. So, I'm going to end by saying that this is Tom Grimshaw conducting this interview with Abd Lomax A-B-D Lomax regarding his contributions and activities in the cold fusion or LENR field. And I would also say that it's January 28. And this is the second of two interviews. So, thanks very much.

Abd Lomax: Thank you very much.

Thomas Grimshaw: I'll call you right back. Take care.

Appendix B. Transcript of Interview by Ruby Carat on the "Cold Fusion Now!" Website

Ruby Carat: Greetings listeners. Welcome to the Cold Fusion Now podcast, where we bring you the latest developments in the science, engineering, and business of Cold Fusion [Lennar 00:00:17]. I'm your host, Ruby Carat. Today, I'm speaking with Abd ul-Rahman Lomax.His interest in nuclear physics began in childhood and he sat in Richard Feynman's famous physics lectures at Caltech in 1961 through 1963. He then became involved in community organizing for several decades before challenging Wikipedia about their biasregarding cold fusion in 2009. Since then, he's been researching the field and was published in the 2015 Special Lennar Issue of Current Science Journal on the correlationof excess heat and the production of helium in palladium deuterium systems. He createdthe blog coldfusioncommunity.net and uses it to document the Andrea Rossi-Industrial Heat, $89 million lawsuit and subsequent trial, which he attended. Abd is here today to talk to us about what happened. Thank you for being with us, Abd ul-Rahman Lomax.

Abd Lomax: Thanks for the welcome, Ruby. It's a pleasure.

Ruby Carat: Abd, let's start with the basics. Describe the contract between Andrea Rossi and IndustrialHeat. What were each of these parties going to get if the contract had been successfully completed and how was that contract then broken?

Abd Lomax: Okay. Well, it starts in 2012 when Industrial Heat and Andrea Rossi entered into an agreement where Industrial Heat paid $1.5 million to Rossi as a deposit, basically on an order for the one megawatt plant that Rossi had constructed. And that plan was to be tested with an engineer responsible for verification. And that test took place the next year.And regardless of whether the conditions of the tests were satisfactory or not, Industrial Heat went ahead and accepted the results of that test and the plant was delivered to them in North Carolina. It was to then begin a year test program, again supervised by an engineer. And if that test was successful as defined in the agreement, oh, I should've said that Industrial Heat paid Rossi $10 million upon that successful first test. So then the reactor was delivered and Rossi turned over or allegedly turned over all the technology necessary to build it to Industrial Heat.

And so, as it happened, the test did not begin and who was responsible for that, or the reasons for that were contested in the trial. But the bottom line is the test did not happen within that year. And there was an amendment made allowing a postponement of the test,but that amendment was never actually approved by the parties as required in the agreement. But Rossi assumed and acted assuming that it was allowed to be postponed later, then Rossi proposed to Industrial Heat, that the reactor would be moved to Florida for and that it could be operated as a demonstration there, and that he had a customer whowould pay for power $1,000 a day for power from this megawatt plant. And so IndustrialHeat consented to the move, but they did not in any clear way, consent to that as being the test, the one year test. If the one year test was successfully completed, Industrial Heatwas to pay Rossi another $89 million.

And it appearance that they actually raised that money so they could have paid it but theygot a commitment for that money so they could have paid it. But during that test, the relationship between Rossi and Industrial Heat broke down, basically Industrial Heat would have had and had for, until they gave it up at trial, they had a license for

half of theworld for Rossi Technology to market it. And they could sub-license it to other people within that territory. Rossi retained the rights for the rest of the world. And so what Rossiwould've gotten was basically $100.5 million in cash and Industrial Heat would've gottena technology which, if it would perform as claimed, would be worth perhaps $1 trillion. So a lot of people on the Rossi side have claimed that Rossi sold it too cheap and that he wanted out of the contract because he'd agreed to too little as a benefit.

Ruby Carat: So the actual contract that was in dispute was the contract for the $89 million and a yearlong successful test?

Abd Lomax: Right. It's more than that. It's also the transfer of technology. It was obvious that Industrial Heat wouldn't be paying $100 million for a power plant that they didn't knowhow to make. And so it was essential, from Industrial Hates point of view, it was essential that they be able to make their own reactors, and that's what they attempted todo for four years easily. And so-

Ruby Carat: [crosstalk 00:07:02] But somehow the test kind of morphed into a sale of power as a demonstration, and somehow the contract gets a little murky there.

Abd Lomax: Well, actually, yeah. Basically, Rossi proposed the move to Florida. Industrial Heat appears from the, the emails came out, they were all revealed. Industrial Heat was willingto test in North Carolina and had found a customer and Rossi claimed that wouldn't be asbelievable as this customer in Florida. And he, let's put it this way, he hinted very strongly that the customer was Johnson Matthey, which is a very reputable and notable incold fusion history, a chemical company in England. And later at trial, he said, oh, I never said it was Johnson Matthey, but the evidence was quite clear that he wanted them to believe that it was Johnson Matthey. And he said, I really want to do this in Florida.

So he set up the test to be in a place where he had full control of everything. And so, itwasn't the kind of test that was contemplated in the agreement.

And so, but Industrial, he didn't say this is the guaranteed performance tasks. That's whatit was called, the guaranteed performance test. He said it was a sale of power and you could make a lot of money selling power this way. And $1000 a day for a reactor that costs $200,000 to build, that's a really good deal. And you could sell many of them like this. And then the customer being very happy with the results would prove that this reallyworking, it could be sold, but the customer, this comes out and trial, the customer was Andrea Rossi, Andrea with a shell corporation. So he was his own customer. And so that's what happened there. And that's not contestable, it's acknowledged in testimony.

Ruby Carat: Industrial Heat then agrees to the reactor to be moved to Doral, Florida, where it will provide power to a customer, but they don't agree that this is the test, but they allow it to continue any way. How did Industrial Heat then be able to verify what was going on andhow did Andrea Rossi then satisfy the draw of power and show that he had power going?

Abd Lomax: Well, let's say there's a number of aspects of this. The customer, Andrea Rossi's attorneyJohnson, which was his real estate attorney and also the president of Leonardo Corporation was the representative of this customer that was called JM products. And Johnson signed an agreement with Industrial Heat that they would pay $1,000 a day for the power, and that they would maintain records of the actual power use, that they would maintain records, and then they're going to be paying for it. So on the face, on the surface, this is an independent customer actually paying $1,000 a

day, which is a fair price for a megawatt of power. And so the situation was set up and Rossi created the whole thing. So this customer, and there was no independent measure of power. Therewas only the measure that was being done by Rossi with his particular method of measurement.

And there's a real problem. This was a warehouse of a known size. And basically the experts agreed, including Rossi's expert, that unless there was some special cooling that was being run, you dissipate a megawatt of power in a warehouse of that size, it becomeslethal. The heat in the, you couldn't live. You couldn't live in the warehouse with a megawatt of power, unless you have a special heating arrangements. And Rossi had beenasked about this before trial, before the trial it was in an advanced state. And he basically said, well, the power, first thing he said was the power was used in endothermic reaction,well, that's not possible. And people realize that. And then he said, well, the roof was open and the back door would be open. And that would cool it enough.

And when he realized, and his expert realized that that wouldn't do it, almost before discovery was completed, Rossi said, "Oh, I built a heat exchanger." Nobody saw a heat exchanger. Nobody saw what would have been required. He didn't have records of payingfor the materials. He didn't have records of paying for the labor to build a thing which was considerable. I think Rossi lied under oath about the heat exchanger. That's my opinion. And I suspect his attorney in the trial said, look, if you pursue with this and you testify further on this, you could be charged with perjury and go to jail. So I think his attorney convinced him to give up the claim.

Ruby Carat: Was Industrial Heat ever able to go to the premises and see what was going on and inspect their own reactor?

Abd Lomax: Yeah. The agreement provided that they could visit at any time, but in July, the test beganin February 2015. And in July of 2015, an email was sent to Rossi saying that the new director of engineering for Industrial Heat was going to visit. And Rossi said, no, no morevisitors that haven't already visited. So he arbitrarily decided to disallow an employee of Industrial Heat to visit. Meanwhile, Industrial Heat had two people on premise that were assisting, they were there to assist Rossi. And so, one of them was Fulvio Fabiani, and Fabiani was an old friend of Rossi. And later on Industrial Heat sued Fabiani because he didn't fulfill his contract.

The other one was, I forget his name right now, but who worked, he was just a technicianand he was actually not supposed to really nose around. Nobody wanted to set Rossi off, Rossi was easily upset. But when the real engineer who would be competent to see what was going on was going to come, Rossi refused. And that was beginning of the end. If there was a problem before it wasn't so visible, it became very visible at that point, that Rossi was not allowing Industrial Heat to inspect the plant. So it's just no surprise that they wouldn't accept the test results, which were also by an engineer that was Rossi's friend and that Rossi had insisted on all along being the person, the independent engineerwas his friend.

Ruby Carat: So no member of Industrial Heat who actually owned the reactor was able to even go intothe room and see what was happening?

Abd Lomax: That's not after, in fact, it's not entirely true. There was a visit, when was that? There wasa visit by one of the principals in Industrial Heat, Darden came with a guest. I forget who that was. And I think that was after that point, but this was a quick visit and not by the engineer who'd been refused. Rossi had said that people who've been there before could come again. I remember now who the guest was, the guest was

someone from the Britishcompany that had invested a lot of money in Industrial Heat. And they had visited before.So Rossi had said, nobody who hasn't previously visited can visit. And so they came again. And the evidence we have is that these people were not impressed by the plant.

If they hadn't been impressed, they would have put pressure on Industrial Heat to fulfillthe contract. And they were the ones who'd offered up to $200 million. I think it was up

$150 to $200 million they'd offered if it was needed. So bottom line was Industrial Heat was unable to supervise the tasks, which would be crucial, even if it wasn't written in thecontract, the original contract had it being tested after being delivered to Industrial Heat.So it would be on their premises. And so Rossi maneuvered and manipulated this so thatit was in a place where he had total control.

Ruby Carat: Well, Abd ul-Rahman Lomax, I want to ask you about the trial and how that all concluded, but first, talk to me about why would Andrea Rossi enter into a contract readyto receive $89 million for a reactor, and then choose to not cooperate and not satisfy that contract to get the $80 million?

Abd Lomax: Well, he did get 11.5 million, which he kept. And he got a reputation that may have enabled him, we don't know how much has been invested in Rossi independently, but he promoted the situation with Industrial Heat in America, he promoted that around the world as evidence of his technology being real. Also, I don't know what Rossi's motivations are and a lot of people will say, well he would be crazy to do the things he did and not have a real technology. And my answer to that is, yeah, he'd have to be crazy.Is that impossible? He sued Industrial Heat, Industrial Heat did not sue him. He sued Industrial Heat for $89 million. And if he didn't have a technology, surely a fraud would be crazy to take the thing to court. And I say, yeah, he would.

I really don't know. I've met Rossi. He's a nice guy. You met him also. He's very impressive in a lot of ways. But there's also, if you look at the history and you look at what he's written, a lot of what he written was, which was not public has now come out.Something is off. There's very much something, like he doesn't tell the truth. He misrepresents routinely. And he's still doing it. By the way, Rossi has said things about me. And one of the things he claimed was that I was being paid to attack him. And I haven't been paid to, I was publicly supported, not by Industrial Heat. I was publicly supported to attend the trial and to report on it. And I have no support that depends uponmy coming up with any particular opinion at all. I'm a journalist and that's what's been supported.

S o Rossi, I met Rossi. He was cordial and he knew who I was and his attorneys knew who I was, believe me, they referred to me by name. And so I don't dislike the guy. I have no hatred for Andrea Rossi, and I wish him well, but I'm also telling what I know.

Ruby Carat: And we hope to be speaking with Andrea Rossi of the Leonardo Corporation later in theseason. We'll get his answer to these critics and charges and his story on the trial. And we'll be right back with Abd ul-Rahman Lomax here to discuss what happened during that trial between Andrea Rossi and Industrial Heat after this.

Mark your calendars for the next International Conference on Condensed Matter NuclearScience, 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 8th,2018. For more information and registration go to www.iccf21.com.

Abd Lomax: And Ruby, I'll be there with bells on.

Ruby Carat: And we're back with Abd ul-Rahman Lomax, who has documented the Andrea Rossi, Industrial Heat $89 million lawsuit on his website, coldfusioncommunity.net. Now, Abdto try to pull this all together, can you talk to us about what happened at the trial? How did this all shake out?

Abd Lomax: Well, the trial was after over a year of legal maneuvers and discovery and the filing of anincredible number of documents and all the trial documents are hosted on coldfusioncommunity.net. So we have an amazing amount of evidence that never existedbefore about what happened with Andrea Rossi and what was claimed by both sides. Butthe evidence, evidence is evidence. The purpose of it and the interpretation of it is going to be up to the judge and the jury, the lawyers will argue for this or that interpretation.

And so, I went to the trial. I was there and the jury was selected on the first day of the trial, and then there was a mistrial because they hadn't chosen enough jurors and too many jurors left and there weren't going to be enough left. So they had to start all over again.

And so they did that, and there were the opening arguments, some of them had been presented before the jury was disqualified. And so they presented the opening argumentsagain. And so we got to see those arguments more than once.

Ruby Carat: Wow.

Abd Lomax: And they actually improved the presentation the second time. So all the opening arguments were presented to the jury. The jury had been seated and all the opening arguments were presented. And then everybody came back for the first day of the actual trial where the presentation would be made by the plaintiff first, Andrea Rossi's attorneysto the jury. And they were setting up and they had displays set up with diagrams and things like that. They were ready to go, and everybody was waiting. And one of the new attorney for Rossi, attorney that had been hired quite recently, he had entered the case, and an attorney with heavy experience in settlement of cases and a highly experienced attorney, [Lucax 00:25:00], Lucax, I think it's Lucax, Lucas. I think it's pronounced Lucas.

Lucas asked the judge for permission to speak for a few minutes with the lead attorney for Industrial Heat. And so they did that and they went out of the room. And then the judge was clearly impatient to get the trial going. And they came back into the room andspoke to the judge. And then at that point, all hell broke loose. People were running around the room and basically what was happening was attorneys, all the attorneys weregoing out and people were going back and forth. And it was really obvious what was happening to me. There was a settlement being discussed. And the attorneys were like, they were just about ready to break out the champagne. On both sides, nobody was looking forward to a miserable four or five week trial where everybody's reputation would be shredded. And it was going to be very expensive.

Industrial Heat had like five attorneys sitting there, Rossi had four. And so they were... Then the Lucas asked the judge, he said he wanted to, he asked the judge, he asked that Ileave the room because I was the only observer at that point. There was also, I think Darden's son was there also, and we all left the room.

Ruby Carat: Wait a minute, so all this is happening in the courtroom and the jurors are still there?

Abd Lomax: Well, the jurors were excused to go out of the room. So they were not seeing this negotiation.

Ruby Carat: Oh. But in the benches to see the trial, you were the only person there other than-

Abd Lomax: [crosstalk 00:27:32]y Yeah. I was the only media present. So on one day, there was somebody from Law360 there who wrote an article, but I was the only person there. SoI...

Ruby Carat: And then they asked you to leave?

Abd Lomax: Yeah. I was asked to leave by name, Mr. Lomax. And I-

Ruby Carat: [crosstalk 00:27:53] Why do you think they asked you to leave?

Abd Lomax: They didn't want this covered. Whatever was going to be said at this point, they didn't want covered, but we know later, we know what was done. There was basically they agreed to settle with prejudice. Basically they agreed that the case would be dismissed and the judge asked them if they wanted any conditions to be stated and they said, no. What this means is the attorneys trusted each other, that they would do whatever they hadagreed to do. And it's unclear.

At that point, there was no statement of what the agreement was, except that the lawsuit and all the counterclaims, all the claims against Rossi and his attorney Johnson and Fabiani and another guy that had pretended to be the engineer for JM Products. What's his name? I can't think of his name right now, but basically all these lawsuits were dismissed without prep with prejudice. So they couldn't be filed again. Rossi could not sue Industrial Heat for 89 million again, or for violation of the contract, Industrial Heat could not sue Rossi for fraud, which they had done as a counterclaim, all this is dismissedwith the court not making any order except the dismissal.

Ruby Carat: Do you know what the settlement was?

Abd Lomax: Yeah. Well later, Rossi with Mats Lewan, Rossi published what he claimed was the settlement. In fact, I knew at that point it had not been signed by all the parties, but it wassigned. It was ultimately signed by all the parties. And so it became valid. That's been published. And the essentials are that they walk away. Industrial Heat gave up any claim against Rossi for anything and Rossi gave up any claim against Industrial Heat for anything, and Industrial Heat agreed to turn over, to surrender the license. So they no longer had a license to Rossi Technology. And to turn over all the reactors, including the ones made by Industrial Heat, to turn over all those reactors to Rossi so that he owned, hegot his reactors back and he got his license back and Industrial Heat walked away from what was probably an investment, if you include legal fees, well over $20 million, they walked away from it.

Now, if there was a 1% chance that the Rossi Technology was valid, that would be worthprobably, well, probably $1 billion. They walked away from a contingent value of $1 billion in order to do that sanely and they represent their investors sanely. They had to beconvinced there was nothing there worth keeping. It doesn't make any sense. Otherwise, they would have held onto that license. They would have said, okay, or they would have made some other agreement like, okay, we want to hold the license, but we'll make this arrangement with it. And they would have made a different settlement. That was a simplesettlement. And I think Lucas came up with it. I think he was brilliant attorney.

Ruby Carat: As Industrial Heat learned more about this field, do you think they began to understandhow the science is still being worked out and that how difficult it is to engineer a technology when you don't understand the science?

Abd Lomax: Yeah. You make a very good point there. Basically Industrial Heat was funded in 2015, they received $50 million from a company in England. And they invested that money in supporting researchers in the field. People that we got money would include Dennis Lats,Peter Hagelstein got some money, the fellow at Purdue, what's his name? Another theoretician got some money. They did a lot of testing of Mizuno's claims, basically theysay there's one company where they found they were able to find some interesting resultsand they were still working on it. And they haven't said who that was, but basically they put the better part of $50 million. I don't know how much money they have left. They're not very transparent. But they put quite a bit of money into more traditional low energy, nuclear reaction research. And they're smart people. And I met them. They are aware of how difficult the field is, and whether or not they're putting more money into it now, I don't know. They were going to sponsor ICCF-21 and they backed out of that, but that was at a time when they didn't know what was going to happen with the Rossi lawsuit.

And I suspect that they have provided some support for ICCF-21, but you'd have to ask David Nagel about that. I know he was asking for it, but I don't know if they gave it. Andso basically, they want the science, their goal actually wasn't to make a lot of money.

Their goal was to support the science from the beginning. And in order to do that, they needed to know whether the Rossi Technology was real or not, because it was head and shoulders as far as claims above everything else that anybody had ever produced. So theyactually needed to know that because it was suppressing investment in the research because people were saying, why should we put money in these marginal experiments if Andrea Rossi is generating a megawatt? They needed to... And they put their money where their mouth was. They went for it and they gave it every chance.

Ruby Carat: So we don't know if they're still funding this field. And what effect do you think this event of the lawsuit had on investors in this field? Has it produced a chill?

Abd Lomax: I don't know about that. I don't know enough current investment information. I know thatthe scientific research that needs to be done to break this field open is being done in Texas, and it was funded by the end of 2014. They've got plenty of money and Robert Duncan at Texas Tech and Mike [inaudible 00:36:04] is a consultant for that project and Ihope to visit them in not very much longer. I hope to be there and see it for myself.

They're not talking about the results. I've been told that it's going well, but that's all. I have no details.

Ruby Carat: Well, Abd ul-Rahman Lomax, in closing, is there anything else that you'd like us to knowabout these unfortunate events?

Abd Lomax: Well, I'll just answer that. My belief is that there's nothing unfortunate, that what we do iswe proceed to discover reality and reality is better than anything we can imagine.

Ruby Carat: Right on.

Abd Lomax: Yeah. So basically I don't think of it as unfortunate, I just think of it as this is what happened. And I think that for a long time, from the very beginning, cold fusion has beena matter of people finding amazing things and getting, shall we say over excited by them?And the reality is that at this point for me, I don't see any evidence that we understand what is actually happening in cold fusion reactors. We do understand that

there is heat being generated and helium being generated and they're correlated. And those two facts, you can make a mistake measuring heat, and you can make a mistake measuring helium.There's lots of mistakes that can be made. Those would not correlate over a large numberof experiments and that's been done.

So the work that's going on in Texas is an effort to confirm that with increased precision,which we'll have, I believe it's going to be publishable. If it does what we expect from prior results, it'll be published in a major journal and it's going to make funding for cold fusion research much more accessible. That's my prediction. So the science is proceedingand it's being funded.

Now, there's a lot of people working on various things that are interesting and funding forthat at this point may or may not be adequate. I don't actually know. I know some of what's going on, but what people should know, what people who want to invest in cold fusion should know is that there are real effects, but controlling the conditions for those effects is extremely difficult. And if somebody is claiming that they can control the conditions, they're making an extraordinary claim, and I would want clear, I want to see before I put much money into it, I would want to see that there was independent evidencefor that, that I could really trust, because Rossi shows that it's possible for somebody to make claims and to do public demonstrations that seem convincing, and there might be nothing there. So that's one of the things, that's a benefit from Rossi that could prevent the same kind of mistake from being made in the future.

Ruby Carat: Well, thank you for being with us today, Abd ul-Rahman Lomax.

Abd Lomax: And thank you so much Ruby for the opportunity. I really appreciate it. And I appreciateall the work you've done over the years for this field.

Ruby Carat: We've been speaking with Abd ul-Rahman Lomax, who has documented the Andrea Rossi, Industrial Heat $89 million lawsuit, and attended the subsequent trial, which settled last summer. You can find all the pertinent documents on this website at coldfusioncommunity.net. That's it for today. Find more episodes of the Cold Fusion Now podcast on our website at coldfusionnow.org and on iTunes. Please show us you like our work by supporting the Cold Fusion Now podcast at patreon.com/coldfusionnow.Until next time, I'm Ruby Carat.

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Appendix D. Current Science Paper

Replicable cold fusion experiment: heat/helium ratio

Abd ul-Rahman Lomax*

Infusion Institute, Northampton, Massachusetts, USA

Cold fusion effects have often been called 'unreliable', even by those convinced of their reality. The chaotic nature of material conditions, so far, has made ordinary reliability elusive. However, the Fleischmann–Pons experiment produces more than one effect, and two major ones are heat and helium. Miles, in 1991, measured both, and found that they were correlated, within an order of magnitude of the ratio expected from deuterium fusion. Miles was amply confirmed, and precision has increased. While there are outliers, there is no experimental evidence contradicting the correlation, and only the exact ratio remains in question. In this, we have direct evidence that the effect is real and is nuclear in nature; the mechanism remains a mystery well worth exploration.

Keywords: Anomalous heat, cold fusion, heat/helium ratio, replicable experiments.

Introduction

MICHAEL MCKUBRE, in his review of evidence in this special section, covers research into the original experimental 'cold fusion' report, anomalous heat. It is still common to see mention of 'cold fusion' accompanied by a claim that the experiments could not be replicated. Scientific papers are still being rejected solely because of the belief that cold fusion was disproved:

> Despite all details provided in the manuscript and the apparently rigorous procedure, I cannot recommend publication of the manuscript. The main reason is that the manuscript and the associated documentation target the rehabilitation of the cold fusion concept; unfortunately cold fusion has largely been disproved among the scientific community. (Anonymous reviewer, 2010, quoted by Hagelstein[1].)

However, since 1991, direct evidence has been available that the Fleischman–Pons heat effect (FPHE) is nuclear in nature, stronger than the indirect or circumstantial evidence (including unexplained heat) found by Pons, Fleischmann and others. Their experiment is difficult to replicate, and even in the hands of the experienced, results may be highly variable. One may search in vain for some protocol to produce reliable anomalous heat. However, science can handle unreliable effects, and may still determine their nature, through correlation, and this has been done with cold fusion.

The present article does not claim that any particular reaction mechanism is the source of the anomalous heat, only that helium is being proportionally produced, as shown in wide experimental confirmation (e.g. Figure 1)[2]. In this article, 'heat' refers to anomalous heat, heat measured but unexplained by known chemistry or power inputs.

Discussion

Cold fusion researchers often counter the 'non-reproducible' allegation by claiming that the calorimetry is good, pointing to many successful results, and, in addition, cite supporting evidence of some nuclear effect occurring, such as the formation of tritium and neutrons. This increases confusion, because there are many such effects reported but not confirmed, and different experiments seem to produce different effects. This is circumstantial evidence, and may not be enough to convince those reasonably skeptical that nuclear reactions are possible under the conditions of the FPHE. However, one of the original mysteries was the ash.

The reaction fuel was and is suspected to be deuterium, so what is the ash? Because the initial focus was on ordinary deuterium fusion, there were well-known products to look for. Half of the reactions would produce helium-3 and a neutron, and half would produce tritium and a proton. Neutrons and tritium are easily detected. While there are widespread reports of tritium at low levels, various transmutations, and neutrons at extremely low levels, none of these has been found to be even remotely commensurate with heat.

There is a rare branch from ordinary deuterium fusion, which produces helium-4 plus a gamma ray. That gamma ray is not observed with the FPHE.

Melvin Miles, one of the original reporters of replication failure, as covered in the 1989 US Department of Energy ERAB report[3] was, by late 1989, reporting heat[4]. In 1991, Miles announced that he had found helium correlated with heat in the evolved gas of electrolytic cold fusion cells[5].

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The levels of helium found varied with anomalous heat during the sampling period. (This is not a correlation with temperature. Temperature variation in low-power cold fusion cells is low; in some cases the temperature is held constant at an elevated level, excess heat being measured by the reduction in power necessary to maintain the temperature. In other cells, such as Miles' work, the temperature increase is low, no more than a few degrees Celsius, not enough to significantly affect leakage of helium.)

Ultimately, Miles reported 33 results from double-blind helium analysis. In 12 samples taken with no heat, none showed helium above measurement background. In 21 cells with heat, 18 showed helium and, generally, more the heat, more the helium produced[6]. (Of the three major outliers, one was a cell where calorimetry error was reasonably suspected. The other two involved the only Pd–Ce alloy cathode used.)

The helium found was roughly half of that expected, from measured heat, if the reaction were the conversion of deuterium to helium. The laws of thermodynamics require that this result be mechanism-independent[7].

Helium is effectively immobilized in palladium, trapped at grain boundaries; so helium formed in the bulk would remain there[8]. It is then reasonable to suspect that the helium is produced at or near the surface, instead of deep in the bulk, as some had originally expected. It is then reasonable to expect that roughly half of it will have birth momentum vector that takes it away from the material, and roughly half will implant and not be released.

Miles' early helium results were covered by John R. Huizenga in the second edition of his book, *Cold Fusion: Scientific Fiasco of the Century*. He wrote that, if confirmed, this solves one of the greatest puzzles of cold fusion, but then he added that it would probably not be confirmed, because the expected lethal levels of gamma rays were absent[9]. However, gammas are only required if the reaction is ordinary d–d fusion, producing helium. There are other possibilities.

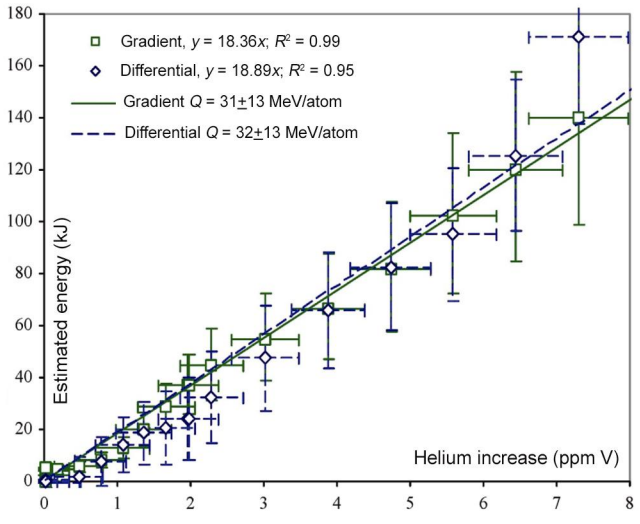

Figure 1. Anomalous energy versus measured helium[2].

Miles was amply confirmed. For a review of the literature, see Storms[10,11]. In his recent book[12], Storms adds more, reporting work from 30 groups. Over 80 experiments are covered, including more than 20 where there was no heat and no helium (light hydrogen controls or 'dead cells', cells that show no heat in spite of being treated similar to heat-producing cells). There is a solid body of research supporting the heat/helium correlation.

Michael McKubre at SRI International has measured heat/helium ratio the most precisely, to date[13–15], at 23 MeV/^{4}He ± 10%. The theoretical value for deuterium conversion to helium is 23.8 MeV/^{4}He, if there is no loss of helium or loss of heat (as through radiation).

This is a reliable, reproducible and reproduced experiment, even though the individual tests are not reliable as to the amount of heat produced. As helium is a nuclear product, it is direct evidence that the FPHE is nuclear in nature.

Critique of Miles' work was published, with response[16–19]. None of the responses correctly addressed the correlation[20]. Critics have focused on claims that the calorimetry may be incorrect, or that the helium may be leakage. Either one of these could seem possible. No plausible explanations have been advanced for the correlation, nor the ratio being close to the fusion value, a remarkable coincidence. There is no substantial contrary experimental evidence.

Atomic counts of helium found in the FPHE experiments are roughly a million times higher than those of tritium, which, in turn, are roughly a million times higher than neutrons[21]. We may say, then, that 'cold fusion', at least with the FPHE, is a process that converts deuterium to helium, with no other major confirmed effects. We can call it 'fusion' because it produces a fusion product, not because the mechanism is what is known as fusion. The mechanism is a mystery.

Cold fusion was, then, confirmed as to resulting heat and nuclear product, in work first announced 23 years ago, and that confirmation was itself confirmed by multiple research groups around the world. This is a reproducible experiment: set-up conditions where the FPHE may be expected in some fraction of experiments, measure heat and helium, and determine the ratio. Modern cold fusion protocols commonly show more than half of the experiments with anomalous heat. Null results (no heat, no helium) confirm the correlation, though not the ratio.

When McKubre at SRI made the measurement that was closest to the theoretical fusion value, he had repeatedly loaded and deloaded the cathode, plus anodic reversal was used, in an attempt to flush out helium[22]. Apicella *et al*. also used 'anodic erosion' to release additional helium, in a rough confirmation of this approach[23]. Anodic reversal may dissolve the surface of a palladium cathode, releasing helium trapped there. In both cases

the results moved toward the theoretical value, from values that indicated roughly 40% of helium had been trapped.

Conclusions

It is clear from the data available in the literature that the phenomenon of heat and helium correlation is replicable. While some attributes of this phenomenon are consistent with d–d fusion (e.g. ^{4}He production and the energy associated with the heat), many of the other features expected from d–d fusion are not observed in these experiments (e.g. detection of high-energy gammas, nor substantial neutrons and charged particles). The mechanism of production of ^{4}He and the correlated heat generated is not understood. The fact remains that it is an interesting phenomenon which needs more detailed experimentation and requires new theoretical approaches.

Cold fusion is real, and it is time that serious work is funded to study the conditions of cold fusion and other correlated effects, gathering the evidence needed to understand it.

If agencies or decision-makers are still in doubt about the reality of the effect, then the first work to fund would be more accurate measurement of the heat/helium ratio, perhaps following McKubre or Apicella *et al.*[24].

Beyond that, identifying and confirming the nuclear active environment (Storms' term, the specific local structure or condition that allows the reaction) would take us forward[25]. There is work by Dennis Letts, following a prediction by Peter Hagelstein, that appears to show reliable control of the reaction with dual laser stimulation tuned to beat frequencies in the terahertz region[26]. There are many clues in an abundant exploratory literature, and a great deal to confirm and nail down.

For physicists, this is a mystery to address and resolve, and an exciting opportunity. How are these results possible? Is new physics involved, or merely some set of unanticipated conditions? Beyond that, are there possible practical applications?

Notes and references

Where available, links are provided to free-access documents. Some references not otherwise freely available are to papers, published in mainstream journals, in the 'Britz collection', a bibliography with reviews, at http://www.dieterbritz.dk/fusweb/papers. Further coverage of this topic, as well as corrections and criticism, will be available or linked from http://en.wikiversity.org/wiki/Cold_fusion/Excess_heat_correlated_with_helium

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