Ludwik Kowalski, Major Contributor to the Cold Fusion Field

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Dr. Ludwik Kowalski contributed to the cold fusion field in several ways. He created a website that is both a storehouse of information and a complete report on his work in the field. He conducted experiments and collaborated with other researchers. He understood and commented on the sociology of science issues that arose in the rejection of cold fusion. Apart from these contributions, he authored significant works as a convert from being a communist to a staunch anti-communist.

Dr. Kowalski began his cold fusion work in 2002 after converting from a "non-believer" to a supporter as a result of attending a conference on emerging nuclear systems, where he heard several papers on cold fusion. He met Martin Fleischmann in 2011 at ICCF10.

Dr. Kowalski received his Ph.D. in physics at the University of Paris (Sorbonne) in 1963. He immigrated to the U.S. in 1964 and eventually became a member of the physics faculty at Montclair State University. He held this position for 35 years until he retired in 2004, two years after he became interested in cold fusion. He passed away on October 20, 2021.

With the assistance of his wife, Linda, Dr. Kowalski's cold fusion career and accomplishments have also been documented in the LENR Research Documentation Initiative (LRDI).[1]

"Learn Cold Fusion" Website

Dr. Kowalski's cold fusion contributions and accomplishments are still partly available on his "Learn Cold Fusion" (LCF) website hosted by Montclair University.[2] (Some of the material is no longer on the site. The full download of the site from August 2020 is available on the *Infinite Energy* website,[3] courtesy of the LRDI.) The site is a numbered list of entries/documents, in order from date of posting.

Dr. Kowalski (left) with Martin Fleischmann, in 2011 at ICCF10 in Cambridge, Massachusetts (LCF #403).

Dr. Kowalski's motivation for creating the website is described in his first entry:

> In the fall of 2002, to my surprise, I discovered that the field of cold fusion is still active. This happened at the International Conference on Emerging Nuclear Systems (ICENES2002 in Albuquerque, New Mexico). Several papers presented at this conference were devoted to cold fusion topics. Intrigued by the discovery, I started reading about recent cold fusion findings and sharing what I learned with other physics teachers...
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> What follows is a set of items posted, more or less regularly, on that website since October of 2002. The items reflect my own process of learning, mostly from articles published by cold fusion researchers. I am still not convinced that excess heat, discovered by Fleischmann and Pons, is real or that nuclear transmutations can occur at ordinary temperatures. But I do think that the time is right for the second evaluation of the entire field. I do not believe that extraordinary findings of hundreds of researchers are products of their imagination or fraud. Our scientific establishment should treat cold fusion in the same way in which any other area is treated. Those who study cold fusion do not appear to be pseudo-scientists or con artists.

The broad coverage of the website demonstrates Dr. Kowalski's broad knowledge of the issues and activities of the entire field. It is impossible to characterize the LCF contents briefly, but typical topics are descriptions of experimental approaches, theoretical explanations, reviews of the work of others, discourse with other researchers, attendance at ICCFs, and cold fusion as science rather than pseudoscience.

In general, the articles stand as independent essays. They have references among them and often have subsequent inserts for annotation, such as more insight or further developments. The LCF website of August 2020 consisted of a remarkable 416 webpages.

Dr. Kowalski selected about 20 of the articles on the website for compilation in a report entitled "Cold Fusion Is Not Voodoo Science"[4] (LCF #403, dated March 2012). The contents of this report illustrate the breadth of his interests in the field.

Collaborations

Dr. Kowalski performed cold fusion experiments in his private facilities and at a laboratory at Montclair State University. Two collaborations he described most fully were

with Dr. Richard Oriani and the Galileo Project. Both involved using CR-39 as a nuclear signature detector of cold fusion reactions. His work with Oriani started with joint experiments at Oriani's lab in Minnesota and then at his own lab in New Jersey. He concluded he could not confirm or refute Oriani's observations of nuclear signatures. A follow-on effort was termed the Curie Project. Although the collaboration was a success, Dr. Kowalski's conclusion was that the observations were not different from observed background levels.

When Steven Krivit recruited for the Galileo Project,[5] Dr Kowalski was one of the original six who agreed to participate. The objective of the Project was to replicate the positive cold fusion results of Pam Mosier-Boss and others at SPAWAR using CR-39 detectors. His work on this project is perhaps the most extensively reported topic in his LCF website, including several micrographs. He was able to replicate the SPAWAR results successfully regarding observations in the CR-39 samples. However, he did not agree with the interpretation of these results as being due to radiation from cold fusion reactions. His conclusion was similar to what he found in his collaboration with Oriani: the claims were not verified.

Dr. Kowalski's participation in the Galileo Project is recorded particularly in LCF #319 (A Contribution to Galileo Project), #320 (Phase 2 of Galileo Project) and #321 (Scientific Issues in the Galileo Project). He notes in #321 that the question remains unanswered about whether the observations in the CR-39 detectors are due to emissions of nucleons initiated by cold fusion (in electrolysis). He then lists the following six issues regarding the CR-39 observations:

– Unconventional use of CR-39 detectors.
– Relative sizes of the observed pits in the detectors.
– Possible emission of neutrons.
– Outcomes of using Oriani's PACA (Protection Against Chemical Attack) detectors.
– The experimental effect of electric and magnetic fields.
– The significance of other cold fusion signatures, including tritium, X-rays and morphological changes on cathode surfaces.

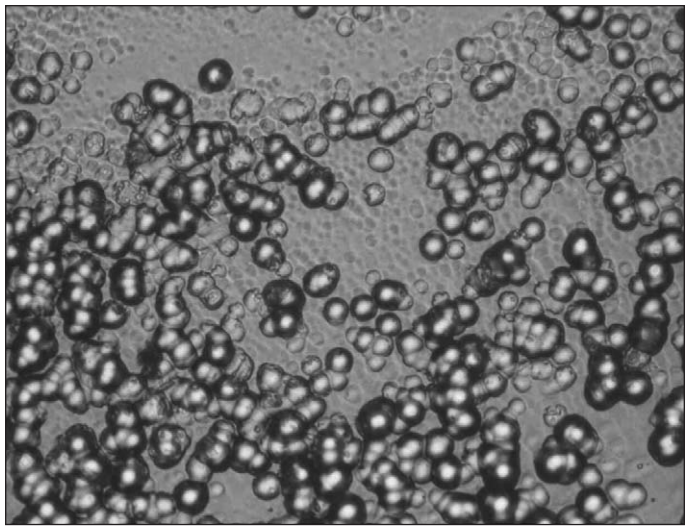
Publications and Presentations

A search for "Kowalski" on lenr-canr.org yields about a dozen items, ranging from 2003 to 2012. The topics covered are broad, ranging across the cold fusion field. They include the following topics: Triple Deuteron Fusion Emissions of Nuclear Particles; Problems of Physics Teachers in Teaching Cold Fusion; Use of CR-39 Detectors; Charged Particles from Foils; Nuclear vs Nonnuclear Interpretations; Attempts to Publish a (Cold Fusion) Paper; Codeposition Validity of the Cold Fusion Claim; Cold Fusion Reproducibility; Excess Heat Controversy; Cold Fusion is Not Voodoo Science; Searching for Excess Heat.

Dr. Kowalski published many papers in his career as a member of the Montclair State University physics department. He also co-authored a physics textbook.[6]

Sociology of Science Observations

Dr. Kowalski understood well the sociology of science basis of cold fusion rejection. Several papers on the topic are in his LCF website, covering science versus pseudoscience, alchemy, the scientific method, rejection of cold fusion manuscripts by mainstream journals, and the social impacts of the cold fusion controversy. Two of his LCF entries, #409 (Social Aspects of Cold Fusion) and #413 (Philosophical and Social Aspects of the Cold Fusion Controversy), were published in journals in 2012.[7,8] The latter paper was also published in 2017 in a Polish journal on nuclear technology.[9]



One of Dr. Kowalski's micrographs. He noted the two different sizes of pits in the CR-39 detectors. He concluded that the larger pits could not be from cold fusion radiation (LCF #319).

The references in these papers show that Dr. Kowalski was familiar with the sociology of science literature, including *The Normative Structure of Science*,[10] *The Structure of Scientific Revolutions*,[11] "Science as Falsification"[12] and "Colloqium on Pathological Science."[13] Dr. Kowalski's view on the sociology of science of cold fusion's rejection are well expressed in the 2017 paper. The abstract notes the following:

> The area of research known as Cold Fusion (CF) has been the arena of a science-and-society feud since 1989…The conflict is very unusual in terms of duration, the caliber of combatants, and the deviation from basic principles of scientific methodology of validation of claims. The purpose of this article is to comment on methodological mistakes made during the still-ongoing feud among scientists.

The conclusion of the paper sums up the sociology of science situation of cold fusion as well:

> Long-lasting controversies about scientific discoveries are not new. Alfred Wegener's theory of continental drift is a good illustration. Mainstream geologists rejected experimental data supporting his now-accepted theory for half a century. The CF controversy, however, seems to be different both in terms of governmental involvement and in the caliber of adversaries on both sides of the divide. Huizenga and Fleischmann were indisputable leaders in nuclear science and electrochemistry. Most leading CF researchers are PhD-level scientists. The same is true for many scientists who reject CF claims.
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> The long-lasting CF episode is a social situation in

which the self-correcting process of scientific development was not allowed to evolve. To what extent was this due to extreme difficulties in making progress in the new area, rather than to negative effects of competition, greed, jealousy, and other "human nature" factors? Such unanswered questions are worth addressing in the context of debates about science and society.

One thing is undeniable; the world is still waiting for the first reproducible-on-demand demonstration of a nuclear process resulting from a chemical process. No progress is possible when reported experimental data cannot be reliably replicated in other laboratories. Considering potential CF benefits, and relatively low costs of research in this area, the DOE should have helped to resolve the controversy, one way or another, in a well-equipped national laboratory, during the second investigation. But it failed to do so. How can such a policy be explained? Why is CF research allowed to stagnate without financial support? These questions also belong to debates about science and society. Will the past 25 years be recognized as the painful beginning of a new paradigm, or will this period be known as pseudoscientific? How can the persistence of the CF controversy be explained?

Anti-Communism Works

Dr. Kowalski was born in Warsaw, Poland in 1931. Lured by communist propaganda, his parents moved to the Soviet Union the following year. However, his father was arrested during the Stalin purge of 1938 and died in a Gulag labor camp two years later at the age of 36. Dr. Kowalski's mother eventually returned with him to Poland.

Despite what happened to his father, Dr Kowalski remained a staunch Communist for several years. However, sometime after arriving in the U.S., he underwent a shift and became strongly anti-Communist. In 2008 he published *Hell on Earth*,[14] about the brutality of the Stalin regime. In 2009 he published *Tyranny to Freedom*,[15] about his personal journey out of Communism.

Dr. Kowalski's Contributions

Dr. Kowalski made many contributions to the efforts to resolve cold fusion issues. He became thoroughly knowledgeable of both the technical and sociology of science issues. He conducted sophisticated experiments with CR-39 radiation detectors. He collaborated with other researchers. He wrote incisively about the sociology of science issues in the rejection of cold fusion. He documented his work thoroughly, not only with his LCF website, but also in major conferences and publications—in the cold fusion and physics fields.

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