

ED STORMS HONORED AT ICCF18

Marianne Macy

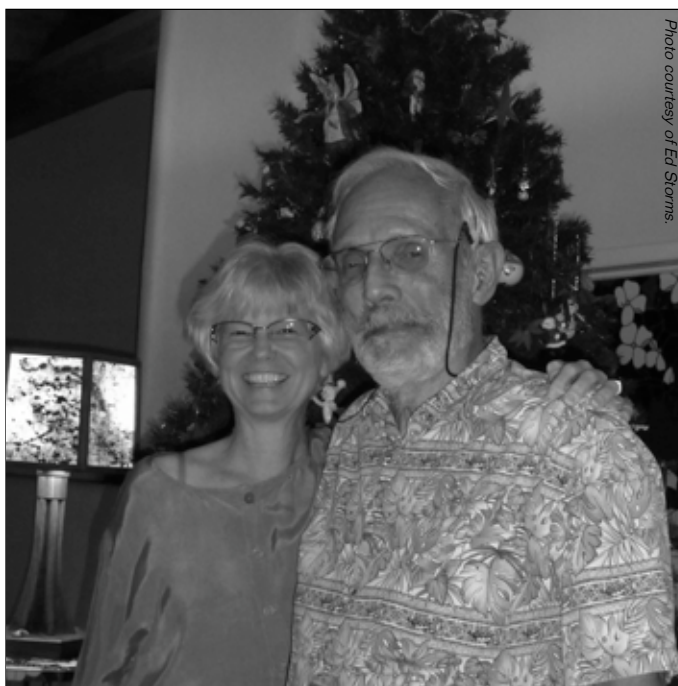
At ICCF18, Columbia, Missouri, Dr. Edmund Storms was honored with a Distinguished Scientist Award. After 34 years as a radiochemist at Los Alamos National Laboratory, overlapping and followed by work in cold fusion from 1989 to current day, Storms has been an experimentalist, theorist, author and educator. His book, *The Science of Low Energy Nuclear Reaction: A Comprehensive Compilation of Evidence and Explanations about Cold Fusion*, published in 2007, is a landmark text. Storms generously gives his time to researchers in the field and actively works to educate the public. Here he discusses his life and work with *Infinite Energy*; we congratulate him on the recognition of his great contributions to LENR.

BACKGROUND AT LANL

"I was working at Los Alamos National Laboratory when Fleischmann and Pons (F-P) made their 1989 announcement and was studying materials used for power in space. Their announcement was incredibly interesting to LANL because that kind of power would solve a lot of problems. I had an idea of how the process worked and made a proposal to DOE, which supported my work and that of a number of others. A dozen efforts were undertaken but only three showed evidence for the claims. Mine was one of them. That got my attention!

"Los Alamos had two uses for such power. One was for space propulsion and the other was for communication and surveillance using satellites. Los Alamos focused mainly on using fission power, which produced intense radiation and radioactive products, all not good. If the kind of power F-P were promising was free of radioactivity and radiation, many problems would be solved. I hope to see LENR used in the future to make space exploration possible well beyond the solar system.

"We were looking for tritium using the electrolytic method. We found tritium—not often and not predictably, but we found it on a number of occasions above any possible error. Tom Claytor used gas discharge rather than electrolysis and was also able to make tritium. Another group studied neutron emission that resulted when titanium exposed to deuterium was temperature cycled. At the time, we thought these neutrons were being generated by cold fusion. Now we understand it was hot fusion caused by fractofusion. When large cracks form in a material containing deuterium, the voltage created in the cracks causes an instantaneous and very low-level fission reaction based on hot fusion. That work made neutrons unambiguously and everyone got excited because it was in keeping with what Fleischmann and Pons were claiming. The neutron production doesn't last long because after awhile cracking stops. This result demonstrated an unexpected nuclear reaction, but not cold fusion."



Carol and Ed Storms at home in Sante Fe.

MARRIAGE AND HOME

Carol Talcott, a chemist at LANL, worked with Ed, running more than 250 experiments with the primary goal to detect tritium as evidence of a fusion reaction.

"Carol and I worked at different locations in the laboratory group (CMB-3), but joined to study the F-P claims. At the time, I was studying high temperature materials for space power and Carol was studying use of palladium as a storage medium for hydrogen and tritium. As a result, a natural relationship was created. We exposed different materials to electrolytic action using heavy water and then tested for tritium. This test was easy because the world's experts about tritium were members of the group. Consequently, we had access to tools and experts to test for and identify tritium. Carol and I had a lot in common and enjoyed each other's company, which made the work even more interesting. After funding for cold fusion ran out we continued our relationship outside the lab. Later, I got money to explore heat production using a calorimeter, which was also successful."

RETIREMENT

"The laboratory started to deteriorate from my point of view and many of us were given an opportunity to retire with extra benefits. I left and so did many other people. They hired us back as consultants because the programs couldn't

function without us. So I worked for another year as a consultant, as did many other people. Once free of the lab, Carol and I got married. I had bought a lot in Sante Fe on the mountain behind the city with the intention of retiring there. So I suggested to Carol we build a house, which we did. We designed the house, built a model and hired a company to prebuild the solid insulated walls, which were delivered by truck as separate panels. This is not an ordinary house. I worked as general contractor and did the electrical and plumbing installations. Carol designed and installed the tile and stained glass while helping move cinder blocks. We hired a crew and crane to help assemble the panels for the main house next door while living in the 'studio' for a year and a half. During the first winter we froze because we had not yet installed the windows. The plastic over the holes was not enough. Finally we figured out how to do this and life became more comfortable. My lab was at first a woodworking shop and used to make furniture for the house. Only later, the woodworking was shared with cold fusion. We were lucky in many ways. We had good subcontractors and we avoided the bedrock in the area. Being the owner-contractor gave us the freedom to make adjustments to avoid many problems. Nevertheless, the use of very few right angles in the design and being located on a steep hillside made the project a challenge."

Ed Storms and Carol Talcott's home is a remarkable structure, hewn of beautiful wood and glass, overlooking the valley where Los Alamos is located, surrounded by mountains. It is as unique as its owners and they have hosted many a visiting cold fusion researcher over the years.

AFTER LANL

"I left the laboratory in 1991. Carol retired a year later. We are now self-employed and I got money from various sources to work on cold fusion and Carol sells her original bead jewelry. I'm the only one on the block to have a scanning electron microscope with EDX. This instrument uses electrons to bombard the sample, which when reflected produce the image. When the electrons enter the sample, they cause ionization which produces X-rays. The X-rays are collected and used to identify the elements present and their concentration. A concentration map of the surface can be made to see exactly where the elements are located within a few microns. This gives me an essential view of the samples and what might be causing the extra heat."

Ed Storms has been a highly sought consultant to different research groups in the field over the years, some work private, some public. His expertise has resulted in the furthering of many research efforts. In some cases, Storms did not hesitate to tell the people who hired him he believed they were going in the wrong direction. He also does not shrink from discussing these ideas in public forums. He has found funding to do his own experiments and theory work. He has published papers, books, website material, corresponded with people all over the world, presented at conferences and in general worked to contribute and communicate.

THEORY

After years of experimental work, Ed Storms started working on theory. Theorist Peter Hagelstein of MIT says that he may

not agree with all of Storms' thoughts but thinks "he is the one person in the field I respect the most for asking the right questions." Storms responds, "Peter and I share a common goal and understanding of the field. Of the theoreticians, he is the one I respect most. I think he also asks the right questions! Unfortunately, we do not get the same answers."

Storms explains, "I started examining theory out of total frustration. I studied many materials, explored many ideas and used many techniques. I would get extra heat periodically and then fail. Unless an understanding of why things happen is followed, the process becomes trial and error, *i.e.* pure chance. I concluded that unless I had a better understanding about what was going on, I would have no success. So, I read all the theories, which I found useless. I was left with no choice but to develop my own."

Jed Rothwell, who runs the field's free online library lenr-canr.org, declares that Ed Storms is the only person who has read "everything."

"That is true," responds Storms. "I have all the papers categorized in my computer. I read all the theories and was appalled at how poor they are. Michael McKubre says we are theory rich but understanding poor. Some people have ideas that even conflict with basic science and well-known observations in the field. No critical judgement seems to be applied. In 1996, I developed the idea of the NAE (Nuclear Active Environment) and most theoreticians laughed. Now the idea is getting attention. To develop a theory, you need to realize that all theory is based on assumption. If the initial assumption is wrong, the resulting theory can't be right. I started with five assumptions and justified why each can be correct. Most people agree they are reasonable assumptions. If used, they eliminate any explanation that is in conflict with them, which is the case for most theories applied to this field. Finally, I was able to create a theory that was consistent with these assumptions, did not conflict with conventional understanding in physics and chemistry, and is able to predict behavior that was not predicted before. The theory is based on creation of a gap in the material having a critically small width. This can host a special structure formed from hydrogen atoms by covalent bonding. This structure does the work of causing fusion and releasing energy as many weak photons. My paper given at ICCF18 adds to the details published previously. Now I'm waiting for the suggested and required tests to be made. This requires use of active material, which is hard to find. I'm searching for such material and I hope other people who have active material will make the requested tests."

THE LENR-CANR ONLINE LIBRARY

One of the major contributions to the field is the website lenr-canr.org, started in late 2002 by Jed Rothwell and Ed Storms. Storms relates how it came to be: "A guy called me several years ago and said he would like to create a website for cold fusion, which I was hoping could be created by someone. Unfortunately, his version was really bad. So, I asked Jed if he could do better, which he did. Jed designed a site that was all I had hoped to see. We downloaded all the literature on my computer as the initial collection, which consisted of End-Note files containing most of the literature at the time. Jed has kept the website up-to-date and has become a very effective spokesperson for the field. The web-



Storms in his lab with the latest apparatus to study heat production from Ni + H₂.

site provides an essential way for anybody to get accurate, up-to-date information about what's going on. It's been our ambassador to conventional science and essential for people in the field to find out what everyone else is doing. Many people from all over the world have downloaded the entire website.

"We tried to arrange for several universities to run the site, but this effort failed. No one had the money to maintain the site. Now Jed has renewed his interest and has become even more active and vocal. Jed has given a tremendous gift to the field and should be rewarded and supported. Eventually, an institution having a lifetime longer than an individual will be required to run the website."

Storms cites another valuable source of information—the online *Journal of Condensed Matter Nuclear Science*, which Jean-Paul Biberian created and runs for the International Society for Condensed Matter Nuclear Science (ISCMNS). Storms notes, "Both Jed and Jean-Paul are presently irreplaceable. Consequently, a large and well funded organization is required to host both of these efforts well into the future. Presently, the International Society of Condensed Matter Nuclear Science (ISCMNS), which was created by William Collis, hosts the journal at a modest level through membership fees and donations, which provided the necessary initial start. Bill is another person who deserves great credit for helping the field get organized and for arranging several very effective meetings in Italy over the past years. Without these effective volunteer efforts, the field would have made very little progress against the relentless skepticism. Now we need to expand support for all efforts to advance the field."

CURRENT PERSPECTIVE

How does Ed Storms see LENR now? "I'm optimistic. This field has broken through the skeptical barrier. Skeptics are in disarray right now. The phenomena has been proven to be real and to have potential commercial application. People can quarrel about the effectiveness of a Rossi demonstration or his rationale about business, but these are details. This

field has made a quantum leap as a result of ICCF18. With the CEO of National Instruments endorsing the concept and a major university endorsing and setting up a center for study of LENR, many people from industry have become interested. This field is moving ahead. However, we need more demonstrations of a working sample. We need what NRL calls a lab rat. Defkalion and Rossi refuse to reveal their recipe, which means other people need to discover a useful method for themselves. The Martin Fleischmann Memorial Project was created to test, verify and promote claims for excess energy while making samples available for testing by other people. This approach is being expanded with formation of The New Fire Generation, of which I'm the chairman of the science advisory board. People periodically see the rabbit. It's there, it's real. We can't catch it yet. Andrea Rossi has grabbed it and is now raising rabbits like crazy. Unfortunately, he's not showing anyone how this is done, but he is dropping hints! Now we need to watch and learn."

MOVING AHEAD

Where is Ed Storms currently in his thinking and efforts? He declares that he is again willing to be a senior advisor of a research effort. "My plan is to raise enough money to start a small effort that would involve Sandia National Laboratory, University of Missouri and LANL. Initially, we would use Tom Claytor's facility in Los Alamos and then expand into a stand alone lab in Sante Fe as the studies advance. A competent study requires access to very high level equipment and contribution by people having many different skills. This combination is not presently available at the level I think is required. Small laboratories such as mine are no longer effective and the big laboratories without knowledge of the LENR effect are also not effective. We now need a combined effort, which so far has not been achieved."

"Sooner or later someone will find a sample that will work," Storms says. "Hopefully they will make it available to everyone. Trying to get a patent about how the material is made is a waste of time and money. I plan on making everything totally public, at least initially. Once the information is made public, it can't be patented by anyone else but can be used to advance understanding and acceptance. I predict money would be made from patents that describe improved engineering, not from patents describing the basic process or about a recipe for making the material. My plan is to wait until an application and a market can be accurately described before a patent is sought. People now are trying to control the whole field by trying to patent recipes for making the effect work. These will not be useful in the future because without understanding how the effect works, no recipe can be relied on to be the best one."

Join Us Online



YouTube

<http://www.youtube.com/user/NewEnergyFoundation>



Facebook

<http://www.facebook.com/pages/New-Energy-Foundation/359050142834?ref=ts>