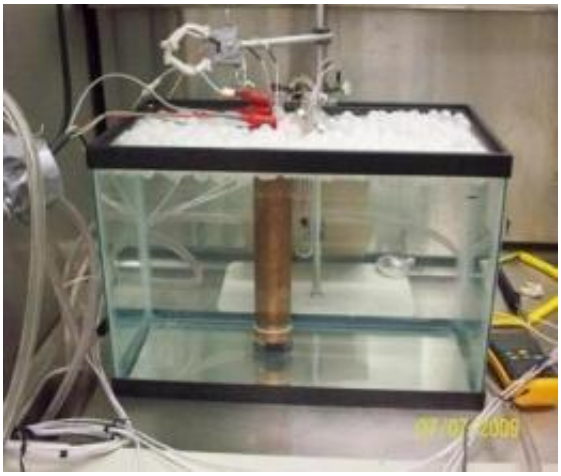
# 'Cold fusion' moves closer to mainstream acceptance

March 21 2010



A new "calorimeter," shown immersed in this water bath, provides the first inexpensive means of identifying the hallmark of cold fusion reactions: the production of excess heat. Credit: Melvin Miles

A potential new energy source so controversial that people once regarded it as junk science is moving closer to acceptance by the mainstream scientific community. That's the conclusion of the organizer of one of the largest scientific sessions on the topic -- "cold fusion" -- being held in San Francisco for the next two days in the Moscone Center during the 239th National Meeting of the American Chemical Society (ACS).

"Years ago, many scientists were afraid to speak about 'cold fusion' to a mainstream audience," said Jan Marwan, Ph.D., the internationally

known expert who organized the symposium. Marwan heads the research firm, Dr. Marwan Chemie in Berlin, Germany. Entitled "New Energy Technology," the symposium will include nearly 50 presentations describing the latest discoveries on the topic.

The presentations describe invention of an inexpensive new measuring device that could enable more labs to begin cold fusion research; indications that cold fusion may occur naturally in certain bacteria; progress toward a battery based on cold fusion; and a range of other topics. Marwan noted that many of the presentations suggest that cold fusion is real, with a potential to contribute to energy supplies in the 21st Century.

"Now most of the scientists are no longer afraid and most of the cold fusion researchers are attracted to the ACS meeting," Marwan said. "I've also noticed that the field is gaining new researchers from universities that had previously not pursued cold fusion research. More and more people are becoming interested in it. There's still some resistance to this field. But we just have to keep on as we have done so far, exploring cold fusion step by step, and that will make it a successful alternative energy source. With time and patience, I'm really optimistic we can do this!"

The term "cold fusion" originated in 1989 when Martin Fleishmann and Stanley Pons claimed achieving nuclear fusion at room temperature with a simple, inexpensive tabletop device. That claim fomented an international sensation because nuclear fusion holds potential for providing the world with a virtually limitless new source of energy. Fuel for fusion comes from ordinary seawater, and estimates indicate that 1 gallon of seawater packs the energy equivalent of 16 gallons of gasoline at 100 percent efficiency for energy production. The claim also ignited scepticism, because conventional wisdom said that achieving fusion required multi-billion-dollar fusion reactors that operate at tens of millions of degrees Fahrenheit.

When other scientists could not reproduce the Pons-Fleishmann results, research on cold fusion fell into disrepute. Humiliated by the scientific establishment, their reputations ruined, Pons and Fleishmann closed their labs, fled the country, and dropped out of sight. The handful of scientists who continued research avoided the term "cold fusion." Instead, they used the term "low energy nuclear reactions (LENR)." Research papers at the ACS symposium openly refer to "cold fusion" and some describe cold fusion as the "Fleishmann-Pons Effect" in honor of the pioneers, Marwan noted.

"The field is now experiencing a rebirth in research efforts and interest, with evidence suggesting that cold fusion may be a reality." Marwan said. He noted, for instance, that the number of presentations on the topic at ACS National Meetings has quadrupled since 2007.

**More information:**
Among the reports scheduled for the symposium are:

- Michael McKubre, Ph.D., of SRI International in Menlo Park, Calif., provides an overview of cold fusion research. McKubre will discuss current knowledge in the field and explain why some doubts exist in the broader scientific community. He will also discuss recent experimental work performed at SRI. McKubre will focus on fusion, heat production and nuclear products. [3pm, Monday March 22, Cyril Magnin ]

- George Miley, Ph.D., reports on progress toward a new type of battery that works through a new cold fusion process and has a longer life than conventional batteries. The battery consists of a special type of electrolytic cell that operates at low temperature. The process involves purposely creating defects in the metal electrode of the cell. Miley is a professor at the University of

Illinois in Urbana and director of its Fusion Studies Lab. [11am, Sunday March 21, Cyril Magnin I]

- Melvin Miles, Ph.D., describes development of the first inexpensive instrument for reliably identifying the hallmark of cold fusion reactions: Production of excess heat from tabletop fusion devices now in use. Current "calorimeters," devices that measure excess heat, tend to be too complicated and inefficient for reliable use. The new calorimeter could boost the quality of research and open the field to scores of new scientists in university, government, and private labs, Miles suggests. He is with Dixie State College in St. George, Utah. [2.30pm, Sunday March 21, Cyril Magnin I]

- Vladimir Vysotskii, Ph.D., presents surprising experimental evidence that bacteria can undergo a type of cold fusion process and could be used to dispose of nuclear waste. He will describe studies of nuclear transmutation — the transformation of one element into another — of stable and radioactive isotopes in biological systems. Vysotskii is a scientist with Kiev National Shevchenko University in Kiev, Ukraine. [11.20am, Monday March 22, Cyril Magnin I].

- Tadahiko Mizuno, Ph.D., discusses an unconventional cold fusion device that uses phenanthrene, a substance found in coal and oil, as a reactant. He reports on excess heat production and gamma radiation production from the device. "Overall heat production exceeded any conceivable chemical reaction by two orders of magnitude," Mizuno noted. He is with Hokkaido University in Japan, and wrote the book Nuclear Transmutation: The Reality of Cold Fusion. [3pm, Sunday March 21, Cyril Magnin I]

- Peter Hagelstein, Ph.D., describes new theoretical models to help explain excess heat production in cold fusion, one of the most controversial aspects of the field. He notes that in a nuclear reaction, one would expect that the energy produced would appear as kinetic energy in the products, but in the Fleischmann-Pons experiment there do not appear energetic particles in amounts consistent with the energy observed. His simple models help explain the observed energy changes, including the type and quantity of energy produced. Hagelstein is with the Massachusetts Institute of Technology. [10.20am, Sunday March 21, Cyril Magnin I].

- Xing Zhong Li, Ph.D., presents research demonstrating that cold fusion can occur without the production of strong nuclear radiation. He is developing a cold fusion reactor that demonstrates this principle. Li is a scientist with Tsinghua University in Beijing, China. [9.10am, Sunday March 21, Cyril Magnin I].

Provided by American Chemical Society