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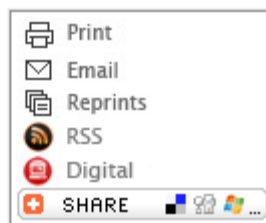
Cold fusion experimentally confirmed

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PORTLAND, Ore. — U.S. Navy researchers claimed to have experimentally confirmed cold fusion in a presentation at the American Chemical Society's annual meeting.



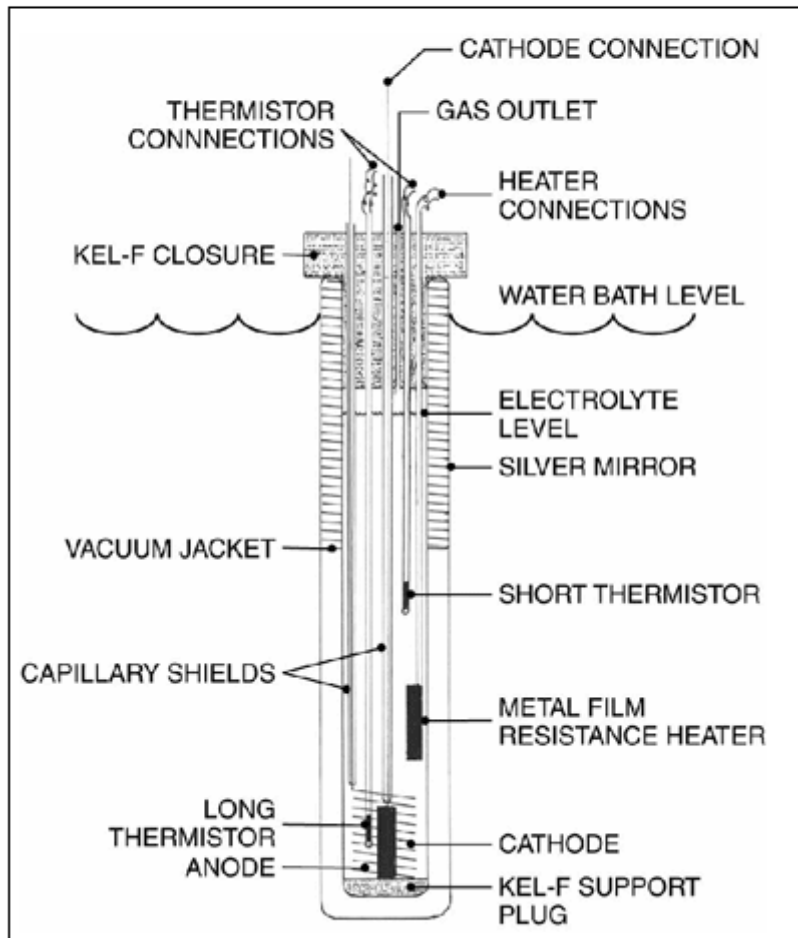
"We have compelling evidence that fusion reactions are occurring" at room temperature, said Pamela Mosier-Boss, a scientist with the Space and Naval Warfare Systems Center (San Diego). The results are "the first scientific report of highly energetic neutrons from low-energy nuclear reactions," she added.

Cold fusion was first reported in 1989 by researchers [Martin Fleischmann and Stanley Pons](#), then with the University of Utah, prompting a global effort to develop the technology. Normal fusion reactions, where hydrogen is fused into helium, occur at millions of degrees inside the Sun. If room temperature fusion reactions could be realized commercially, as Fleischmann and Pons claimed to have achieved inside an electrolytic cell, it promised to produce abundant nuclear energy from deuterium-heavy hydrogen--extracted from seawater.

Other scientists were unable to duplicate the 1989 results, thereby discrediting the work.

The theoretical underpinnings of cold fusion have yet to be adequately explained. The hypothesis is that when electrolysis is performed on deuterium, molecules are fused into helium, releasing a high-energy neutron. While excess heat has been detected by researchers, no group had yet been able to detect the missing neutrons.

Now, the Naval researchers claim that the problem was instrumentation, which was not up to the task of detecting such small numbers of neutrons. To sense such small quantities, Mosier-Boss used a special plastic detector called CR-39. Using co-deposition with nickel and gold wire electrodes, which were inserted into a mixture of palladium chloride and deuterium, the detector was able to capture and track the high-energy neutrons.



Silvered Dewar calorimeter used by Navy researchers to detect neutron emissions from a cold fusion process.

The plastic detector captured a pattern of tiny clusters of adjacent pits, called triple tracks, which the researchers claim is evidence of the telltale neutrons.

Other presenters at the conference also presented evidence supporting cold fusion, including Antonella De Ninno, a scientist with New Technologies Energy and Environment (Rome), who reported both excess heat and helium gas.

"We now have very convincing experimental evidence," De Ninno claimed.

Tadahiko Mizuno of Japan's Hokkaido University also reported excess heat generation and gamma-ray emissions.

All three research groups are currently exploring both experimental and theoretical studies in hopes of better understanding the cold fusion process well enough to commercialize it.

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