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 Mar 23, 2009 11:31 PM in [Energy](#) | [1 comments](#) | [Post a comment](#)

After 20 years: New life for cold fusion?

 By [Katherine Harmon](#) in [60-Second Science Blog](#)

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Is the science community warming to [cold fusion](#)? It's been 20 years to the day since Martin Fleischmann and Stanley Pons, electrochemists at the University of Utah in Salt Lake City, announced the discovery of what they believed to be "cold fusion" (now often referred to as low-energy nuclear reactions, or LENR), a room-temperature nuclear reaction that reportedly generated an unexplained amount of heat. The pronouncement spawned a flurry of excitement about a new renewable energy source, but enthusiasm quickly waned after the [result wasn't satisfactorily replicated](#). Today at the [American Chemical Society's](#) national meeting in the very same city, researchers are recapping recent developments in the field – including images of what some believe are telltale signs of reaction-born subatomic particles, as well as documentation of heat, helium, [gamma rays](#) and other products from possible low-energy nuclear reactions.

"We have been working for ... years to know what kinds of questions to address," one of the presenters Antonella De Ninno, a scientist at the New Technologies Energy and Environment in Italy, said in a statement. "After long term and intensive research, we found ourselves able to give a reasonable ... explanation."

One team, led by Pamela Mosier-Boss, an analytical chemist at the U.S. Navy's Space and Naval Warfare Systems Center, has announced visual evidence of a fusion-like reaction. "If you have fusion going on, then you have to have neutrons," Mosier-Boss said in a statement. "People have always asked 'Where's the neutrons,'" she said, and in their presentation, they reported finding evidence of these neutrons. By exposing a special kind of plastic to the reaction, patterns of minute dents (or "triple tracks" that

show three close nearby forms) were made by excited neutrons created from a nuclear reaction, they report.

In other signs of fusion, Tadahiko Mizuno, an assistant professor in the department of nuclear engineering at Hokkaido University in Japan, reports having detected gamma radiation and De Ninno notes the production of helium gas in experiments; both are possible byproducts of a nuclear LENR reaction.

The hope of LENR is to replicate the powerful energy generation that occurs in stars such as our sun, but to do so at a much cooler temperature. [If successful](#), it could provide a nearly infinite supply of clean energy here on Earth. But many remain skeptical, including the U.S. Department of Energy (DOE). After reviewing a July report by LENR researchers, [the DOE said](#) the evidence "did not conclusively demonstrate the occurrence of cold fusion." DOE recommended research continue, but even its tempered response and skepticism in the scientific community has done little to quell the enthusiasm of researchers.

"The solution of the global warming issue... energy problems, and carbon dioxide can be expected," Mizuno said in a statement, "by putting this nuclear reaction and the energy generation device to practical use." In the meantime, even the already-demonstrated hot fusion waits for its turn in the sun, as work on the collaborative international [ITER thermonuclear fusion reactor project](#) crawls along.

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