

## ACS 2007 Chicago: Cold fusion anyone?

Things are winding down here. I just went along to the session on cold fusion (read the story [here](#)), but my expert timing meant that I arrived just in time for the break. Never mind, I was treated to an advance showing of one of the talks yesterday. I have to admit, I was sceptical, but this is pretty cool stuff. As Frank Gordon, one of the cold fusion scientists said to me, "this actually looks like real science" - and he's right.

In spite of all the disdain that the field is treated with, the cold fusion people I met were all very positive cheerful people, all completely convinced by their research and with what look like compelling arguments. Even the programme chair for this session (not a cold fusion scientist) told me that he was impressed by the results being presented. He's keeping an open mind on the matter. That's quite a way for the field to come since it was laughed almost out of existence in 1989. Gordon was keen to tell me that since they have been quietly plugging away at their work they have not come under attack in the same way Pons and Fleischmann did. "The silence has been deafening" he said.

Cold fusion? I don't know, but the evidence that something weird is happening is there. Maybe it's time to think about this again...

Posted by Katharine Sanderson on March 29, 2007 06:15 PM

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## Cold fusion is back at the American Chemical Society

By Katharine Sanderson  
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### ***Chemistry meeting grants audience to low-energy nuclear work.***

After an 18-year hiatus, the American Chemical Society (ACS) seems to be warming to cold fusion. Today that society is holding a symposium at their national meeting in Chicago, Illinois, on 'low-energy nuclear reactions', the official name for cold fusion.

Some say the move shows that researchers are re-opening their eyes to work in this field. Others maintain that there is still no evidence for cold fusion and see the session only as a curiosity.

Back in 1989, Martin Fleischmann and Stanley Pons sparked a controversy when they announced that they had created excess energy from an electrochemical reaction of deuterium and palladium at near-room temperature. They announced that the energy could only be explained by a nuclear reaction, which could possibly yield cheap, clean energy for the world.

Fleischmann and Pons were first hailed as heroes, but then no one could reproduce their results. Some say the field has never recovered from the scandal that surrounded the dramatic rise and fall of the idea at that time.

When Pons spoke at an ACS meeting in 1989 he was greeted by a standing ovation from a packed hall of thousands of chemists. The ACS has not run a session on cold fusion since. And when it was first suggested to environmental chemistry programme chair Gopal Coimbatore that a session should now be convened he was initially inclined to say no. "The skepticism is built into everyone," he says.

But he was persuaded. "It's been a long time," says Coimbatore, whose own research is in biosensors and toxicology, "let's look at it again."

### **Real effect?**

Fleischmann, now in his 80s, has recently done a raft of calculations and tests that he says proves that his data are not just a mistake. "I've seen these effects, I'm convinced they're real," says Melvin Miles of the University of La Verne, California, who presented Fleischmann's results at the symposium. Fleischmann's calculations show that his measurements of the power given off were accurate to plus or minus 0.1 milliwatts, says Miles; and Miles says he has seen hundreds of milliwatts of power given off in these experiments, so the error is too small to account for the result, he adds.

Others are less convinced. "It still looks a lot like 1989," says vocal cold-fusion critic Robert Park at the University of Maryland. "If anything is going on, it's not fusion."

That cold-fusion critics such as Park even acknowledge there might be any effect at all is a major change in attitude, says Frank Gordon from the US Navy's Space and Naval Warfare Systems Center in San Diego, California, who is also working on low-energy nuclear reactions with colleagues Stan Szpak and Pamela Mosier-Boss.

### **Back seat**

The American Physical Society (APS), in contrast to its chemical counterpart, regularly holds cold-fusion sessions at its annual meetings. At the March 2007 meeting, the society ran for the first time its two cold-fusion sessions on the first, rather than last (and poorly attended) day. And the sessions attracted a new, if tentative audience, says Gordon. "There were people that came and sat at the back



Pons and Fleischmann started a field with so much controversy it's hard to even say the words 'cold fusion' these days.

Philippe Plailly / Eurelios / Science Photo Library

of the room," he says.

The ACS session today granted them an audience of about a dozen people.

Mosier-Boss presented her team's latest results with a technique called co-deposition, where they electrochemically deposit palladium onto a cathode in the presence of deuterium — a heavy isotope of hydrogen. During their electrochemical reactions they have seen mini explosions, evidence for neutron and tritium production, and a warming of the cell that can't be accounted for by normal chemistry, they say — although they are careful to avoid the 'CF' words.

"We have shown it's possible to stimulate nuclear reactions by electrochemical methods," says Gordon. Others say this conclusion is premature. But they have published some 16 papers over the past 18 years, including one earlier this year.[1](#)

Miles is also careful to avoid using the words 'cold fusion'. "There are code names you can use," he says. In 2004 Miles and colleagues were granted a US patent for a palladium material doped with boron for use in low-energy nuclear reactions, but if the patent application contained the CF words it would never have been granted, Miles says. "We kind of disguised what we did."

### **Just in case**

The ACS meeting has sustainability as its theme, and the energy problems facing the world might have prompted the renewed interest in cold fusion in that forum. "We're going to face a severe energy crisis soon," the ACS's Coimbatore says, "Scientists are the most able ones to look for a new source."

But most are for the moment skeptical that low-energy nuclear reactions are the way forward. "The Pons-Fleischmann fiasco damaged the subject but it is the lack of a clear scientific, experimental demonstration of the effect that does the real damage," says Michael Loughlin, who works on another sort of fusion — very, very hot fusion — with the UK Atomic Energy Authority in Culham. "There is no strong evidence that nuclear fusion is taking place."

Loughlin sees no great significance in the ACS's inclusion of cold fusion this year, but says it is good that there is a forum for discussion, "just in case some progress is made".

Others are more scathing: "It's like a Christian convention having a sermon on Islam," said one chemist, who declined to be named, when he heard about the session.

### **References**

1. Szpak S., et al. Naturwissenschaften, (2007) DOI:10.1007/s00114-007-0221-7.