ACS: Cold Fusion Calorimeter Confusion
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Since its triumphal return to the ACS three years ago, cold fusion seems to have gathered momentum.

Cold fusion is the nuclear fusion of atoms at room temperature, creating excess heat. When Stanley Pons and Martin Fleischman announced, at a press conference in 1989, that they'd discovered cold fusion a great swathe of publiscity followed, and in hot pursuit was one of the greatest scandals of modern science when the results turned out to be impossible to reproduce. Cold fusion was at this point dismissed as a nonsense by many.

Back in 2007, the session took place on the last day of the meeting when most people had already gone home, and was tucked away in a room that was a ten-minute walk from the main sessions, and only a handful of people attended - all who knew one another already.

How times change. This year the "low energy nuclear reactions" (LENR) sessions took place over the first two days of the conference, in rooms that are not at all hard to find, and also with many more attendees. The ACS press office even publicised the event and gave a press conference to the speakers.

So why the change? It's not clear. Jan Marwan, from his own private research institute in Berlin, said in the press conference that the field of low energy nuclear reactions has made great progress, and urged people to take a closer look. "There is very strong experimental evidence in terms of excess heat, helium, tritium emission, in terms of nuclear transmutation. Strong experimental evidence."

One of the presentations that was paraded in the press conference was by Mel Miles from Dixie State College in St. George, Utah. Miles has created a new super-accurate calorimeter, using the physics of Martin Fleischman, one of the men behind the original cold fusion scandal. Miles's inexpensive calorimeter should be able to pick up traces of excess heat in cold fusion reactions, he says, although so far he has just been calibrating the instrument and not tested any reactions yet. The instrument cost less than $50 and is made from simple copper tubing and filled with engine oil as a heat-transfer liquid. I popped in to hear Miles talk in the session, and afterwards he kindly posed with his calorimeter for me.

Marwan claims that lots of people are now becoming more interested in cold fusion and LENR reactions. It seems, at least from the publicity that was generated at the meeting, that he might be right. But I am surprised that the phrase cold fusion is being bandied around so generously by these people. The phrase has met with little more than derision in the past.

But people continue to present work where they claim that nuclear reactions produce excess heat. Is it cold fusion, though? Part of me wishes it were, so that the world's energy crisis could be solved in one fell swoop. But I'm still not convinced.

The discussion about excess heat in these reactions could be one of semantics, says Michael McKubre, of SRI International in Menlo Park, California. Presumably by this he is alluding to the controversial nature of the phrase cold fusion. He asserts that LNER is no longer an oddity. Others don't agree. One person who was once a huge devotee of cold fusion, Steve Krivit, a journalist from the magazine New Energy Times has changed his mind. Krivit didn't give a talk this year but he prepared some thoughts about the session at the ACS this year. You can read about Krivit's change of heart **here**.

At the press conference, McKubre dodged a question about when commercial applications of cold fusion might be realised. I think avoiding that question was a sensible decision.