

Prospect of achieving cold fusion tantalizes

- Confirmation reports trickle in
- Dispute over primacy

Washington

SCIENCE by press conference continued this week as Texas A & M University at College Station announced on Monday that researchers there had replicated at least one feature of experiments purporting to show nuclear fusion at room temperature. By the afternoon, a similar announcement had been put out by the press office at the Georgia Institute of Technology, Atlanta.

The Texas group, led by Charles Martin, is getting between 60 and 80 per cent more energy out of its experimental apparatus than it is putting in.

The Georgia group, led by Dr James Mahaffey, has measured neutrons from a palladium cell, recording a fifteenfold increase above background when current was flowing through the cell.

University of Utah chemist Stanley Pons, who first described the cold-fusion experiments at a press conference on 23 March, has confidently predicted that several groups would confirm his experiments. Other groups in the United States, working from preprints of a paper by Pons and Martin Fleischmann that has now appeared in the 10 March issue of the *Journal of Electroanalytical Chemistry and Interfacial Electrochemistry* (261, No. 2a, 301-308; 1989), have not reported either the excess heat production or the appearance of 2.5 MeV neutrons.

Meanwhile, a legal battle is shaping up between the University of Utah and Brigham Young University (BYU) over who first discovered the cold-fusion process. The University of Utah filed a patent application during the week of 13 March, but officials at BYU believe that research done by faculty member Robert Jones along similar lines clearly precedes the work done by Pons. BYU will file a patent application shortly.

Paul Richards, director of public communications at BYU, says his institution felt no pressing need to obtain a patent, as applications for the technology were likely to be far in the future, and the results were of more scientific than commercial interest. Richards adds that BYU felt compelled to file a patent claim in response to accusations that Jones had stolen Pons's ideas.

The relationship between the BYU and University of Utah research teams has been rocky for some time. Last September, Jones was asked to review a grant application submitted to the Department of Energy (DoE) describing the Utah

team's efforts in cold fusion. The grant was ultimately approved. But as well as submitting his comments on the grant to DoE, Jones asked that DoE contact Pons and suggest a collaboration using a neutron detector Jones had developed. DoE did so, but efforts to bring the two groups together were unsuccessful. Ultimately the relationship between the two teams deteriorated to the point where the presidents of both universities met with the leaders of the two research teams to try to clear the air.

That meeting took place on 6 March. Both groups agreed to meet on 24 March at Salt Lake City airport to send simultaneous express packages to *Nature* containing their research results. The timing was crucial, as Jones had agreed to speak at a meeting of the American Physical Society in early May, and they were anxious to have a paper accepted by a peer-reviewed journal before then. Jones cancelled a seminar on his work that had been arranged for 11 March.

But in the intervening weeks, the University of Utah did two things that BYU considered in violation of the agreements worked out on 6 March. On 11 March, Pons and Fleischmann submitted a paper containing details of their cold-fusion experiments to the *Journal of Electroanalytical Chemistry and Interfacial Electrochemistry*, and on 23 March held a press conference to describe their findings. The BYU team was particularly annoyed when, during the press conference, University of Utah vice president for research, James Brophy, told reporters he was unaware of any other groups doing similar work.

The BYU group decided there was no longer any reason to delay, and sent its paper to *Nature* on 23 March. That at the University of Utah sent its on 24 March.

Brophy says the press conference was scheduled after the university learned that a local reporter was planning to publish a news item describing the findings. But Pons says the press conference was held because the paper had already been accepted by the *Journal of Electroanalytical Chemistry and Interfacial Electrochemistry*, although a news release from the journal's publisher, Elsevier Sequoia, states that the paper was accepted on 30 March.

Meanwhile, in Utah, the state legislature has set aside \$5 million to support fusion research once a state commission to be appointed by the governor is convinced that the findings have been confirmed. □

SOVIET SUBMARINES

Pollution fears for Norwegian Sea

London

A Soviet nuclear submarine of experimental design sank last week, with the loss of 42 lives, in international waters in the Norwegian Sea, between Bear Island and the Norwegian coast.

The immediate reaction in Norway has been one of consternation, even though Dr Willy Ostreng of the Fridjof Nansen Institute (which studies security issues in northern waters) says that it "was only a matter of time" before such an accident happened in one of the world's most "heavily submarine-infested" channels.

Surface water and air samples collected by the Norwegian authorities have so far shown no signs of radioactive contamination. A Norwegian team is expected to reach the area on Thursday this week, with the intention of collecting deep-water samples, when it is hoped that a preliminary estimate of the immediate danger of contamination will be possible.

The submarine was equipped with two reactors, each of them cooled by a molten mix of lead and bismuth. If the fire which appears to have been the immediate cause of the disaster did not damage the integrity of the reactor compartments, and if the reactors were shut down before the ship sank, there is at least a chance that radioactive fuel elements will be entombed in a now-solid mass of metal from which radioactive material will be released only slowly.

As after the Chernobyl accident, the incident has become something of a test of *glasnost*. The Soviet side has released a certain amount of information, but *Pravda* complained at the weekend that Western journalists were able to get more information from Soviet embassies abroad than its own correspondents were able to gather in Moscow. Even so, the Norwegians are still clamouring for technical details so as to be able to calculate the long-term risk.

Vera Rich

SOVIET UNION

Reforms begin to take effect

London

THE Soviet Union announced last week that, under its new mental health legislation, more than 60,000 people have been taken off the registers of psychiatric clinics during the past year in Moscow alone. Eventually, it is expected that some 1.2 million Soviet citizens will be removed from the registers. How many names will remain on the registers is unclear. But the new legislation stresses that no citizen may now be hospitalized without his or her consent, except for people "posing an immediate threat to society".

Vera Rich