

# Nuclear fusion



**ASSIGN  
BUSTER**

In spring of 1989, two scientists by the name of Stanley Pons and Martin Fleischmann announced that they had found a way to create nuclear fusion in a relatively simple and cheap way. Superhot fusion is the process in which deuterium, a heavier form of hydrogen, is held within a magnetic field and heated to tens of millions of degrees. The nuclei of the atoms fuse, and heat energy is released. This kind of fusion happens in our solar system's sun.

This type of fusion is known to occur, but recreating it is extremely difficult.

One method of creating fusion failed because even a 100 trillion watt laser was not powerful enough to stimulate fusion. Fusion at room temperature, or cold fusion, is the type that Pons and Fleischmann claimed to have made. Cold fusion is theoretically possible if, instead of electrons, the deuterium has a cloud of heavier particles around it called muons, but attempts had never created noteworthy amounts of heat. If such fusion could be discovered, the scientists responsible would be guaranteed Nobel Prizes.

This is because when fusion occurs, more heat is released than consumed, and it is an extremely efficient and 100% environmentally green source of energy. Fusion is a virtually limitless source of power. In addition, the power plants would have absolutely no pollutants; not even carbon dioxide, which is believed to cause global climate change, as well as giving off significantly less radiation than nuclear power plants. The generator basically runs on seawater. Needless to say, the find caused much excitement in the scientific and political communities. There was a problem, though.

Pons and Fleischmann had many holes in their experiment. The first problem was that they couldn't recreate their experiment. A scientific experiment is

only good if it can take place more than once. Also, their claim was not backed up by any facts, and not nearly enough research or testing. It appeared they made the announcement of fusion well before they were ready to do so. Another problem was that they were very secretive about the exact procedure. They did not give important details that were necessary for the duplication of the test, and for a while they didn't even publish an account of their experiments.

Even once they did, it was too vague or confusing to make out how to do the experiment. Many scientists tried to do the experiment and came out with negative results. Pons claimed that they were doing the experiment wrong, but wouldn't say exactly what was incorrect in the procedure. Experiments are made so that they can be recreated, and such circumstances make it difficult and nearly impossible to recreate it. The quality of their published paper was sub-par, and would supposedly not even pass as acceptable in a college level class.

When the two scientists submitted the find to Nature magazine and it asked for more information, they responded that they were too busy. Fleischmann added, " Nature is not the appropriate place to publish because they don't publish full papers. " This was peculiar because Nature published the papers of Nobel Prize winning scientists Watson and Crick. This paper was a much lower standard and the topic was controversial and still had failed to be recreated in any lab, including that of Pons and Fleischmann.

Regardless of the obvious doubt of the experiment, this announced find stirred up interest in the scientific community. Scientists everywhere let go

of their research to try and find fusion. It was like an unspoken race, and more and more scientists made hasty and under researched remarks, competing for the press and wasting tax money for research that was not properly done. The Georgia Institute of Technology released that they had found fusion, only to retract it, stating that they had faulty equipment.

This was not tested beforehand or found out earlier because the tests were done quickly. Scientists were making claims that were not backed up by enough study or the correct facts. Pons and Fleischmann were made to show their findings early because the University of Utah wanted to get a fusion grant before their rival, Brigham Young University did. The press meant a race for a grant and for fame, which caused everyone to cut corners. If I were a US senator I would not fund the research.

First off, the test that was done was too easy to be overlooked by other, more prevalent scientists for the better part of 40 years. The research was full of holes and the results had yet to be recreated. Additionally, the quality of work the scientists demonstrated was surprisingly low quality. The rush to announce the find showed the apparent rush the scientists were in due to their excitement. The results could not be duplicated, and they are also very far fetched, since the reality of fusion energy is a process that should take place slowly, not immediately.