

Definition: **cold fusion** from *The Macquarie Dictionary*

1.

a fusion reaction in a simple electrochemical cell containing electrodes of palladium and platinum wire immersed in a solution of heavy water (deuterium oxide).

Plural: cold fusions



Image from: [A cold fusion experiment \(Leif Skoogfors/Corbis\) in Science in the Contemporary World: An Encyclopedia](#)

Summary Article: **cold fusion**
from *The Columbia Encyclopedia*

or low-temperature fusion, nuclear fusion of deuterium, an isotope of hydrogen, at or relatively near room temperature. Fusion, the reaction involved in the release of the destructive energy of a hydrogen bomb, requires extremely high temperatures, and investigations of fusion as a possible energy source have focused on the problems involved in designing an apparatus to contain and sustain such a reaction (see nuclear energy; nuclear reactor). In 1989 B. Stanley Pons and Martin Fleischmann, chemists at the Univ. of Utah, announced that an experiment conducted at room temperature using platinum and palladium electrodes immersed in heavy water (deuterium oxide) had produced excess heat and other byproducts that they ascribed to a fusion reaction.

Attempts to replicate their experiment produced initially conflicting results, but several early announcements of experimental confirmation were later retracted. Pons and Fleischmann were also later criticized for having skewed data to show the emission of gamma rays at an energy level typical of fusion.

Research into the possibility of low-energy nuclear reactions (as the field is also called) nonetheless continues, because of intriguing but inconclusive experimental results—such as claims of the production of excess heat, helium, or tritium where heavy water reacts with metals—and because of the desirability of producing relatively nonpolluting fusion energy in quantity at any temperature. Cold-fusion proponents believe that the fusion mechanism is different from that of “hot fusion” in that it encompasses some type of unusual nuclear reaction in the metal lattice involving deuterium and possibly other atoms. Several dozen models to explain the observed phenomena have been advanced, but none accounts for the full range of experimental observations.

See David Peat, F. , *Cold Fusion: The Making of a Scientific Controversy* (1989);
Close, F. E. , *Too Hot to Handle: The Race for Cold Fusion* (1991);
Huizenga, J. R. , *Cold Fusion: The Scientific Fiasco of the Century* (1993);
Taubes, G. , *Bad Science: The Short Life and Weird Times of Cold Fusion* (1993).

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cold fusion. (2018). In P. Lagasse, & Columbia University, *The Columbia encyclopedia* (8th ed.). New York, NY: Columbia University Press. Retrieved from https://search.credoreference.com/content/topic/cold_fusion



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