

Explaining Cold Fusion

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Cold fusion (aka LENR) has been difficult for many people to accept and a challenge to explain. Many attempts have been made to a varying depth, using a variety of different assumptions, while arriving at a variety of different conclusions. Most efforts either conflict with what is known in materials science and/or do not explain all behavior of the phenomenon. As yet, no explanation provides a clear path to achieving reproducible behavior or a method to create a high level of power production. In addition, many of the obvious variables that control the process are not included in the models. This paper will review what is known about cold fusion needing an explanation, summarize the major attempts at proposing an explanation, and provide a model that reduces many of the present limitations of present theory.

The proposed model is based on only a few assumptions, which are:

1. All observed nuclear products result from same basic mechanism operating in the same unique condition in the material, called the NAE.
2. Creation of the NAE follows all laws and rules known to control chemical processes in materials.
3. Once the NAE is created, the nuclear process results in fusion of any isotope of hydrogen in the NAE and releases mass-energy as photons by a unique process.

These assumptions lead to an internally consistent explanation that can be applied to all behavior, can predict testable behavior, and show how the process can be made more reliable, stronger, and better controlled. A logical process will be suggested for connecting the many apparently independent behaviors attributed to LENR, which hopefully can be applied to improving theoretical understanding in the future.