Sequence of events and the variables that influence LENR

Edmund Storms

10/8/22

SEQUENCE OF EVENTS

1. Gaps with a critical width form in the material. [1-3]
2. D or H diffuse into the gaps from the surrounding material
3. A concentration of H or D builds up in each gap.
4. The D or H nuclei combine with many electrons at a critical location in the gap to form a structure similar to the EVO.[4, 5]
5. A shared energy state is created in the assembly that causes the H or D to fuse in stages in order to achieve a lower energy state.
6. The final nucleus contains an extra electron because this electron was in the shared energy state of the fusing nuclei when the fusion process was completed. [2]
7. The fusion process creates energy that is released in stages.[6]
8. Each release of energy produces a smaller number of emitted ions but with each having an increased energy of the same amount.[7]
9. Most of the energy is released as many low-energy electrons.[8]
10. The assemblies reform at the same locations after all of the energy has been released by emission of their contents.[6]
11. When only deuterons (D) are present, the emitted ions will be $^{4}H$.[7]
12. When only protons (H) are present, the emitted ions will be D.[2]
13. When a mixture of D and H are present, the emitted ions will be tritium (T).[2]
14. When D and T are present, the emissions will be a neutron and $^{4}H$. [2]

VARIABLES THAT AFFECT POWER PRODUCTION

1. Increased temperature increases the rate at which the nuclear fuel is replaced at the fusion sites, hence will increase the rate of fusion.[9]

2. Laser light increases the temperature and the availability of electrons, hence will increase the rate of fusion.[10, 11]

3. An electron current passing through the fusion sites will increase the availability of electrons, hence will increase the rate of fusion.[12]

4. The increase in the D or H content in the material will increase the number of gaps, hence will increase the number of fusion sites.

5. Once formed, the nuclear active sites are stable and unaffected by the D or H content.

References

[1] E.K. Storms, The Nature of the Nuclear Active Environment For LENR
, in: L. Energy (Ed), 2006.

[2] E.K. Storms, The explanation of low energy nuclear reaction, Infinite Energy Press, Concord, NH, 2014.

[3] E.K. Storms, The Nature of Cold Fusion (Cold Fusion Made Simple), Solid State Energy Summit, ICCF24,, www.LENR.org, Mountain View, CA, 2022.

[4] K. Shoulders, EV, A Tale of Discovery, www.LENR.org, 1987.
[5] H. Fox, S.X. Jin, Low-energy nuclear reactions and high-density charge clusters, J. New Energy 3 (1998) 56.
[6] S. Szpak, P.A. Mosier-Boss, J. Dea, F. Gordon, Polarized D+/Pd-$D_2O$ system: hot spots and "mini-explosions", in: P.L. Hagelstein, S.R. Chubb (Eds), Tenth International Conference on Cold Fusion, World Scientific Publishing Co., Cambridge, MA, 2003, pp. 13.
[7] E.K. Storms, B. Scanlan, Detection of radiation from LENR, in: D.L. Nagel, M.E. Melich (Eds), 14th International Conference on Condensed Matter Nuclear Science, www.LENR.org, Washington, DC, 2008, pp. 263-87.
[8] F.E. Gordon, H.J. Whitehouse, Lattice Energy Converter, JCMNS 35 (2022) 30-48.
[9] E. Storms, The Nature of the Fusion Reaction in Palladium and Nickel, ICCF-23, Xiamen, China, 2021.
[10] D. Letts, D. Cravens, Laser stimulation of deuterated palladium: past and present, in: P.L. Hagelstein, S.R. Chubb (Eds), Tenth International Conference on Cold Fusion, World Scientific Publishing Co., Cambridge, MA, 2003, pp. 159-70.
[11] D. Letts, P.L. Hagelstein, Simulation of optical phonons in deuterated palladium, in: D.L. Nagel, M.E. Melich (Eds), 14th International Conference on Condensed Matter Nuclear Science, Washington, DC, 2008, pp. 333-7.
[12] R. Godes, Quantum Fusion Hypothesis, ICCF-14, Washington, DC., 2008.