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Evidence and Theory for Cluster Reactions in LENRs GEORGE H. MILEY, HEINZ HORA[1], ANDREI LIPSON, PRAJAKTI JOSHI SHRESTHA, Department of Nuclear, Plasma and Radiological Engineering, University of Illinois — A distinctive array reaction products attributed to nuclear reactions was observed earlier in the "Patterson" flowing packed-bed type electrolytic cell experiments using multi-layer thin films of metals on mm-size plastic beads. The swimming electron layer and a new magic number theory were proposed to explain this. More recently these theories have been expanded into a "D-Pd-D cluster" model to explain a wider range of transmutation experiments. This cluster model is consistent with certain measurements of energetic charged-particle emission during thin film electrolysis, with observations suggesting localized reactions and also with x-ray production during plasma bombardment experiments. The cluster reaction concept and supporting experimental data will be discussed in this presentation. In addition to explaining , if understood and optimized, cluster reactions could lead to an important new power source based on Low Energy Nuclear Reactions (LENRs). A conceptual power cell based on a novel electrode design that promotes cluster reactions is presented.

[1]Dept. Theoretical Physics, University of NSW, Sydney 2052, Australia

Scott Chubb
Naval Research Laboratory

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