Abstract Submitted
for the MAR08 Meeting of
The American Physical Society

The Significance of Replication MICHAEL C.H. MCKRUBRE, FRANCIS L. TANZELLA, SRI International, Menlo Park, CA 94025, VITTORIO VIOLANTE, ENEA, Frascati, Italy — Much has been made of an apparent lack of reproducibility in so called "cold fusion" experiments. In this paper we will demonstrate that this failure, while real, was the result of inability to meet critical threshold criteria: a thermodynamic loading, dynamic flux and disequilibrium trigger. Recent experiments, performed independently at SRI and ENEA, have successfully replicated powerful excess heat results obtained initially by Energetics in Israel. This success and high levels of experiment reproducibility are attributed to two critical factors that allow these threshold barriers to be surpassed: i)achievement and maintenance of a high level of control of the metallurgy of the bulk palladium metal host and the cathode surface morphology, guided by initial studies at ENEA and the University of Rome,ii) use of a novel non steady-state cathode current stimulus, proposed and developed by Energetics. With simultaneous high deuterium loading and high flux, excess heat effects were measured in both Isoperibolic and Mass Flow calorimeters at factors several times greater than the electrical input power and several orders of magnitude larger than the sum of all conceivable chemical reactions.

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Date submitted: 12 Dec 2007 Electronic form version 1.4