

Abstract Submitted
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Connection of Preparata QED Theory and D-Pd-D Cluster Theory for Cold Fusion Reactions LINCHON WU, GEORGE MILEY, University of Illinois, NPRES Department, 103 S. Goodwin Ave — G. Preparata earlier proposed a radical new QED theory, and had just begun application to cold fusion prior to his untimely death.¹ We have since used a variation of his theory to explain D-Pd-D cluster reactions in certain cold fusion experiments.² An ensemble of D atoms loaded into Pd can assume two different configurations coupled with the intrinsic EM field. A coherent state forms above critical density and temperature thresholds. This new state has lower energy than the Pd lattice where D-Pd-D atoms oscillate between the two configurations in tune with an EM field arising from vacuum fluctuations and co-resonating atoms. This form “coherence domains” (CDs) of micron size for PdD. CDs hold two mesoscopic components, a coherent fraction of D-Pd-D and a non-coherent fraction of interstitial Ds.. Large “cage” of CD’s forms with a definite phase and zero entropy, trapping a “gas” of non-coherent Ds. In our D-Pd-D cluster theory this results in intense nuclear reactions.

¹G. Preparata, “QED Coherence in Matter”, World Scientific Press, Singapore, 1997.

²George H. Miley, et al., “Evidence and Theory for Cluster Reactions In LENRs”, these APS Proceedings.

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