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Framework for Understanding LENR Processes, Using Ordinary Condensed Matter Physics SCOTT CHUBB, Research Systems, Inc., 9822 Pebble Weigh Ct., Burke, VA 22015-3378 — As I have emphasized[1], in discussions of Low Energy Nuclear Reactions(LENRs), mainstream many-body physics ideas have been largely ignored. A key point is that in condensed matter, delocalized, wavelike effects can allow large amounts of momentum to be transferred instantly to distant locations, without any particular particle (or particles) acquiring high velocity through a Broken Gauge Symmetry. Explicit features in the electronic structure explain how this can occur[1] in finite size PdD crystals, with real boundaries. The essential physics[1] can be related to standard many-body techniques[2]. In the paper, I examine this relationship, the relationship of the theory[1] to other LENR theories, and the importance of certain features (for example, boundaries[1]) that are not included in the other LENR theories.

[1]S.R. Chubb, Proc. ICCF10 (in press). Also, http://www.lenr-canr.org/acrobat/ChubbSRnutsandbol.pdf, S.R. Chubb, Trans. Amer. Nuc. Soc. 88 , 618 (2003).
[2]Burke,P.G. and K.A. Berrington, Atomic and Molecular Processes:an R matrix Approach (Bristol: IOP Publishing, 1993).

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