Abstract Submitted
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Justifying Condensed Matter Nuclear Phenomena Using Hot Fusion Data XING ZHONG LI, Tsinghua University, Beijing 10084, China — The selective resonant tunneling model [1] has been successful in describing 6 major fusion cross-section data (d+T, d+D, d+He3, t+T, t+He3, p+D). The new formula needs only 3 parameters; however, it gives much better results than what were given by the 5-parameter formula in NRL Plasma Formulary. It provides an opportunity to find the resonance energy level which is necessary to explain the Condensed Matter Nuclear Phenomena in metal-hydrides. The proton-lithium fusion data, the astrophysical S-factor data, the K-electron capture data of beryllium, and the anomalous ratio of the isotope abundance of lithium in palladium-hydride (7Li/6Li) will be presented as an example for this justification. Thus, selective resonant tunneling model explains not only the 3 puzzles in Condensed Matter Nuclear Science (i.e. tunneling the Coulomb barrier, excess heat without commensurate neutron radiation, and the missing gamma radiation), but also 7 sets of hot fusion data. It predicts that there must be neutrino radiation accompanied with Condensed Matter Nuclear Phenomena in metal-hydrides.

[1] Xing Z. Li, et al., Nucl. Fusion 48 125003 (2008).

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