

Necessity of Exact Calculation for Transition Probability

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Abstract: This paper shows that exact calculation for transition probability can make some systems deviate from Fermi golden rule seriously. This paper also shows that the corresponding exact calculation of hopping rate induced by phonons for deuteron in Pd-D system with the many-body electron screening, proposed by Ichimaru, can explain the experimental fact observed in Pd-D system, and predicts that perfection and low-dimension of Pd lattice are very important for the phonon-induced hopping rate enhancement in Pd-D system.

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Key words: transition probability, Fermi golden rule, hopping rate, phonon

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