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Electron dynamics in anharmonic bath YURI DAHNOVSKY, JAREMY CREECHLEY, Department of Physics & Astronomy, University of Wyoming — Tunneling transition probability for a particle interacting with an *anharmonic* bath is found in a time-dependent Hartree approximation. The theory presented is a direct generalization of an oscillator medium to an *arbitrary anharmonic environment*. The general expression for the transition probability is presented in terms of medium *Keldysh* functions that are assumed to be known. Furthermore, the transition probability is calculated in the noninteracting-blip approximation (NIBA) where the rate constant does not exhibit activation dependence at high temperatures. The parameters similar to the reorganization energy, E_r, and the reaction heat, ε, are expressed in terms of the correlation matrix for a solvent and internal modes in both quantum and classical regimes. It is shown that E_r and ε are temperature dependent. Such a behavior is demonstrated in the case of a particular electron transfer reaction in nonpolar solvents experimentally studied by Zimmt *et al*.

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