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, $\varepsilon$, 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 $\varepsilon$ 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.