

Abstract Submitted
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Electron transfer in a two-level system within a Cole-Davidson vitreous bath¹ MARK RATNER, MEHDI ZAREA, MICHAEL WASIELEWSKI, Northwestern Univ — We study electron transfer (ET) in a two level quantum system coupled to a glassy viscous bath. The bath is modeled by the Cole-Davidson (CD) spectral density. The ET in this model is compared to the ET in a normal Drude-Debye (DD) model. It is shown that at low temperatures and when the coupling to the bath is weak, the viscous bath preserves the quantum coherence for a longer time. However in the strong coupling regime, the tunneling rate is higher in the CD. In the classical high temperature limit the difference between the CD and DD models is negligible.

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