

Abstract Submitted
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Vibrational Relaxation Description In the Coherent Domain and Inverted Temperature Dependence of Relaxation Rates ANASTASIA IERIDES, VASUDEV KENKRE, Department of Physics and Astronomy, University of New Mexico — The vibrational relaxation of molecules embedded in an environment is described in terms of a generalized master equation that is based on, but goes beyond, the well-known Montroll-Shuler equation¹ in chemical physics. Relaxation rates are calculated explicitly on the basis of our theory² for given microscopic Hamiltonians representing the molecule-bath interaction and the problem of inverted temperature dependence reported³ in some observations is addressed. [1] E. W. Montroll and K. E. Shuler, *J. Chem. Phys.* (1957). [2] V. M. Kenkre and M. Chase. Preprint. [3] A. Tokmakoff, B. Sauter, and M. D. Fayer. *J. Chem. Phys.* (1994).

Anastasia Ierides
Univ of New Mexico

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