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Study of Vibration-Vibration and Vibration-Electronic Energy Transfer in Nitric Oxide ALLEN WHITE, Rose-Hulman Institute of Technology, IGOR ADAMOVICH, J. WILLIAM RICH, The Ohio State University — The $v=1$ vibrational level of nitric oxide is populated via resonant absorption of a single line carbon monoxide laser. Higher vibrational and electronic levels of nitric oxide are populated by v-v and v-e energy transfer mechanisms, respectively. Infrared overtone emission spectra are observed via time resolved step-scan Fourier transform infrared measurements and time resolved gamma band and beta band ultraviolet emissions are also measured. Additional measurements were taken to detect associative ionization in V-V pumped NO, as well as the electron production rate. The v-v energy transfer rates are inferred by comparing time-resolved experimental results to computational models. Results indicate that current NO kinetic rate models must be modified to describe experimentally observed population rise times presented here.

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