

VIBRATIONAL AUTODETACHMENT IN NITROALKANE ANIONS

CHRISTOPHER L. ADAMS, J. MATHIAS WEBER, *JILA, NIST, and Department of Chemistry and Biochemistry, University of Colorado, Boulder, Colorado 80309, USA.*

Nitroalkanes have electron affinities $\geq 1370 \text{ cm}^{-1}$, well below the excitation energies for CH stretching modes, with the excess charge localized on the nitro group. Upon absorption of an IR photon in a CH stretching vibrational mode, the absorbed energy is redistributed in the molecule. If enough energy is transferred to the NO_2 stretching/wagging modes, the excess electron residing on the nitro group is emitted. Vibrational autodetachment (VAD) spectra encode information regarding intramolecular vibrational relaxation (IVR) processes leading up to electron emission. We present VAD photoelectron spectroscopy of polyatomic molecular anions and discuss how a VAD photoelectron spectrum can be modeled.