

VIBRATIONAL ZEKE PHOTOELECTRON SPECTROSCOPY OF CHLOROBENZENE CATION

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Zero-kinetic-energy (ZEKE) photoelectron spectroscopy was used to probe the vibrational levels in the ground electronic state of the chlorobenzene cation using a two-color photoionization scheme via the S_1 electronic state of the neutral^a. Exciting through different S_1 vibrational levels has revealed mixing of some S_1 normal coordinates in the ground state of the cation. A previously-identified Fermi resonance in the S_1 state of the neutral is also confirmed by the ZEKE spectra. The adiabatic ionization energy is measured as $73170 \pm 5 \text{ cm}^{-1}$.

^aT. G. Wright, S. I. Panov and T. A. Miller *J. Chem. Phys.* **102**(12), XXXX March 1995.

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