THE EFFECTS OF INCREASED VIBRATIONAL AMPLITUDE ON ROVIBRONIC INTERACTIONS AND L-UNCOUPLING IN THE HIGH RYDBERG STATES OF HCO

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A detailed analysis of the autoionizing Rydberg states converging to the (010) level of HCO has characterized series of transitions in terms of total angular momentum (N), as well as the cation-core rotational quantum number (N^+) and a quantum defect (δ). Experiments employing optical selection to isolate structure built on higher vibrational states of the core show many of the same series. Systematic trends in quantum defects with increased bending amplitude reflect the structure of underlying close-coupled excited electronic states. Line shape analysis utilizing Fano-Beutler profiles explore the coupling between the discrete and continuum states above the adiabatic ionization threshold.