ROVIBRONIC INTERACTIONS AND l-UNCOUPLING IN THE HIGH-RYDBERG STATES OF HCO CONVERGING TO THE (010) STATE OF THE CATION

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We report the ionization-detected absorption spectra of vibrationally autoionizing Rydberg states converging to the (010) level of HCO^+. Resonances are isolated by transitions from photoselected rotational levels in the Σ^+ and Σ^- Renner-Teller components of the (010) band of the $3p\pi^2\,\Pi$ Rydberg state. We systematically compare spectra in order to characterize observed resonances in terms of the good total angular momentum quantum number, N. Rydberg analysis establishes the convergence of series to detailed cation-core rotational quantum numbers, N^+. Interactions between Rydberg orbital and core rotational angular momentum are found to conform with a coupling intermediate between Hund's cases (b) and (d). Splitting patterns further assign certain features according to predominant case (b) composition.