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Experimental Potential Energy Curve for the $4^3\Pi$ Electronic State of NaCs[1] ANDREW STEELY, HANNAH COOPER, HAREEM ZAIN, CIARA WHIPP, CARL FAUST, Susquehanna Univ, ANDREW KORTYNA, JILA, University of Colorado, JOHN HUENNEKENS, Lehigh University — We present results from experimental studies of the $4^3\Pi$ electronic state of the NaCs molecule. This electronic state is interesting in that its potential energy curve likely exhibits a double minimum. As a result, interference effects are observed in the resolved bound-free fluorescence spectra. The optical-optical double resonance method was used to obtain Doppler-free excitation spectra for the $4^3\Pi$ state. This dataset of measured level energies was expanded largely by observing fluorescence from levels populated by collisions. To aid in level assignments, simulations of resolved bound-free fluorescence spectra were calculated using the BCONT program (R. J. Le Roy, University of Waterloo). Spectroscopic constants were determined to summarize data belonging to inner well, outer well, and above barrier regions of the electronic state. Current work focuses on using the IPA method to construct an experimental potential energy curve.

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