

Abstract Submitted
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Investigation of photoassociative transitions in NaCs detuned from the Cs D1 line PATRICK ZABAWA, AMY WAKIM, MAREK HARUZA, NICHOLAS BIGELOW, University of Rochester — We utilize photoassociation (PA) to form bound NaCs molecules in excited states detuned from the Cs $6^2P_{1/2}$ dissociation asymptote. The PA structure consists primarily of levels belonging to the $A^1\Sigma^+$, $b^3\Pi_{\Omega=0^+}$, $b^1\Pi$, and $b^3\Pi_{\Omega=2}$ electronic states. All of these but the $A^1\Sigma^+$ electronic state dissociate to the Cs $6^2P_{3/2}$ asymptote, indicating that free-bound excitation occurs even to deeply bound vibrational levels. We find that mixing between electronic states and an f -wave shape resonance enhances the free-bound transition moments. We infer properties of the scattering wave from the PA spectra, and investigate the populated ground states using photoionization and depletion spectroscopy.

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