

Abstract Submitted
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High-Resolution Spectroscopy of Trilobite-Like States of $^{85}\text{Rb}_2$
RYAN CAROLLO, EDWARD EYLER, PHILLIP GOULD, WILLIAM STWALLEY, University of Connecticut — We present high-resolution spectra of low- n trilobite-like states in $^{85}\text{Rb}_2$. Trilobite states are novel long-range molecular states consisting of a ground-state atom embedded in the Rydberg wavefunction of a second atom. We utilize a bound-bound excitation to populate these states from photoassociated ultracold molecules in high- v levels of the lowest triplet state. The excitation is stimulated by a frequency-doubled pulse-amplified CW laser for narrow linewidth. Upon excitation, the trilobite-like states rapidly autoionize and are mass-selectively detected by an ion detector. Previous detection of these states was done by a broader linewidth conventional pulsed laser as reported in Ref. [1]. This work is supported by the NSF and AFOSR.

[1] M. A. Bellos *et al.*, Phys. Rev. Lett. **111**, 053001 (2013)

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