

Abstract Submitted
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Spectroscopy of Rb atoms in metastable ground-Rydberg molecules and in high-intensity laser traps CODY PATTERSON, Univ of Michigan - Ann Arbor, SOPHIA TENHUISEN, Smith College - Northampton, JAMIE MACLENNAN, Univ of Michigan - Ann Arbor, DAVID ANDERSON, Rydberg Technologies - Ann Arbor, GEORG RAITHEL, Univ of Michigan - Ann Arbor — Stable and rapid laser-locking schemes with wide tunability are important in a variety of spectroscopic measurements. Here, we present the progress on developing an AOM-etalon laser scanning device to be used in future experiments. The device selects the 1st order of a 960-nm laser which subsequently passes through an etalon. By tuning the RF frequency of the AOM driver, we angle-tune the beam passing through the etalon. The tuning range is calculated to be ~ 800 MHz in laser frequency per MHz of RF frequency. This device will be used to stabilize lasers in future experiments that aim to measure Rb polarizabilities and Rb molecular spectra. In context with the planned molecular spectroscopy, we additionally present calculations of non-adiabatic processes between circular-state Rydberg and ground-state atoms.

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