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**Effects of Hyperfine Mixing of Rydberg-ground molecular potentials in Rb** JAMIE MACLENNAN, ANDIRA RAMOS, NITHIWADEE THAICHAROEN, GEORG RAITHEL, Univ of Michigan - Ann Arbor — Rydberg molecules formed by the scattering between a ground-state atom and a Rydberg electron can offer new insight into the nature of atomic interactions and molecular structure. Shallow bound states that arise from hyperfine-induced mixing of singlet and triplet channels have recently been predicted [1] and observed for P-states in Cs [2] and S-states in  $^{87}\text{Rb}$  [3]. Here we present progress toward characterizing Rb ( $n\text{D} + 5\text{S}_{1/2}$ ) molecules, including a comparison of the hyperfine-mixing effects between the two isotopes ( $^{85}\text{Rb}$  and  $^{87}\text{Rb}$ ).

[1] D. A. Anderson, S. A. Miller, and G. Raithel, *Phys. Rev. A* **90**, 062518 (2014).

[2] H. Sassmannshausen, F. Merkt, and J. Deiglmayr, *Phys. Rev. Lett.* **114**, 133201 (2015).

[3] F. Böttcher *et al.*, arXiv:1510.01097v1 (2015).

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