

Abstract Submitted
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Singlet-triplet electron scattering admixture due to fine- and hyper-fine interactions in Cs Rydberg molecules SAMUEL MARKSON, Harvard-Smithsonian CFA, UConn, SETH RITTENHOUSE, Naval Academy, HOSEIN SADEGHPOUR, Harvard-Smithsonian CFA — We will present the admixture of singlet electron scattering into the more dominant triplet scattering in the formation of ultracold Cs Rydberg molecules excited into non-zero electronic angular momentum states. This admixture comes about due to both spin-orbit (SO) coupling in the Rydberg atom as well as the hyperfine (HF) coupling in the ground state atom. In Cs, the Rydberg SO and ground HF interactions are on par. The interaction between the Rydberg electron and the ground state atom includes both s-wave and p-wave scattering components which can cause additional mixing of electronic Rydberg states in the bound molecules. We intend to apply the formalism to Rydberg excitation in Cs in p and d states and will give a progress report at the meeting.

Samuel Markson
Harvard-Smithsonian CFA, UConn

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