Abstract Submitted
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Cs Trilobite Molecules and Rydberg atom Interactions[1] DONALD BOOTH, YANG JIN, JAMES SHAFFER, University of Oklahoma — We present results on our Cs ultracold Rydberg atom experiments involving trilobite molecules and Rydberg atom interactions. Trilobite molecules are predicted to have giant, body-fixed permanent dipole moments ($\sim$ 1kD). We present measurements of the Stark shifts of the trilobite states in Cs due to the application of a constant external electric field. We also will present progress on studies of anisotropic interactions between pairs of Rydberg atoms. We will focus on angular-dependent S-matrix calculations of collisions between 89D+89D Rydberg atom pairs in a 100 mV/cm electric field. In this field, the dipole-dipole interaction dominates over the van-der-Waals interaction, creating a large anisotropy in the potential surfaces.

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Donald Booth
University of Oklahoma

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