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Interactions between Rydberg atoms and ultracold polar molecules MAITREYI JAYASEELAN, MAREK HARUZA, NICHOLAS P. BIGELOW, University of Rochester — We investigate dipolar interactions arising in a hybrid system containing both ultracold polar molecules and atomic Rydberg states. Ultracold NaCs molecules are produced by photoassociation from laser cooled mixtures of sodium and cesium atoms and detected through resonant multi-photon ionization (REMPI). Rydberg atoms with large dipole moments are excited in the atomic cloud using a multi-photon process and detected via field-ionization. We look for evidence of the interactions in the observed spectra.

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