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Electron Screening Effects in a Strongly Coupled Ultracold Neutral Plasma C.E. SIMIEN, Y.C. CHEN, S. LAHA, P. GUPTA, Y.N. MARTINEZ, P.G. MICKELSON, S.B. NAGEL, T.C. KILLIAN<sup>1</sup>, Rice University — We study equilibration of strongly coupled ions in an ultracold neutral plasma produced by photo-ionizing laser-cooled and trapped atoms. By varying the electron temperature, we show that electron screening modifies the equilibrium ion temperature. Even with few electrons in a Debye sphere, the screening is well described by a model using Yukawa ion-ion potential. We also observe damped oscillations of the ion kinetic energy that are a unique feature of equilibration of strongly coupled plasma.

<sup>1</sup>Principal Investigator

Clayton Simien Rice University

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