

Abstract Submitted
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Electron screening slows ion thermalization in strongly coupled plasmas¹ MARY LYON, SCOTT BERGESON, Brigham Young University — We create strongly coupled plasmas with $\Gamma = 2$ by photo-ionizing atoms in a laser-cooled gas. By changing the laser wavelength, we can deterministically change the plasma screening parameter, κ , in the range of $\kappa \leq 1$. As κ increases, the screening becomes more pronounced and the ion equilibration rate decreases. When we excite the atoms to states below the continuum, a plasma is spontaneously formed on the ns-time scale. These plasmas have a lower electron temperature compared to plasmas generated by ionizing into the continuum. It is expected that as the electron excitation energy decreases further, the plasma will become highly ordered with Coulomb coupling parameters perhaps as high as $\Gamma = 30$.

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