

Abstract Submitted  
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**Electron screening and disorder-induced heating in ultracold neutral plasmas**<sup>1</sup> MARY LYON, SCOTT BERGESON, Brigham Young University — We report measurements on the effect of electron screening on disorder-induced heating (DIH) in strongly coupled ultracold neutral plasmas. DIH is a nonequilibrium, ultrafast relaxation process that occurs when laser-cooled atoms are photo-ionized to make an ultracold plasma. Its effects dominate the ion motion at early times and limit the strong coupling of the system to order unity. Using tools of atomic physics we study DIH with ns time resolution for different plasma densities and temperatures. By changing the frequency of the laser beam we use to probe the ions, we map out the time evolution of the velocity distribution. This allows us to observe and characterize effects due to electron screening on ion equilibration over a wide range of plasma conditions

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Mary Lyon  
Brigham Young University

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