

Abstract Submitted  
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**Electron screening and ion temperature equilibration in ultracold plasmas** ADAM DENNING, SCOTT BERGESON, Brigham Young University — The dynamics of ultracold plasmas at early times are dominated by nearest-neighbor interactions. For plasmas created from photo-ionized MOT atoms, this interaction leads to disorder-induced heating and ion temperature oscillations over time scales roughly equal to  $\omega_p^{-1}$ . The details of this heating should contain information about how the electrons shield ions during collisions. We report measurements of ion heating vs. initial electron temperature and plasma density. Under certain conditions, the time scale for disorder induced heating increases from  $\omega_p\tau \sim 2$  to 5, suggesting strong electron shielding. We present a one-dimensional model to explain these observations.

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