

Abstract Submitted
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Impact of Screening and Ionization on Coulomb Coupling in Strongly Coupled Plasmas¹ LIAM STANTON, Lawrence Livermore National Laboratory, MICHAEL MURILLO, Los Alamos National Laboratory, THE CIMARRON PROJECT COLLABORATION — Coulomb coupling is traditionally defined by the parameter $\Gamma = Q^2/aT$, which is the ratio of a potential energy Q^2/a (Q is the charge and a is the spacing) to a kinetic energy T (T is the temperature in energy units). We examine regimes of strong coupling in dense plasma experiments using a refined definition in which we compute the potential and kinetic energies directly from their thermodynamic definition and include the effects of finite ionization [1] and screening [2], which have recently been shown to have important impacts on coupling. We propose optimal experimental regimes that can be probed with XRTS to examine directly the physics of strong coupling.

[1] M. S. Murillo et al. PRE 87, 063113 (2013).

[2] M. Lyon, S. D. Bergeson, and M. S. Murillo PRE 87, 033101 (2013).

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