

Abstract Submitted
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Instabilities in strongly coupled Yukawa liquids¹ M. ROSENBERG, Department of Electrical and Computer Engineering, University of California San Diego, G.J. KALMAN, Department of Physics, Boston College, P. HARTMANN, Research Institute for Solid State Physics and Optics of the Hungarian Academy of Sciences — Yukawa systems are systems of charged particles that interact via a screened Coulomb (Yukawa) interaction. If the electrostatic potential energy between neighboring charged particles is much larger than their thermal (kinetic) energy but smaller than that required for crystallization the system is in the strongly coupled liquid phase. Various plasmas such as dusty plasmas or ultracold neutral plasmas can exist in this liquid phase. Here, we investigate several streaming instabilities in the strongly coupled liquid phase of dusty plasmas, including (1) a dust-dust instability and (2) a dust acoustic instability. Applications to possible experimental parameters are discussed.

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