

Abstract Submitted
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Measurement of self diffusion in a two-dimensional complex plasma T.E. SHERIDAN, Ohio Northern University — Complex (dusty) plasma is an open, weakly-damped system of charged, microscopic particles which interact through a long-range screened Coulomb force. We have experimentally characterized diffusion in a two-dimensional (2d) liquid complex plasma. The 2d complex plasma is heated naturally by a surrounding three-dimensional toroidal dusty plasma gas. The measured dust velocity distribution functions are isotropic Maxwellians, giving a well-defined kinetic temperature T . The mean-square displacement is found to increase linearly with time, indicating normal diffusion. Measured diffusion coefficients increase approximately linearly with T . The effective collision rate is dominated by dust-dust collisions rather than neutral gas drag.

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