

Abstract Submitted
for the DPP09 Meeting of
The American Physical Society

Development of one- and two-dimensional simulations of a thermal dusty plasma¹ R.A. JEFFERSON, M. CIANCIOSA, E. THOMAS, Auburn University — In a “dusty” plasma, charged microparticles (“dust”) is added to a background of ions, electrons, and neutral particles. These dust particles fully interact with the surrounding plasma and self-consistently alters the plasma environment leading to the emergence of new plasma behavior. Numerical tools that complement experimental investigations can provide important new insights into the properties of dusty plasmas. This presentation will focus on the initial results from a newly developed code that models transport and thermal properties of dusty plasmas. The code uses a fourth-order Runge-Kutta algorithm with adaptive time steps to solve the equations of motion for a group of microparticles confined in a trapping potential and subject to a neutral drag force and interaction through a screened Coulomb force. This presentation will discuss the physics basis for the 1-D code and extensions to a 2-D version of the code.

¹This work is supported by the NSF-DOE Partnership in Basic Plasma Science and Engineering, NSF grant number: PHY-0810419.

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Date submitted: 24 Jul 2009

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