Abstract Submitted
for the DPP11 Meeting of
The American Physical Society

Simulation of Shear Alfvén Waves in LAPD using the BOUT++ code DI WEI, University of Denver, B. FRIEDMAN, T.A. CARTER, University of California, Los Angeles, M.V. UMANSKY, Lawrence Livermore National Laboratory — The linear and nonlinear physics of shear Alfvén waves is investigated using the 3D Braginskii fluid code BOUT++. The code has been verified against analytical calculations for the dispersion of kinetic and inertial Alfvén waves. Various mechanisms for forcing Alfvén waves in the code are explored, including introducing localized current sources similar to physical antennas used in experiments. Using this foundation, the code is used to model nonlinear interactions among shear Alfvén waves in a cylindrical magnetized plasma, such as that found in the Large Plasma Device (LAPD) at UCLA. In the future this investigation will allow for examination of the nonlinear interactions between shear Alfvén waves in both laboratory and space plasmas in order to compare to predictions of MHD turbulence.

Di Wei
University of Denver

Date submitted: 15 Jul 2011 Electronic form version 1.4