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First analysis of I-mode pedestals with the BOUT++ code ZIXI LIU, ASIPP, XUEQIAO XU, LLNL, XIANG GAO, ASIPP, A.E. HUBBARD, JERRY HUGHES, PSFC, T.Y. XIA, ASIPP, J.R. WALK, C. THEILER, PSFC, TAO ZHANG, J.G. LI, ASIPP, EAST TEAM, LLNL COLLABORATION, PSFC COLLABORATION — Edge turbulence in I-mode is characterized by a strong reduction of mid-frequency turbulence and the appearance of a higher-frequency (about 200 to 400 kHz) fluctuation, dubbed the "weakly-coherent mode" (WCM). The WCM is well characterized experimentally, with density and temperature fluctuations visible on multiple diagnostics. First analysis of C-Mod I-mode pedestals with the BOUT++ code will be presented. The magnetic equilibrium is generated using the kinetic EFIT with measured pressure profile and the calculated bootstrap current from the Sauter model. The linear simulations are carried out using fits to measured plasma density and electron temperature profiles, assuming that electron and ion temperature are equal Te = Ti. The electric field is determined by the force balance relation assuming no net equilibrium flow. The preliminary simulation results show that there is no peeling-ballooning mode instability, consistent with earlier ELITE analysis. When turning off the parallel electron pressure gradient term in Ohm's law in 6-field two-fluid model, the linear growth rate is small, indicating that the drift-Alfven instability is dominant. The linear and nonlinear simulation results with experimentally measured Er profile will also be presented.

Zixi Liu
Chinese Academy of Sciences

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