Abstract Submitted
for the DPP07 Meeting of
The American Physical Society

Diagnostics to Study Flow of Dust Particles in Scrape-Off Layer of Alcator C-Mod Plasmas[1] AARON BADER, ROBERT GRANETZ, BRIAN LABOMBARD, JAMES TERRY, MIT PSFC — Dust transport and migration is not well understood in tokamaks. Furthermore, current numerical codes (DUSTT) have not been benchmarked with experiments. Interest in dust has increased over recent years as it may be a significant issue in machines with high duty cycles (ITER, DEMO) due to safety concerns. Measuring dust particle trajectories in the plasma can also give added information on Scrape-Off Layer (SOL) flows, since an important force on dust flow is a plasma drag force. In order to study dust particle trajectories in the SOL for different plasma densities and topologies, we have designed and installed a dust injector which injects Boron dust particles into the divertor region. The particles are viewed with a video camera. This provides us with a 2-D projection of the particle trajectories. For full 3-D trajectories we would need to install a second viewing camera. Initial data and results will be presented along with the successes and shortcomings of the diagnostic and future improvements.

[1]This work is supported by USDoE award DE-FC02-99ER54512.

Aaron Bader
MIT PSFC

Date submitted: 22 Jul 2007 Electronic form version 1.4