Abstract Submitted
for the DPP05 Meeting of
The American Physical Society

Comprehensive modeling of dust particle transport in tokamak plasmas with code DUSTT[1] S.I. KRASHENINNIKOV, A. YU. PIGAROV, UCSD, T.K. SOBOLEVA, UNAM (Mexico) — Recently, the presence of dust particles in tokamak plasma and the role of dust in material re-deposition, core contamination, and tritium inventory brought significant attention. Recent experimental observation of dust in fusion devices will be reviewed. The novel physical model for dust transport simulation and the newly developed 3D code DUSTT is discussed. The DUSTT code takes into account both the dust dynamics due to comprehensive dust-plasma interactions as well as the effects of dust charging, heating and evaporation. The code allows tracking of test dust particle in realistic plasma background calculated with the edge-plasma transport code UEDGE. The results on dust transport in NSTX, DIII-D, and ITER tokamaks are presented. The possible effect of dust on divertor plasma parameters is analyzed. An assessment of core plasma contamination due to dust is given.

[1]This research was supported in part by the U. S. Department of Energy under Grant No. DE-FG02-04ER54739 at the University of California, San Diego.

S. I. Krasheninnikov
UCSD

Date submitted: 13 Jul 2005 Electronic form version 1.4