Abstract Submitted
for the DPP10 Meeting of
The American Physical Society

Plausible collective phenomena associated with dust in fusion plasma[1] SERGEI KRASHENINNIKOV, ASOKA MENDIS, UCSD — We consider collective impact of nano-scale dust on edge plasma phenomena. We investigate possible impact of nano-dust on MARFE and find that it is plausible that dust, providing plasma particle sink and causing plasma flow, which overcomes the thermal force on impurity localizing in low temperature region. We also show that rather modest amount of dust, compatible with tokamak conditions, can significantly reduce the growth-gate of flute instability (which is the simplest proxy of ballooning mode) making it more susceptible to other stabilization mechanisms (e.g. shear of plasma flow velocity).

[1]Supported by the USDOE Grant DE-FG02-04ER54852 at UCSD.

Sergei Krasheninnikov
UCSD

Date submitted: 14 Jul 2010 Electronic form version 1.4