

Abstract Submitted  
for the DPP10 Meeting of  
The American Physical Society

**Analysis of plasma interaction with a rough surface<sup>1</sup>** NATALIA KRASHENINNIKOVA, LANL — Over the years, a lot of research has been done in an attempt to understand the physics of plasma-wall interaction, in particular the role of sheath – a boundary between the hot plasma and surface materials, through which the majority of the interactions are taking place. In relatively recent years it became clear that the quality of the wall's surface tremendously influences the physics of plasma-wall interactions. In particular the wall's roughness is thought of playing an important role in the formation of “hot spots”, sputtering, erosion, arching, thermionic emissions, which have been experimentally observed for years. Present work investigates the effects of the surface roughness on the plasma-wall interactions. Collisionless plasma immersed in magnetic field is interacting with a non-flat surface, with the roughness parameters  $H$  and  $W$  varying relative to the thermal ion gyro-radius. Steady-state particle and field profiles are analyzed and the scaling of penetration length is discussed.

<sup>1</sup>Research supported by DOE/LANL LDRD.

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Date submitted: 15 Jul 2010

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