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P5.4002 Studying the photoemissive sheath using an EM-PIC code

Friday, 12 July 2019 14:00 (2 hours)

See full abstract here http://ocs.ciemat.es/EPS2019ABS/pdf/P5.4002.pdf

We would be reporting about the preliminary results of the analysis using Particle In Cell (PIC) simulation on properties of photoemissive sheath in the presence of a magnetic field. Our present investigation reveals that the photoemission from a wall can induce electron twostream instability (ETSI) within the photoemission sheath region and the Electron Velocity Distribution Function (EVDF) can become highly non-Maxwellian which is usually treated as a Maxwellian. This raises a fundamental question about the behavior of the electron distribution function near a photoemissive sheath. As the cases where the photoemissive sheath can occur is abundant in nature, including the lunar surface and the surface of airless astrophysical bodies, we hope to answer some fundamental questions regarding the sheath physics. In what follows we shall present an analysis of our PIC simulation of a photoemissive sheath with crossed electric field and magnetic field.

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