

Numerical modeling of plasma detachment

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Plasma detachment we consider here is a process where an accelerated plasma escapes into free space, being free from magnetic field trapping. It is one of the central issues of electric thrusters since no thrust will be obtained if the plasma remains guided by the strong magnetic field generated around the thruster. Due to sharp contrast of both in the plasma density and the magnetic field near the thruster and far away, it is technically difficult to apply usual PIC code to simulate this problem. In this presentation, we will propose a new hybrid type numerical scheme to compute the plasma detachment. Results will be discussed referring to the solar wind acceleration.

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