

Thruster for satellite propulsion and negative ions

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Low pressure ExB partly (electron) magnetized plasmas plays a key role not only in different plasma-based devices, such as Hall-effect thruster and negative ion source. In the first, the magnetic field allows a better electron confinement increasing the propellant ionization and ion acceleration efficiencies, while in the second the magnetic filter field allows the electron temperature and density reduction increasing the survival probability of negative ion and reducing the coextracted electron current. Nevertheless, unwanted phenomena occur related to self-organized structures formed in the region of high magnetic field: azimuthal fluctuation in Hall-effect thruster and plasma asymmetry in negative ion source lead to increased electron cross-field transport. In this contribution results from self-consistent particle-based models will be presented and discussed considering optional alternative configurations.

If a proceedings is prepared, will you submit a contribution?

yes

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