

Special Issue on IEEE Transactions on Plasma Science Plasma Propulsion (Scheduled for December 2014)

Plasma propulsion is a very rapidly growing area of plasma science and technology. Experiments, modeling, and computer simulations have contributed significantly to the understanding of the physics of plasma propulsion. Plasma propulsion includes a broad variety of means to achieve high velocity and thereby offering a large mass saving for satellites as compared to chemical rockets. These technologies are categorized into three groups: electrothermal propulsion, electrostatic propulsion and electromagnetic propulsion. Many new plasma propulsion devices have been developed recently including numerous successful attempts to miniaturize plasma propulsion technology. The peculiarity of the thruster plasmas is that plasma conditions span from collisionless non-equilibrium state to collision dominated equilibrium situation dependent on type of propulsion device. In recent years both theoretical and experimental methods for studying plasma generation, acceleration, electron and ion transport, plasma-wall interactions have advanced. Significant progress has been achieved in plasma diagnostics including electrostatic and electromagnetic probes and sensors, and spectroscopic methods, and in plasma simulation techniques such as Particle-In-Cell (PIC), Direct Simulation Monte Carlo (DSMC), fluid models, hybrid approaches, multi-dimensional analysis. This Special Issue will provide a broad forum to address very basic aspects of plasma propulsion physics including measuring techniques, modeling and simulation of the plasma conditions typical for plasma propulsion devices.

Contributions will address basic physical aspects of various plasma propulsion devices including, but not restricted to:

- Hall thrusters
- Ion thrusters
- Hollow cathodes
- Pulsed plasma thrusters
- Magneto-plasma dynamic (MPD) thrusters
- Advanced plasma propulsion concepts
- Micropropulsion

The 33rd International Electric Propulsion Conference (IEPC-2013) is scheduled from Sunday, October 6 – Thursday, October 10, 2013 and will take place at the George Washington University in Washington DC. The conference has been the venue of the first presentations on world leading development in investigations in plasma propulsion as well as various other plasma applications in space and technology. IEPC is the premier international forum for developers, researchers, managers, scholars, and students in the field of electric propulsion for spacecraft. The IEPC is held every other year and is attended by about 300 participants. Co-Editors will pre-select and invite authors of best papers to submit their manuscript to this Special Issue. Emphasis will be placed on experimental techniques, theory, and simulation that improve our understanding of the phenomena in plasma thrusters. All contributions should be submitted electronically at the IEEE Manuscript Central at <http://mc.manuscriptcentral.com/tps-ieee>.

Submissions are due 1 December 2013

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