Abstract Submitted
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Mini-Helicon Thruster Experiment at MIT[1] OLEG BATISHCHEV, JUSTIN PUCCI, NAREG SINENIAN, ZACHARY LABRY, MURAT CELIK, MANUEL MARTINEZ-SANCHEZ, MIT, 77 Massachusetts Ave, Cambridge, MA 02139 — A mini-Helicon Thruster Experiment (mHTX) is in operation at MIT for under a year. The compact helicon plasma source has an electrical propulsion-oriented design and already demonstrated unusually strong collimated plume production when operating with Ar, N_2, Xe, Ne gases and mixtures including air. The RF power-to-plasma coupling as well as gas-to-plasma conversion has exceeded 90% in optimal magnetic field and antenna configurations. We report recent mHTX experimental and theoretical results that include i) thrust force measurement, ii) plasma diagnostics, iii) power balance analysis, and iv) numerical simulation of the mini-helicon discharge.

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