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Simulation of a capacitively coupled plasma micro-thruster using the particle-in-cell method.[1] MICHAEL MAY, ANDREW POWIS, IGOR KAGANOVICH, Princeton Plasma Physics Laboratory — A radio-frequency (13.56MHz) capacitively coupled plasma (CCP) micro-thruster was simulated in two dimensions by an electrostatic particle-in-cell (PIC) method, using a PPPL-modified version of the commercial LSP code [1]. At the gas valve, the gas pressure is high, up to 5 Torr, and the discharge can operate at high voltages, up to 400 V in argon. Results were benchmarked against the previous 2D fluid simulations of ref. [2] and validated by comparison with the experimental data of ref. [3]. Results show plasma properties depend strongly on the secondary electron emission from walls and dielectric thickness separating electrodes from the plasma. [1] A.T. Powis, J.A. Carlsson, I.D. Kaganovich, Y. Raitses, and A. Smolyakov, *Physics of Plasmas* **25**, 072110 (2018). [2] A. Greig, C. Charles, and R. W. Boswell, *Frontiers in Physics* **2**, 80 (2015). [3] C. Charles and R. W. Boswell, *Plasma Sources Sci. Technol* **21,** 022002 (2012).

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