

Abstract Submitted
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High-Speed Imaging Analysis of Discharge Oscillations in the Cylindrical Hall Thruster¹ EVAN DAVIS, University of California, Riverside, JEFFREY B. PARKER, YEVGENY RAITSES, Princeton Plasma Physics Laboratory — The cylindrical Hall Thruster is a cross-field plasma discharge device, which employs mirror and cusp shaped magnetic field configurations [1]. Several modes of discharge oscillations in the plasma have been observed by a high-speed camera, including a circumferentially propagating spoke and a longitudinal breathing mode. The occurrence and characteristics of these oscillations are strongly influenced by the operating conditions of the thruster discharge. A data analysis package employing various signal processing techniques was developed to parametrically characterize both the spoke and the breathing mode oscillations under variations of the background gas pressure, the discharge voltage, and the magnetic field.

[1] Y. Raitses and N. J. Fisch, *Physics of Plasmas* **8**, 2579 (2001).

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Yevgeny Raitses
Princeton Plasma Physics Laboratory

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