

Abstract Submitted
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Studies of voltage-modulated Hall thrusters¹ JACOB SIMMONDS, Princeton University, YEVGENY RAITSES, Princeton Plasma Physics Laboratory, VERNON CHAPLIN, Jet Propulsion Laboratory, ANDREI SMOLYAKOV, OLEKSANDR CHAPURIN, University of Saskatchewan — Externally driven modulations of the anode voltage in resonance with the breathing oscillations have been predicted to improve performance in Hall thrusters [1]. These improvements are due to a combination of increased propellant utilization and higher average ion energy in the thruster plume. This work presents simulations conducted for two low-power Hall thrusters of different ExB configurations operated in voltage modulated regimes: the cylindrical Hall thruster (CHT) [2] and the magnetically shielded miniature (MaSMi) Hall thruster [3]. Simulations were performed using one-dimensional fluid/hybrid code [4]. The predicted effects of externally driven oscillations are similar for both thruster types. These results are compared with experimental measurements. [1] I. Romadanov et al., *Plasma Sources Sci. Technol.* 25, 011604 (2018); [2] A. Smirnov, Y. Raitses, N. Fisch, *J Appl. Phys.* 92, 5673 (2002); [3] R. Conversano et al., *Plasma Sources Sci. Technol.* 28, 105011 (2019); [4] G. Hagelaar, J. Bareilles, L. Garrigues, J.P. Boeuf, *Contributions to Plasma Physics*, 44 (2004) 529-535

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