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Destablilized ion sound oscillations in Hall plasma devices for electric propulsion[1] A. SMOLYAKOV, W. FRIAS, University of Saskatchewan, I. KAGANOVICH, Y. RAITSES, Princeton Plasma Physics Laboratory — It is shown that current closure in the chamber walls destabilizes ion acoustic waves in Hall plasmas with $\mathbf{E} \times \mathbf{B}$ electron drift. Such unstable modes may enhance both near-wall conductivity and turbulent electron transport in Hall thrusters for electric propulsion. It is shown that the instability is sensitive to the wall material: the wall with very high dielectric permittivity (such as metal wall) reduces the mode growth rate by an order of magnitude but does not eliminate the instability completely.

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