**Simulation of gradient drift instabilities in Hall thruster plasmas
with the BOUT++ code** WINSTON FRIAS, ANDREI SMOLYAKOV, University of Saskatchewan, YEVGENY RAITSES, IGOR KAGANOVICH, Princeton
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Laboratory — Hall thrusters plasma is a subject of several instabilities related to
gradients of plasma density and electron temperature, gradient of magnetic field as
well as the equilibrium electron flow due to the equilibrium axial electric field. The
effect of electron collisions and electron inertia are studied using the fluid BOUT++
code and the results compared and validated with the existing analytical theory. In
the future, computer simulations of nonlinear stage and associated turbulent transport in Hall thrusters will be performed. Also connections with other instabilities
in Hall plasmas will be investigated.

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