

Abstract Submitted
for the DPP11 Meeting of
The American Physical Society

Gradient instabilities in Hall thruster plasmas WINSTON FRIAS, ANDREI SMOLYAKOV, University of Saskatchewan, Saskatoon, Canada — There exist a number of fluctuations observed in Hall thruster plasmas. In this work, by using two-fluid theory, we study instabilities induced by the equilibrium electron plasma flow, gradients of the equilibrium density and temperature in combination with an inhomogeneous magnetic field. Effect of electron collisions and electron inertia are studied and characteristic plasma parameters for each excitation mechanisms are determined. Transitions between different regimes and connections with instabilities in other Hall plasmas, e.g. such as Earth ionosphere plasmas, are investigated.

Andrei Smolyakov
University of Saskatchewan

Date submitted: 15 Jul 2011

Electronic form version 1.4