

Abstract Submitted  
for the DPP14 Meeting of  
The American Physical Society

**Gradient-drift and low hybrid modes in Hall plasmas** IVAN ROMADANOV, WINSTON FRIAS, ANDREI SMOLYAKOV, University of Saskatchewan, YEVGENY RAITSES, IGOR KAGANOVICH, Princeton Plasma Physics Laboratory — Hall plasmas with electron  $\mathbf{E} \times \mathbf{B}$  drift often exhibits wide range of unstable modes affecting operation and performance of various devices, e.g. such as magnetrons and Hall thrusters. The plasma density and magnetic field gradients were previously identified as important source of long wavelength modes (Simon-Hoh or so called anti-drift mode). The shorter wavelength instabilities, such as low-hybrid, are also triggered by density and magnetic field gradients. On other hand, the low-hybrid modes are excited by collisional processes. Interaction of gradient-drift and low hybrid modes in presence of dissipation has a complex characters depending on the modes wavelength. Here, we investigate the characteristics such interaction for typical parameters of Hall thrusters.

Andrei Smolyakov  
University of Saskatchewan

Date submitted: 11 Sep 2014

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