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Hydrodynamic Model for Density Gradients Instability in Hall Plasmas Thrusters SUKHMANDER SINGH, Central University of Rajasthan NH-8, Bandarsindri, kishangarh — There is an increasing interest for a correct understanding of purely growing electromagnetic and electrostatic instabilities driven by a plasma gradient in a Hall thruster devices [1-2]. In Hall thrusters, which are typically operated with xenon, the thrust is provided by the acceleration of ions in the plasma generated in a discharge chamber [3-4].The goal of this paper is to study the instabilities due to gradients of plasma density and conditions for the growth rate and real part of the frequency for Hall thruster plasmas [5]. Inhomogeneous plasmas prone a wide class of eigen modes induced by inhomogeneities of plasma density and called drift waves and instabilities. The growth rate of the instability has a dependences on the magnetic field, plasma density, ion temperature and wave numbers and initial drift velocities of the plasma species. References [1] E. Ahedo, J. M. Gallardo, and M. Martinez-Sánchez. Phys. Plasmas 10, 3397 (2003). [2] L. Garrigues, G. J. M. Hagelaar, C. Boniface, and J. P. Boeuf. J. Appl. Phys. 100, 123301 (2006). [3] E. Y. Choueiri. Phys. Plasmas 8, 1411 (2001). [4] S. Singh and H. K. Malik. J. Appl. Phys. 112, 013307 (2012). [5] H. K. Malik and S. Singh. Phys. Rev. E 83, 036406 (2011).

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