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Rayleigh Instability in a Hall Thruster: Effect of Ion Temperature and magnetic field SUKHMANDER SINGH, H.K. MALIK, Plasma Waves and Particle Acceleration Laboratory, Department of Physics, Indian Institute of Technology Delhi, New Delhi - 110 016, India — Hall thruster is suitable for a long term mission in space than other electric thrusters. In order to improve the performance of the Hall thruster, we need to understand the inner physical phenomena such as the instability of the discharge current and plasma oscillations. In most of the studies, the ion temperature has been neglected which affects significantly the efficiency and performance of the thruster via thermal motions of the ions. In this paper we have studied the effect of ion temperature and magnetic field strength on the growth rate and perturbed plasma potential. It is found that growth rate and perturbed potential is higher on the higher value of the ion temperature.

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