

Abstract

In the thesis, electromagnetic ion cyclotron (EMIC) waves has been studied in a plasma which consists of isotropic electrons and anisotropic Boltzmannian ions. EMIC waves are the left handed circularly polarized wave which excite due to the presence of ion temperature anisotropy. However, when a beam is present in the plasma, it serves as the additional source of energy. Therefore, we derived the dispersion relation and growth rate of EMIC waves using the bi-Maxwellian distribution function with and without the presence of a hot ion beam. We found that both real frequency and growth rate of EMIC waves increases when ion beam is present in the plasma. Moreover, the growth rate increases when ion beam speed increases. We also found that growth rate of EMIC waves increases when the ion temperature anisotropy and plasma parallel beta increase.