

Abstract

In this thesis, first, I derive the dispersion relations for the un-magnetized longitudinal and transverse modes for collision-less, isotropic electron plasma using both cylindrical and spherical polar coordinate systems and the results are found to be same. On the other hand, considering anisotropy in axial direction, dispersion relations of longitudinal and transverse waves are derived using both the coordinate systems. In this case, the results are found to be different. For elliptically flowing plasmas, temperature anisotropy effecting the linear dispersion relations and this effect is noticed to be different from the well known dispersion relations derived using cylindrical coordinates. Dielectric tensor is derived with the help of Vlasov Maxwell's equations for un-magnetized plasma that is flowing elliptically in non-relativistic range of interest.