



Electromagnetic drift waves in an magnetized plasma

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To understand the mechanisms of destabilization of the current layer in the tail of the Earth's magnetosphere, drift electromagnetic waves, induced by inhomogeneities of the plasma density, were studied. At first, using the Ampere's circuital law with Coulomb gauge, which give us the dispersion relation, we prove that that the presence of density gradient in the homogeneous and constant magnetic field leads to an instability of electromagnetic waves. This conclusion can be extended to the near-earth tail of the magnetosphere ($8 \text{ RE} < L < 10 \text{ RE}$) with a high density gradient and a small curvature of the magnetic lines. In this model we also take into account the resonance interaction of electromagnetic fluctuations with trapped oscillating electrons.