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Electron Beam Effects on Kinetic Alfven Waves in the Cold Homogenous Plasma

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Abstract : The particle aspect approach is adopted to investigate the trajectories of charged particles in the electromagnetic field of kinetic Alfven wave. Expressions are found for the dispersion relation, growth/damping rate and associated currents in the presence of electron beam in homogenous plasma. Kinetic effects of electrons and ions are included to study kinetic Alfven wave because both are important in the transition region. The plasma parameters appropriate to plasma sheet boundary layer are used. It is found that downward electron beam affects the dispersion relation, growth/damping-rate and associated currents in cold electron limit.

Keywords : magnetospheric physics, plasma waves and instabilities, electron beam, space plasma physics, wave-particle interactions
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