

Mode Conversion in MHD Waves and Multi-Fluid Plasma Waves

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We present a generalized view of mode conversion, which occurs among the various wave modes in inhomogeneous plasmas. The mode conversion in plasma waves is associated with resonances, which often appears as singularities in the wave equation. Our recent studies suggest that previous analytical studies based on approximations such as the WKB method are not so accurate near some given parameters. By adopting the invariant imbedding method which enables us to solve the wave equations correctly and accurately, we investigate the process of mode conversion for each resonance in MHD and multi-fluid plasma waves.