
PEM027-01

Room: Function Room B

Time: May 24 13:45-14:00

Resonance zones for electron interaction with plasma waves in the Earth's inner magnetosphere

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Wave-particle interactions are a key influence on radiation belt particle dynamics. We analyze electron cyclotron resonance with VLF chorus, ELF hiss and EMIC waves in the Earth's dipole magnetosphere. We carry out a detailed examination of "resonance zones" in (L, MLAT) space, where L denotes magnetic shell and MLAT is the magnetic latitude. These zones are regions in which electron cyclotron resonance occurs for a given wave mode and waveband. Identification of resonance zones is a useful aid in the construction of realistic models of radiation belt electron dynamics, and is hence also useful in the interpretation of observational data.

Keywords: wave-particle interactions, plasma waves, radiation belts, inner magnetosphere