

Electron scattering by isolated chorus elements observed near the magnetospheric equator

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Theories have predicted significant pitch angle scattering of electron by chorus waves via cyclotron resonance, resulting in electron precipitation into the atmosphere and consequent auroral illumination. Recent observations of chorus waves at the equator, in conjunction with ground observations, have indicated that even a single chorus element can cause sufficient electron scattering causing auroral flashing. Here we report more direct, in-situ evidence that electrons are indeed scattered into the loss cone up to strong diffusion, by an isolated chorus element. We discuss the scattering rate based on the observed parameters.

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