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## Resonance widening effect for electron scattering by electromagnetic ion cyclotron waves

David Tonoian<sup>1,3</sup>, Anton Artemyev<sup>1,2</sup>, and Mark Shevelev<sup>1</sup>

<sup>1</sup>Space Plasma Department, Space Research Institute of the Russian Academy of Sciences, Moscow, Russia

<sup>2</sup>Institute of Geophysics and Planetary Physics, University of California, Los Angeles, CA USA

<sup>3</sup>Department of Physics, Higher School of Economics, Moscow, Russia

Resonant electron interaction with electromagnetic coherent waves in inhomogeneous magnetic fields is traditionally described by quasi-linear theory. The basic element of such a description are the diffusion coefficients evaluated for resonant energies and pitch-angles. High amplitude waves, however, may resonate with electrons nonlinearly, and such nonlinear resonance interaction would wider the energy and pitch-angle range of electrons scattered by waves. This study is devoted to investigation of the effect of a finite resonance width in energy/pitch-angle space for electrons interacting with electromagnetic ion cyclotron waves. We evaluate the resonance width for a realistic wave amplitudes and background magnetic field inhomogeneity, and then generalize the diffusion coefficients by including the resonance widening. Comparison of original and generalized diffusion rates reveals the wave parameters' range and energy/pitch-angle range where the finite resonance width effect may be important for electron scattering.