The phase diagram of electrons cyclotron-resonant with a whistler mode carrier wave

Makoto Ikeda [1]

[1] Human and Cultural Sci., Musashi Univ

I examine the mechanism that monochromatic whistler mode waves may generate sideband waves, by analytically solving and directly computing the non - linear equations of untrapped electrons resonant with the whistler mode ones. Some electron groups which may generate sideband waves are possible to be the electron ones untrapped within the phase potential of the carrier wave, furthermore they radiate the discrete frequency components of whistler mode, and are classified into two groups. Although both are possible to generate the sideband waves, the spectra of the sideband waves are different from each other.

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