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Zoom meeting D ：11/4 PM1 (13:45-15:30)
14:15〜14:30

Parametric dependence of whistler-mode triggered emissions in a homogeneous magnetic field

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We perform an electromagnetic particle simulation of triggered emissions in a uniform magnetic field for understanding of nonlinear wave-particle interaction in the vicinity of the magnetic equator. A finite length of a whistler-mode triggering wave packet with a constant frequency is injected by oscillating an external current at the equator. We find that the first subpacket of rising-tone triggered emissions is generated after termination of the injection of the triggering wave in the homogeneous magnetic field. By analyzing resonant currents and resonant electron dynamics in the simulation, we find that the formation of an electron hole in a velocity phase space forms resonant currents, and the currents cause wave amplification and frequency increase. For further understanding of the characteristics of triggered emissions, we study parametric dependence on the frequency and duration time of the triggering wave. We find that triggered emissions require a certain period of the triggering waves, and the duration time of the injection is determined by the interaction time. For the generation of triggered emissions, the interaction time is more than 1/4 of the nonlinear trapping period in the present simulation.