

R008-08

C会場 : 11/26 AM2 (10:30-12:00)

11:00~11:15

低域混成高調波のサイドバンド構造に関する粒子シミュレーション

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Simulation study of the sideband structure of harmonic lower hybrid waves

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Recent simulation studies have shown that the harmonic structure of lower hybrid waves (LHWs) is generated by energetic ions through non-linear wave-wave coupling (Kotani et al., 2023a; 2023b; 2024). When the LHW is excited at (k_1, ω_1) in the wavenumber-frequency plane, the harmonic structure can be characterized as $(mk_1, n\omega_1)$ where m and n are integers. In this study, using one-dimensional, electromagnetic, particle-in-cell simulations, we investigate sideband structures excited around the harmonic modes with $(mk_1, n\omega_1)$ for low ω_{pe}/Ω_e conditions. We find that complex sideband structures can be generated when the integer l ($l = [\omega_{LH}/\Omega_i]$, $0 \leq l < 1$) is close to the zero. Here, ω_{LH} is the lower hybrid resonance frequency, Ω_i is the ion cyclotron frequency, and $[x]$ is the floor function. On the other hand, such structures cannot be found when l is close to the unity.