Scattering and absorption of electromagnetic waves in non-Maxwellian plasmas for the ion cyclotron range of frequencies SUWON CHO, Kyonggi University — In radio-frequency heating of plasmas the launched wave undergoes tunneling, reflection, mode conversion, and damping near the resonance layer. The single pass scattering parameters can be estimated from the mode-conversion tunneling equation, whose solutions are known for Maxwellian plasmas. In this work, the analysis is extended to include the non-Maxwellian velocity distributions in inhomogeneous plasmas for the ion cyclotron range of frequencies. The rf power absorption profile and the velocity distribution are obtained by solving the mode-conversion tunneling equation and the quasilinear Fokker-Planck equation iteratively. The effects of the velocity distribution on the scattering parameters and absorption are examined in comparison with the case of Maxwellian distribution.

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