

Abstract Submitted
for the DPP13 Meeting of
The American Physical Society

Absorption and mode conversion of fast waves at high ion cyclotron harmonics in the helicon frequency range SUWON CHO, Kyonggi University — Recently there has been considerable interest in using fast waves in the helicon frequency range, which corresponds to high ion cyclotron harmonics, for off-axis current drive in tokamaks. The hot plasma dispersion relation shows that the ion Bernstein mode can propagate on the high field side of the harmonic resonance. The launched fast wave can be converted into the Bernstein mode and be absorbed near the resonance layer. In this work, absorption and mode conversion of the fast wave are examined with an one dimensional wave equation, which is converted from the dispersion relation by taking the inverse Fourier transform. In obtaining the relevant equation the hot plasma dispersion relation is cast into a form without any sums using the method of steepest descents and then it is approximated by polynomials in the perpendicular wave number.

Suwon Cho
Kyonggi University

Date submitted: 12 Sep 2013

Electronic form version 1.4