

Abstract Submitted
for the DPP16 Meeting of
The American Physical Society

Kinetic full wave analyses of O-X-B mode conversion of EC waves in tokamak plasmas¹ ATSUSHI FUKUYAMA, SHABBIR AHMAD KHAN, Kyoto Univ., HIROE IGAMI, NIFS, HIROSHI IDEI, Kyushu Univ. — For heating and current drive in a high-density plasma of tokamak, especially spherical tokamak, the use of electron Bernstein waves and the O-X-B mode conversion were proposed and experimental observations have been reported. In order to evaluate the power deposition profile and the current drive efficiency, kinetic full wave analysis using an integral form of dielectric tensor has been developed. The incident angle dependence of wave structure and O-X-B mode conversion efficiency is examined using one-dimensional analysis in the major radius direction. Two-dimensional analyses on the horizontal plane and the poloidal plane are also conducted, and the wave structure and the power deposition profile are compared with those of previous analyses using ray tracing method and cold plasma approximation.

¹This work is supported by JSPS KAKENHI Grant Number JP26630471.

Atsushi Fukuyama
Kyoto Univ.

Date submitted: 14 Jul 2016

Electronic form version 1.4