

# **Electron Bernstein Wave Heating and Current Drive with Multi-Electron Cyclotron Resonances During Non-inductive Start-up on LATE**

*Wednesday 24 October 2018 08:30 (4 hours)*

Electron cyclotron heating and current drive (ECH/ECCD) by electron Bernstein waves (EBWs) with multi-electron cyclotron resonances (ECRs) is carried out by injecting microwaves at two frequencies during the non-inductive start-up of a spherical tokamak (ST). When the 2nd EBW at 5 GHz is excited in the non-inductively produced ST plasma with the 1st EBW at 2.45 GHz, plasma current is driven strongly while the bulk electron parameters such as density are nearly the same. The 2nd EBW is absorbed mainly by high energy tail electrons between the 2nd ECR layer and the upper-hybrid resonance (UHR) layer by Doppler effect and drive the plasma current, while the 1st EBW sustains the bulk electrons.

## **Country or International Organization**

Japan

## **Paper Number**

EX/P3-19

**Author:** Prof. TANAKA, Hitoshi (Kyoto University)

**Presenter:** Prof. TANAKA, Hitoshi (Kyoto University)

**Session Classification:** P3 Posters