

Abstract Submitted
for the GEC08 Meeting of
The American Physical Society

Spatiotemporally Resolved E-H transition in an Inductively Coupled Plasma in Ar by using ICCD Camera SATOSHI MORISHITA, YUICHIRO HAYASHI, TOSHIAKI MAKABE, Keio University — Inductively coupled plasma (ICP) has been widely used as a high density plasma source in various applications. It is well-known that ICP has two operating modes, E and H modes, and the transition between both modes shows a strong hysteresis in electrical and optical characteristics. We have been investigating the characteristics of the ICP through a series of measurements. In our recent study, we exhibited 2D-plasma images from the net excitation rate of Ar(2p1) caused by high energy electrons with energy greater than 13.6 eV during the E-H transition in Ar at 300 mTorr in the ICP driven by a single-turn current coil on the sidewall of a quartz tube. The time-resolved 2D-space image is a result of the integrated signal along the axial direction perpendicular to the coil plane by ICCD camera. In the present work, we discuss the mode transition from the change of the active region in the 2D-t image of the net excitation rate of Ar(2p1) by sweeping the external coil current in Ar for 100, 300, and 500 mTorr.

Satoshi Morishita
Keio University

Date submitted: 13 Jun 2008

Electronic form version 1.4