

Abstract Submitted
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Dynamics of an E-H transition in ICP in Ar SATOSHI HIRAO, YONG ZHANG¹, TOSHIAKI MAKABE, Keio University — Inductively coupled plasma (ICP) has been widely used as a high density plasma source in various applications. ICP has two proper modes. One is a low density capacitively coupled mode sustained by the static electric field caused by the local potential difference of the induction coil (E-mode), and the other is a high-density inductively coupled mode sustained by the induced electromagnetic field (H-mode)[1]. There is a transition between both modes in ICP, and the space and time change between the modes will be still interesting for us. In the present study, we will investigate the spatiotemporal 2D-t change of the optical emission in ICP in Ar by using ICCD camera located on the top of the reactor. We mainly focus on the emission from Ar($2P_1$) as a probe of high energy electrons, and discuss the dynamic characteristics of the E-H transition by way of ionization of high energy electrons.

[1] Y. Miyoshi, T. Makabe *et al.*, IEEE Trans. Plasma Sci., 30(1), 130 (2002), and 33(2), 360(2005).

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