

Abstract Submitted
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Synergistic effect of dual power on plasma density by shift of power absorption region in inductively coupled plasma JIN YOUNG BANG, JIN YONG KIM, CHIN WOOK CHUNG, Hanyang University — Spatial distributions of plasma densities and plasma potentials were measured in a side type ferrite inductively coupled plasma (ICP) driven by 400 kHz as an auxiliary power of 13.56 MHz was increased through a single-loop antenna located on the top of the chamber. In the absence of the auxiliary power, the center density was lower than the edge density because most of the ionization was occurred at the side of the chamber. As the additional electric field was induced around the center by the auxiliary power through the single-loop antenna, the center density also increased due to the ionization around the center, however, the edge density rather decreased even though the main power was fixed. This result can be explained by the spatial variation of the plasma potential. The increase in the plasma potential at the center compared with the edge potential leads to the change of the location, where the electron energy supplied from the main power at the edge dissipates through the inelastic collision, from the edge to the center. As a result, the spatial variation of the plasma potential results in the diffusion of the dissipated power supplied at the edge.

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