

Abstract Submitted  
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**Control of plasma density profile via wireless power transfer in an inductively coupled discharge** HEE-JIN LEE, JIN-YOUNG BANG, HYO-CHANG LEE, Department of Electrical Engineering, Hanyang University, YOUNG-CHEOL KIM, Department of Nanoscale Semiconductor Engineering, Hanyang University, CHIN-WOOK CHUNG, Department of Electrical Engineering, Hanyang University — Wireless power transfer via a strongly coupled magnetic resonance was applied to the field of plasma. Two antennas (an inner antenna coil was connected to the RF power and an outer antenna was a resonant antenna with a variable capacitor) were placed on the top of a chamber. The resonant antenna is electrically separated from the inner antenna coil. As the self-resonance frequency of the resonant antenna was adjusted, the power transfer ratio of the inner antenna to the outer antenna was changed and a dramatic evolution of the plasma density profile was measured. The density profiles were changed from a concave shape to a convex shape by varying the self-resonance frequency of the outer antenna. This result shows that the plasma density spatial distribution can be successfully controlled via wireless power transfer.

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