Experimental investigation on control of plasma density distribution in inductively coupled plasma

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The distribution of plasma density isinvestigated in argon inductively coupled plasma with wireless power transferantenna. The density near the main antenna is the maximum in the non-resonancecondition, and the density near the resonance antenna is the maximum in theresonance condition. When the main antenna is installed in the middle of thecylindrical chamber and a resonance antenna is installed at between the mainantenna and the top stainless steel plate, the maximum value of the density atresonant and non-resonant conditions is almost the same. However, when thepositions of a main antenna and a resonance antenna are interchanged, theplasma density at the non-resonance is significantly reduced. The decrease inplasma density is explained as the increase of the system resistance when thesame input power is applied.

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