Abstract Submitted
for the GEC16 Meeting of
The American Physical Society

On the optimal chamber length and electron heating mechanism in low pressure inductive discharges HYUN-JU KANG, KYUNG-HYUN KIM, HO-WON LEE, IL-SEO PARK, CHIN-WOOK CHUNG, Department of Electrical Engineering, Hanyang University — Plasma resistance with the chamber length was measured at different plasma densities in low pressure inductively coupled plasmas. It was found that the plasma resistance has a maximum at specific chamber length, L_{opt}, and the L_{opt} is changed with the plasma density. It is related to the maximum collisionless electron heating, which simultaneously satisfies the conditions of both the bounce resonance and the transit time resonance. Therefore, L_{opt} is an optimal chamber size for the power transfer to the plasma.

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Date submitted: 10 Jun 2016 Electronic form version 1.4