Abstract Submitted
for the GEC09 Meeting of
The American Physical Society

Experimental observation of the transition from nonlocal to local kinetics in inductively coupled plasmas HYO-CHANG LEE, MIN-HYONG LEE, CHIN-WOOK CHUNG, Hanyang university — The transition from nonlocal to local kinetics was observed through the spatially resolved measurements of electron energy distribution functions in inductively coupled plasmas. As gas pressures increase, the spatial profiles of the effective electron temperatures (Teff) from the electron energy distribution functions changed dramatically from hollow shapes to flat shapes. With further increases in gas pressure, the Teff had saddle-shaped profiles with the highest Teff in the vicinity of an antenna coil. These changes in the radial profiles of the Teff show a transition of the electron kinetics from nonlocal to local regimes. This transition occurred when the electron energy relaxation lengths became smaller than the antenna half size.

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Date submitted: 12 Jun 2009 Electronic form version 1.4