Abstract Submitted
for the DPP07 Meeting of
The American Physical Society

Occurrence of anomalous resistivity in the inductively current driven FRC EIICHIROU KAWAMORI, Plasma and Space Science Center College of Science National Cheng Kung University, YASUSHI ONO, Graduate School of Frontier Sciences, University of Tokyo, TS GROUP TEAM — Occurrence of anomalous resistivity in the oblate FRC plasma was measured directly by magnetic probes in the center solenoid current drive (CSCD) experiment in TS-4. After the applied electric field by CSCD penetrated into the core region of the FRC, the resistivity of the FRC increased up to 10-20 times larger than the classical spitzer resistivity. It was found that the resistivity η at the magnetic axis scaled as $\eta \propto E$, where E is the electric field at the axis. This anomalous heating was the most probable cause for sustainment of the high-beta FRC under the preferential injection of magnetic energy by CSCD. The FRC plasma is concluded to have the robustness to self-adjust the plasma heating power depending on the magnetic energy injection.

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Date submitted: 22 Jul 2007 Electronic form version 1.4