

Abstract Submitted
for the DPP05 Meeting of
The American Physical Society

Dissipative Processes Associated with the Oblique Lower Hybrid Drift Instabilities YANSONG WANG, Princeton University, RUSSELL KULSRUD, Center for Magnetic Self-organization in Laboratory and Astrophysical Plasmas, HANTAO JI, Princeton Plasma Physics Laboratory — Motivated by the observation of magnetic fluctuations in the current layer of the MRX an oblique LHDI theory has been developed which appears to explain them (Ji et al 2005). [A quasilinear estimate suggests that the waves are strong enough to explain the anomalous resistivity also observed in the MRX (Kulsrud et al 2005).] The theory is non dissipative. In order to understand the wave heating and nonlinear saturation, dissipative processes such as electron viscosity, thermal diffusion and possibly magnetic pumping are examined in this paper. In addition, the dissipation due to ion Landau damping is calculated. this is done for both the stable and the unstable modes as is required in a nonlinear theory. This work is supported by DOE Contract no.De-AC02-76-CH03073, NSF Award no. PHY-0215581 and NASA Grant no. SRT04-0000-0086.

Ji, Kulsrud, Fox, Yamada, JGR (in press) 2005.

Kulsrud, Ji, Fox and Yamada, PoP (in press)2005.

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Date submitted: 02 Aug 2005

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