Abstract Submitted
for the DPP05 Meeting of
The American Physical Society

Theory and Role of the Inhomogeneous Electron Temperature Gradient Driven Mode[1] C. YARIM, ITU, Istanbul, B. COPPI, V. ROYTERSHTEYN, MIT — Magnetic shear plays a key role on the nature and topology [1] of the Inhomogeneous Electron Temperature Gradient (I.E.T.G.) mode that is radially localized around a given rational magnetic surface. The transverse wavelengths of this mode are, typically, smaller than or comparable with the ion gyroradius. Thus the resulting thermal energy transport may not be relevant to explain the observed energy confinement time but we consider it to be sufficient to affect the dynamics of drift-tearing modes [2] in high temperature regimes. In these regimes the related effects of electron Landau damping and finite electron thermal conductivity hinder the onset of drift-tearing modes in the presence of a finite electron temperature gradient [3]. Thus the transverse electron thermal conductivity resulting from I.E.T.G. modes localized in the singular region where magnetic reconnection can take place is shown to interfer with the effects of the longitudinal electron thermal conductivity and to broaden the reconnection region. [1] B.Coppi, M. Rosenbluth and R.Z. Sagdeev, *Phys. Fluids*, **10**, 582 (1967) [2] B.Coppi, *Phys. Fluids*, **8**, 2273 (1965). [3] B. Coppi, *et al., Phys. Rev. Letters*, **42**, 1058 (1979); J. Drake, *et al., Phys. Fluids*, **25**, 2509 (1983)

[1]Sponsored in part by U.S. Department of Energy

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Date submitted: 21 Jul 2005 Electronic form version 1.4