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Electron Transport in NSTX[1] J.-H. KIM, W. HORTON, Institute for Fusion Studies, The University of Texas at Austin, STAN M. KAYE, R. BELL, B.P. LEBLANC, Princeton Plasma Physics Laboratory, Princeton University — The electron heat transport in NSTX is investigated. The inferred χ_e's from TRANSP were compared to those calculated from electron temperature gradient (ETG) theory [1] for a variety of discharges. Reasonable agreement was found for electrostatic and electromagnetic ETG theory with the χ_e's calculated for a 2 MW discharge in both the L- and H-phases. H-mode discharges at low toroidal field (0.35T) show good agreement with the electromagnetic ETG, while for discharges at 0.45T and 0.55T, the inferred χ_e agrees with the gyro-Bohm scaing of $T_e^{3/2}/B^2$. For these higher field discharges, GS2 calculations show the ETG to be stable, while it is unstable at 0.35 T with a maximum growth rate at $k_\theta \rho_e \sim 0.3$. The heat flux obtained from the simulation of the ETG 3-field model [2] will be compared. And the effect of inverted profile $\nabla n_e \cdot \nabla T_e < 0$ on the ETG electron transport will be discussed.

[1] W. Horton *et. al.*, Phys.Plasmas **11**, 2600 (2004).
[2] W. Horton *et. al.*, Nuclear Fusion **45**, 976-985 (2005).

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