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Current-Driven Drift Wave Turbulence and Electron Thermal Transport in Tokamaks[1] C. LEE, P.H. DIAMOND, University of California, San Diego, M. PORKOLAB, PSFC, Massachusetts Institute of Technology — Recent analyses (Y. Lin, M. Porkolab; 2009) have indicated that the "usual suspects" for the mechanism of electron thermal transport, such as ITG, ETG, CTEM modes, etc, cannot explain results from modest density, $T_e > T_i$ plasmas, in either OH or ECH heating regimes. Interestingly, such plasmas exhibit very large toroidal current drift parameters v_d/c_s, thus naturally suggesting a re-visitation of current driven drift waves. In this paper, we discuss the linear, quasilinear and non-linear theory of current driven drift waves in tokamaks. Parallel electron velocity scattering, a critical effect beyond the capacity of most, gyrokinetic codes is a major focus of investigations. The coupled transport of current density and heat are considered. Work is ongoing and results will be presented.

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