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Particle and thermal transport due to drift resistive ballooning modes T. GOLDSTEIN[1], T. RAFIQ, A.H. KRITZ, G. BATEMAN, A.Y. PANKIN, Lehigh U. — The ion-temperature-gradient and trapped electron modes are primary candidates for producing the turbulence that drives anomalous transport in the core of magnetically confined plasmas. The situation at the edge is different. Since the edge plasma is influenced strongly by collisions, it is expected that resistive ballooning modes (RBMs) are an important driver of turbulence in the edge region. In this work, a new advanced RBM model [1] is tested as a function of plasma parameters. In this model, the eigenvalues and eigenvectors are used together with a quasi-linear mixing length estimate to determine fluxes and diffusivities. Particle and thermal transport coefficients are investigated in systematic scans over plasma density, density gradient, electron and ion temperature gradients, magnetic q, collisions, magnetic shear, finite Larmor radius effects, and pressure gradient. In the low temperature plasma region, it is found that RBM diffusivities increase with increasing density gradient, magnetic q, and collisionality.

[1] T. Rafiq, et al, poster at this APS meeting

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