Abstract Submitted
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Kinetic studies of divertor heat fluxes in Alcator C-Mod[1] A.Y. PANKIN, G. BATEMAN, A.H. KRITZ, T. RAFIQ, Lehigh, G.Y. PARK, C.S. CHANG, NYU Courant Inst., D. BRUNNER, J.W. HUGHES, B. LABOMBARD, J. TERRY, MIT PSFC — The kinetic XGC0 code [C.S. Chang et al, Phys. Plasmas 11 (2004) 2649] is used to model the H- mode pedestal and SOL regions in Alcator C-Mod discharges. The self-consistent simulations in this study include kinetic neoclassical physics and anomalous transport models along with the ExB flow shear effects. The heat fluxes on the divertor plates are computed and the fluxes to the outer plate are compared with experimental observations. The dynamics of the radial electric field near the separatrix and in the SOL region are computed with the XGC0 code, and the effect of the anomalous transport on the heat fluxes in the SOL region is investigated. In particular, the particle and thermal diffusivities obtained in the analysis mode are compared with predictions from the theory-based anomalous transport models such as MMM95 [G. Bateman et al, Phys. Plasmas 5 (1998) 1793] and DRIBM [T. Rafiq et al, to appear in Phys. Plasmas (2010)]. It is found that there is a notable pinch effect in the inner separatrix region. Possible physical mechanisms for the particle and thermal pinches are discussed.

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