

Plasma Rotation and Momentum transport

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Plasma rotation is not only beneficial for reduction of turbulence driven transport, but also for stabilization of MHD instabilities including the resistive wall modes (RWM). It is not clear whether ITER will have enough auxiliary power to generate sufficient rotation for these purposes. In this preview talk, emphasis is given to the behavior of plasma rotation; in particular, radial transport of toroidal angular momentum, rather than the effects of rotation and its shear on transport and MHD instability. First, recent experimental results on momentum transport from many tokamaks are summarized in relation to the drift-wave-turbulence-based standard phenomenology of “diffusive anomalous transport”. Then, recent advances in both theory and simulations are discussed in relation to experimental findings. Finally, requirements for a predictive understanding of transport, including future theory development and experimental tests, will be discussed.

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