

EX/P7-24 Roles of an inward particle flux inducing quasi-coherent mode in pedestal dynamics and ELM onset in H-mode plasmas by J. Q. Dong et al.

Dramatic increases of density (c) and its gradient (e), and slight decrease of electron temperature gradient (e) were observed in the pedestal just prior to each onset of ELMs in a series (a). A quasi-coherent mode (b & d) was found to be responsible. The mode was observed in floating potential, density and its gradient, radial electric field etc. and grows very rapidly just about 200 microseconds before each ELM onset (b & d). The mode has strong nonlinear interaction with the ambient turbulence. The mode induced inward particle flux (g) plays a dominant role in the particle balance (h) and increases of density (c) and its gradient (e) in the pedestal. The mode also induces increases of plasma pressure and its gradient (f) and may play a key role in triggering of ELM onset. The role of the mode induced energy transport is small in the energy balance, indicating decoupling of particle diffusion from energy transport.

