

Abstract Submitted
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Resonant Character of Edge Plasma Parameters in Stochastic Boundary Experiments at DIII-D and TEXTOR¹ O. SCHMITZ, FZJ, B.D. BRAY, N.H. BROOKS, T.E. EVANS, A.W. LEONARD, T.H. OSBORNE, W.P. WEST, GA, M.E. FENSTERMACHER, M. GROTH, C.J. LASNIER, LLNL, H. FRERICHS, M. LEHNEN, B. UNTERBERG, FZJ, M.W. JAKUBOWSKI, MPI, R.A. MOYER, UCSD, J.G. WATKINS, SNL — Dependence of electron pressure p_e profiles on the edge safety factor during resonant magnetic perturbations (RMPs) is analyzed and compared to heat and particle fluxes. For TEXTOR, a strong reduction of p_e and an increase of target fluxes is measured when the inward penetration of the vacuum stochastic layer is maximized. For DIII-D, target heat and particle fluxes follow the 3-D perturbed separatrix due to a stochastic layer of open, perturbed field lines with a minimum penetration to $\Psi_N = 0.95$ in normalized poloidal flux. Experimental measurements show the toroidally spiraling structure of perturbed target plate separatrix lobes depend on q_{95} and that there is a clear q_{95} dependent reduction of $n_e(\Psi_N)$, $T_e(\Psi_N)$ and $p_e(\Psi_N)$ which follows the toroidal phase of the RMP field. The measurements provide evidence for pitch resonant edge stochastisation as a mechanism leading to peeling-ballooning stabilized RMP H-modes at DIII-D.

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