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EX/P7-12: Plasma Diffusion and Turbulence Studies in T-10 Tokamak

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Two approaches for plasma diffusion studies were compared: low perturbation technique of periodic puff ($dn/n_e = 0.3\%$) and strong puff ($dn/n_e < 50\%$). Core density perturbations can be described in the model with constant in time–constant diffusion coefficients and pinch velocities, while at the edge this model failed. Three phases were distinguished in discharges with strong gas puff. Enhanced electron heat conductivity and lower turbulence frequencies were observed during density ramp up and down, while low electron heat conductivity and higher turbulence frequencies are typical for the intermediate phase. Density profile variation in this phase can be described in the model with constant in time coefficients. The increase of the low frequencies in turbulence spectra was also found in the “density pump out” phase during central ECRH.

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