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Thomson Scattering of Plasma Turbulence in PSI-2 MICHAEL HUBENY, BERND SCHWEER, Forschungszentrum Jülich GmbH, Institut für Energie- und Klimaforschung Plasmaphysik, 42425 Jülich, DIRK LUGGENHÖLSCHER, UWE CZARNETZKI, Institut fr Plasma und Atomphysik, Ruhr-Universität Bochum, 44780 Bochum, BERNHARD UNTERBERG, Forschungszentrum Jülich GmbH, Institut für Energie- und Klimaforschung Plasmaphysik, 42425 Jülich — Linear plasma devices are widely used to study fundamental plasma characteristics and to simulate particle and heat loads representing first wall/divertor conditions of fusion reactors. In high power discharges at PSI-2 the plasma edge exhibits turbulence with intermittent transport events. The combination of Thomson Scattering by a photon counting method and a fast framing CMOS camera in conjunction with conditional averaging gives access to the evolution of density and temperature profiles during transient plasma dynamics. Radial density and temperature profiles in Ar, D_2 , He and Ne discharges were measured and compared with existing diagnostics. In high power, low gas-feed Argon discharges the dominating m=1 rotation was found to correspond to a 20% Te fluctuation amplitude around the temporal mean at the profile maxima. In the edge of D_2 discharges transients are selected by conditional averaging and a significant temperature increase was found in the edge of TS profiles upon ejection accompanied by a 20% drop in bulk density.

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