Abstract Submitted
for the DPP07 Meeting of
The American Physical Society

Edge turbulence scaling in RFX-mod with GPI diagnostic PAOLO SCARIN, MATTEO AGOSTINI, ROBERTO CAVAZZANA, GIANLUIGI SERIANNI, Consorzio RFX — In the Reversed Field Pinch eXperiment RFX-mod (R=2 m, a=0.46 m) a Gas Puffing Imaging (GPI) diagnostic is routinely used to investigate the dynamical structure of plasma edge turbulence in different plasma conditions. The GPI system (32 optical lines of sight) measures radiation emitted from puffed gas on a plane normal to the local magnetic field. Such diagnostic allows the investigations of edge plasma properties with high time and space resolution even at high plasma current and through the entire plasma pulse. The characterization of edge turbulence has been carried out in terms of power spectrum, toroidal velocity v_ϕ of emission fluctuations, linear density and toroidal width of emission structures. The packing fraction f_p of emission intermittent structures has been estimated as the total area occupied by emission blobs in a plane perpendicular to magnetic field. The scaling with normalized Greenwald density $n/n_G$of v_ϕ, f_p, linear density and toroidal width of emission structures and decay index of the power spectrum are reported. A comparison at different density regimes of the diffusivity D_p of the plasma trapped in coherent structures is proposed and a decrease of about a factor of 2 results between low and high n/n_G values.

Paolo Scarin
Consorzio RFX

Date submitted: 10 Jul 2007 Electronic form version 1.4