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Stochastic behaviour in the edge region of the SINP tokamak

Ramesh Narayanan, Md. Nurujjaman and A.N. Sekar Iyengar

*Plasma Physics Division, Saha Institute of Nuclear
Physics, 1/AF Bidhannagar, Calcutta 700 064*

Recently, there has been a great deal of importance associated to the effects of magnetic field ergodization in the dynamics of fusion grade plasmas. It is beleived that ergodization of the edge magnetic fields can effectively mitigate ELMs, with a simultaneous good confinement. The role of the edge electric fields has also generated a lot of interest.

We have carried out a range of experiments under different plasma conditions in the S.I.N.P. tokamak. These experiments have been carried out using edge Langmuir probes and a set of Mirnov coils outside the limiter radius. Non-linear analysis tools have been invoked to study the stochastization in the edge plasma signals. We present the results of the above experiments and analysis in this paper.