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Category Number and Subject: 5.6.2. DIII-D Tokamak

Theory Experiment

Dependence of ICRF Antenna Loading on ELM Frequency, Type and Size,* S.J. Diem, E.A. Unterberg, D.L. Hillis, A.R. Horton, P.M. Ryan, M. Murakami, E.F. Jaeger, D.L. Green, D.A. Rasmussen, M.C. Kaufman, *Oak Ridge National Laboratory*; R.I. Pinsker, *General Atomics*; A. Nagy, *Princeton Plasma Physics Laboratory* – The ITER ICRF antenna is required to couple 20 MW to the plasma in the presence of edge localized modes (ELMs), which can cause very fast changes in the ICRF antenna loading [1]. Three fast wave antennas are in use on the DIII-D tokamak, one with a frequency of 60 MHz and two operating at 90 MHz. The impact of edge profile modifications due to ELMs on fast wave antenna loading was investigated during low power operation into ELMy H-mode discharges. A variety of diagnostics are used to study the edge plasma and antennas, including: fast ion gauges, filterscopes, and an edge reflectometer. Antenna loading as a function of ELM frequency, size and type will be reported.

[1] D.W. Swain and R. Goulding, “ITER Ion Cyclotron System: Overview and Plans,” *Fusion Eng. and Design*, **82**, 603 (2007).

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