Improved Stochastic Transport Modeling for DIII-D,[1] I. JOSEPH,
R.A. MOYER, UCSD, T.E. EVANS, T.H. OSBORNE, M.J. SCHAFFER, GA, A.
RUNOV, R. SCHNEIDER, MPIG, S.V. KASILOV, Kharkov IPT, M.E. FENSTER-
MACHER, M. GROTH, C.J. LASNIER, G.D. PORTER, LLNL — The E3D two-
fluid code is used to model the effect of resonant magnetic perturbations (RMPs) on
DIII-D pedestal and SOL particle and thermal transport. E3D uses Monte Carlo in-
tegration to accurately compute the stochastically enhanced perpendicular transport
caused by the 3D magnetic geometry. Progress has been made in adding parallel mo-
mentum balance and in efforts to use anomalous particle and thermal diffusivities
inferred from 1D and 2D transport models. Qualitative agreement with observa-
tions of the RMP-induced magnetic footprint structures observed by IR-TV and
Xpt-TV have been verified and may lead to direct probes of field penetration. Fu-
ture improvements require self-consistent modeling of the induced non-axisymmetric
currents, electric potential, and neutral transport.

I. Joseph
UCSD

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