Abstract Submitted
for the DPP02 Meeting of
The American Physical Society

Sorting Category: 5.6.2 (Experimental)

Recent DIII-D Experiments and Modeling of Quiescent Double Barrier Discharges[1] T.A. CASPER, T.B. KAISER, R.J. JAYAKUMAR, L.D. PEARLSTEIN, LLNL, K.H. BURRELL, J.C. DEBOO, P. GOHIL, C.M. GREENFIELD, R.J. GROEBNER, L.L. LAO, W.P. WEST, GA, E.J. DOYLE, T.L. RHODES, UCLA, G.R. MCKEE, U. Wisc., R.A. MOYER, UCSD, DIII-D TEAM — We continue to explore the QDB regime using experiments on DIII-D and modeling of thermal transport and current profile evolution. Experiments are aimed at understanding QDB formation and control of current profiles, electron density and impurity concentration. We use modeling to design experiments and to explore the scaling of QDB discharges to steady state conditions. Recent experiments explored the use of ECCD/ECH and successfully demonstrated strong modification of the current density and q profiles with EC power in excess of 2 MW. This effect depends strongly on the antenna aiming to adjust the current drive radial location. We also established the possibility for control of the density peaking and high-Z impurities that is not dependent on antenna aiming. Details of the modeling and recent experiments will be discussed.

[1]Work supported by US DOE Contracts W-7405-ENG-48, DE-AC03-99ER54463, DE-FG03-01-ER54615, DE-FG03-96ER54373, and DE-FG03-95ER54294.

[X] Prefer Oral Session
[ ] Prefer Poster Session

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Date submitted: July 19, 2002 Electronic form version 1.4