

Abstract Submitted
for the DPP98 Meeting of
The American Physical Society

Sorting Category: 5.1.1.2 (experimental)

Impurity Seeding and Radiating Mantle Discharges in the DIII-D Tokamak¹ G.L. JACKSON, G.M. STAEBLER, D.R. BAKER, T.E. EVANS, R.J. GROEBNER, R.J. LA HAYE, A.W. LEONARD, T.W. PETRIE, T.S. TAYLOR, W.P. WEST, General Atomics, M. MURAKAMI, M.R. WADE, Oak Ridge National Laboratory, J.A. BOEDO, R.A. MOYER, University of California, San Diego, C.J. LASNIER, Lawrence Livermore National Laboratory, A.M. MESSIAEN, J. ONGENA, ERM, Brussels, Belgium, B. UNTERBERG, Forschungszentrum, Jülich, Germany — Non-intrinsic impurities such as neon and argon have been used in DIII-D to obtain discharges with a high fraction of mantle radiation, $P_{\text{mantle}}/P_{\text{in}} > 0.4$, energy confinement at or above the ITER 93H ELM free scaling relation and low central impurity concentrations $Z_{\text{eff}}(0) < 2$. Three types of discharges were examined where non-intrinsic impurities in the mantle region, $0.6 < \rho < 1.0$, can have a significant role: (i) ELMing H-mode “puff and pump,” (ii) limiter L-mode, and (iii) high performance, $\beta_N H_{89P} > 6$. Characteristics of these three types of discharges will be examined and compared with discharges without neon or argon injection. Similarities and differences between DIII-D radiating mantle discharges and TEXTOR RI-mode will be presented.

¹Work supported by U.S. DOE Contracts DE-AC03-89ER51114, DE-AC05-96OR22464, W-7405-ENG-48, and Grants DE-FG03-95ER-54294.

- Prefer Oral Session
 Prefer Poster Session

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Special instructions: DIII-D Poster Session II (divertor physics, disruptions, RF, & diagnostics), immediately following Watkins

Date submitted: July 21, 1998

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