

Abstract Submitted
for the DPP98 Meeting of
The American Physical Society

Sorting Category: 5.1.1.2 (experimental)

Analysis of Radiating Mantle Discharges with Impurity Seeding in DIII-D¹ M. MURAKAMI, M.R. WADE, Oak Ridge National Laboratory, G.L. JACKSON, G.M. STAEBLER, T.E. EVANS, C.M. GREENFIELD, A.W. HYATT, R.J. LA HAYE, A.W. LEONARD, T.W. PETRIE, T.S. TAYLOR, W.P. WEST, General Atomics, 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 — Enhanced confinement, radiating mantle discharges have been obtained with argon and neon injection over a wide range of DIII-D operating conditions: L-mode (inner limiter, and diverted), ELMing, and ELM-free H-modes. ELMing “puff and pump” discharges have characteristics similar to TEXTOR RI-mode: a “transition” (concomitant with rotation spin-up observed in DIII-D), increasing confinement with density, and limitation from MHD activities. High performance ($\beta_N H > 6$) has been obtained with an ELMing H-mode for duration of 1.6 s. The discharge remains at the stability limit ($\beta_N \sim 4\ell i$) for 1.4 s. Transport analysis and the role of radiating mantle in the Advanced Tokamak operations will be discussed.

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

☒ Prefer Oral Session
☐ Prefer Poster Session

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Special instructions: DIII-D Oral Session I, immediately following Greenfield

Date submitted: July 21, 1998

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