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Radiating Mantle Discharges in DIII–D with Enhanced Confinement[1] G.L. JACKSON, G.M. STAEBLER, A.W. HYATT, A.W. LEONARD, W.P. WEST, General Atomics, C.J. LASNIER, Lawrence Livermore National Laboratory, R.A. MOYER, University of California, San Diego, M. MURAKAMI, Oak Ridge National Laboratory, J. ONGENA, ERM and KFA — Radiating mantle discharges can lower SOL temperatures and reduce both chemical and physical sputtering of first wall materials, which is especially important for fusion power plants. We report here on discharges in DIII–D with a radiating mantle and energy confinement enhancements up to 2 times the ITER89P L–mode scaling relation. These discharges have been obtained with neon impurity gas puffing and radiating power fractions ≥ 0.7. We will discuss the similarities and differences between these DIII–D discharges and radiating mantle discharges obtained in other machines, *e.g.* CDH–mode in ASDEX-U and RI–mode in TEXTOR. Conditions for minimizing impurity accumulation on axis will be discussed and confinement scalings between different machines will be presented. Additional experiments planned for DIII–D will also be discussed.

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