

Abstract Submitted
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Enhanced Distributed Radiation in an Extended Divertor in DIII-D,¹ A.W. LEONARD, T.W. PETRIE, W.P. WEST, General Atomics, M.E. FENSTERMACHER, D.N. HILL, G.D. PORTER, R.D. WOOD, Lawrence Livermore National Laboratory, J.G. WATKINS, Sandia National Laboratories, D.G. WHYTE, INRS-Energie et Materiaux — The essential concept of the ITER divertor is to spread the heat load along the side wall of the slot by radiation from an extended zone along the divertor leg. We have produced such an extended radiating zone in DIII-D. On DIII-D a plasma equilibrium was produced with an outer divertor poloidal length of >50 cm, approximately the same dimension as the main plasma minor radius. This configuration gives five bolometer chords an unambiguous view of the outer divertor to produce an accurate radiation profile from the X-point to the divertor floor. Deuterium gas is puffed into the divertor region until radiation is significantly increased and peak divertor heat flux is reduced by a factor of 3–5. The strong radiation in the divertor is seen to vary by no more than a factor of 2 along the outer leg from the X-point to the floor exceeding ITER's requirement of 6:1 uniformity. The distribution of deuterium and intrinsic carbon radiation will be discussed and modeled.

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- Prefer Oral Session
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