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Results of Recent Radiative Divertor Experiments in DIII-D¹ D.N. HILL, S.L. ALLEN, R.D. WOOD, *Lawrence Livermore National Laboratory*, T.W. PETRIE, A.W. LEONARD, W.P. WEST, *General Atomics*, M. WADE, R. ISLER, *Oak Ridge National Laboratory*, R. MAINI, *Oak Ridge Associated Universities* — In this paper we present an overview of recent radiative divertor experiments in DIII-D in which neon and deuterium injection were used to reduce the divertor heat flux in ELMing H-mode discharges. Work this year focussed on using new divertor diagnostics to determine the main constituents of the divertor radiation and to determine the ability of combined particle exhaust and midplane deuterium injection (puff and pump) to affect the distribution of neon between the main plasma and the divertor region. In addition, we used a new divertor configuration in which the x-point to target-plate distance (0.5 m) was made comparable to the plasma minor radius (0.65 m) to show that increased divertor radiation could be obtained in an extended zone along the outer divertor leg. Simultaneous measurements of divertor density, temperature, total emissivity, and VUV line radiation show that a large part of the increased divertor radiation is due to carbon emission, even when sufficient neon is injected to reduce the total power reaching the divertor targets.

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