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Scaling of Radiative Divertor Plasmas in DIII–D to High Power[1] A.W. LEONARD, M.A. MAHDAVI, T.W. PETRIE, General Atomics, S.L. ALLEN, M.E. FENSTERMACHER, C.J. LASNIER, Lawrence Livermore National Laboratory, R. MAINGI, Oak Ridge National Laboratory, J.G. WATKINS, Sandia National Laboratories, AND THE DIII–D TEAM — Divertor target heat and particle flux reduction in DIII–D is produced through deuterium puffing which produces an extended region of radiation in the divertor. Power flow through the divertor region of low temperature plasma is supported by convection induced by upstream ionization. In DIII–D we produced a series of radiative divertor plasmas ranging in input power from 4 to 16 MW to scale this solution to higher power. We measured the 2-D profiles of plasma density, temperature, total radiation, and radiation from different species. These profiles infer regions of convected versus conducted heat flux as well the regions of low Z impurity radiation, deuterium ionization, and recombination. Data analysis will describe implications of the scaling of divertor profiles for high power operation.

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☐ Prefer Oral Session
☒ Prefer Poster Session

Special instructions: DIII–D Poster Session II (divertor physics, disruptions, RF, & diagnostics): first poster

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