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High Performance Plasmas with a Pumped and Baffled Divertor in DIII–D[1] C.M. GREENFIELD, J.R. FERRON, A.W. HYATT, M.J. SCHAFFER, D.P. SCHISSEL, General Atomics, S.L. ALLEN, T.A. CASPER, B.W. RICE, B.W. STALLARD, Lawrence Livermore National Laboratory, E.A. LAZARUS, R. MAINGI, M.R. WADE, Oak Ridge National Laboratory, AND THE DIII–D TEAM — Fusion performance in DIII–D is often limited by monotonically increasing plasma density and its local gradients. Earlier experiments established that density control can be achieved in low triangularity plasmas with a pumped divertor. However, the highest plasma performance is obtained at high triangularity. Recently, a new pumped and baffled divertor compatible with high triangularity operation has been added at the top of the DIII–D vessel. Initial results indicate that the new divertor has similar pumping capability to the older, low-triangularity divertor in ELMing H–mode plasmas. Some evidence of pumping on ELM-free discharges has also been seen. We report here on the results of a campaign to use the new divertor hardware to improve or sustain high performance conditions by limiting or eliminating the rise of density and its local gradients near the edge of high triangularity plasmas.

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