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Particle and Power Control Studies with the Upper Divertor Pump and Baffle[1] S.L. ALLEN, M.E. FENSTERMACHER, G.D. PORTER, Lawrence Livermore National Laboratory, M.R. WADE, R. MAINGI, Oak Ridge National Laboratory, C.M. GREENFIELD, M.A. MAHDAVI, General Atomics — We present new results from operation with the upper divertor baffle and cryopump. In single null operation, the baffle reduced the measured core ionization (obtained from detailed edge n_e and T_e measurements) by a factor of 2–2.5, in rough agreement with UEDGE/DEGAS modeling (a factor of 3.75). The particle exhaust with the upper cryopump is comparable to that of the lower pump at moderate densities, but is reduced for $n_e \leq 4 \times 10^{-19}$ m^{-3}. We have used the upper cryopump to reduce the density in high-triangularity ($\delta \simeq 0.7$) discharges to $0.22\, n_{GW}$ with $Z_{eff} \simeq 2$ in ELMing H–mode discharges. We have also operated up to $I_p = 2$ MA, $P_{inj} \simeq 10$ MW with $Z_{eff} \simeq 2.5$. Initial experiments in high-triangularity double null discharges suggest that the particle exhaust is about 50% of the peak exhaust in single null operation. Results from preliminary high-δ radiative divertor experiments will also be presented.

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[X] Prefer Oral Session
[ ] Prefer Poster Session

Special instructions: DIII–D Oral Session II, immediately following Mahdavi

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