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Effect of Variation in Secondary Divertor Volume on Performance of Unbalanced DN Plasmas in DIII-D[1] M.E. FENSTERMACHER, C.J. LASNIER, G.D. PORTER, Lawrence Livermore National Laboratory, R.J. GROEBNER, A.W. LEONARD, T.H. OSBORNE, T.W. PETRIE, General Atomics, J.G. WATKINS, Sandia National Laboratories — The design of any future tokamak begins with a decision on the shape of the core and divertor plasmas. The desire is to achieve the core confinement and divertor heat flux handling advantages of high triangularity double null (DN) operation with the core plasma volume maximized and the divertor volume minimized. This paper reports on the performance of a series of magnetically unbalanced DN H–mode discharges in DIII–D which examine these shape questions by varying the volume in the "secondary" divertor (*i.e.*, with the X–point connecting to midplane flux surfaces radially outside the primary X–point, and the ∇B drift out of the divertor). Comparisons will be made as functions of secondary divertor volume using operational space diagrams characterizing edge pedestal performance (pressure gradient, ELM type, transition boundaries, etc.), heat and particle flux sharing between the divertors, and the response of core energy confinement to gas injection.

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☐ Prefer Oral Session
☒ Prefer Poster Session

Special instructions: DIII-D Poster Session 2, immediately following CJ Lasnier

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