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First experiments with negative triangularity shape in DIII-D[1]
M.E. AUSTIN, U. Texas, A. MARINONI, MIT, M.L. WALKER, General Atomics, M.W. BROOKMAN, U. Texas, J.S. DEGRASSIE, A.W. HYATT, C.C. PETTY, General Atomics, T.L. RHODES, C. SUNG, UCLA — For the first time on DIIID, discharges with a negative triangularity shape ($\delta = -0.4$) were created to investigate the effects of this shape on transport and turbulence. Significant shape control development was required with unconventional patch panel configurations and a new startup scenario to successfully establish the discharge. These reverse D discharges were $L-mode$, inner-wall limited with 1 MA current, 3.8 MW NBI, and 2.7 MW ECH. $H_{98,y2}$ factors up to 0.85 and β_N values up to 1.7 were attained in ELM-free stationary discharges. The confinement behavior mimics Alcator scaling[2], with confinement increasing with density. Other interesting features of the experiment were a higher than typical intrinsic $co-I_p$ edge rotation and an increase in density with ECH power. This behavior contrasts with the ECH-induced drop in rotation and density pump-out effects observed in standard $\delta > 0$ ECH-dominated DIII-D discharges. A full set of turbulence data was obtained over low, intermediate, and high k ranges. [1]Work supported by USDOE - DE-FG02-97ER54415 and DE-FC02-04ER54698. [2] Gondhalekar, A. et al, Proc. 7th IAEA Intl Conf, Innsbruck, 1978, Vol 1, 199. IAEA, Vienna (1979).

M.E. Austin
U. Texas

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