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**Extension of High-Performance NCS Operating Regimes to Low-Triangularity Plasmas, with Implications for JET/ITER,**[1] B.W. RICE, B.W. STALLARD, Lawrence Livermore National Laboratory, E.J. STRAIT, T.C. LUCE, T.S. TAYLOR, C.M. GREENFIELD, General Atomics, F. SOLDNER, G. SIPS, JET Joint Undertaking, E.J. LAZARUS, R. MAINGI, M.R. WADE, Oak Ridge National Laboratory — In previous experiments on DIII–D, improved confinement and fusion performance has been demonstrated in high-triangularity ($\delta$ ~0.8) double-null diverted discharges with negative or weakly positive central magnetic shear (NCS). Recently, these results have been extended to lower triangularity ($\delta$ ~0.3) single-null plasma shapes, similar to those used on JET and proposed for ITER. In this configuration we have increased the DD neutron rate to $S_N$=1.3×$10^{16}$ n/s and the product $\beta_N$H to ~16, about double the previous results in low $\delta$ discharges (H ≡ $\tau_E/\tau_{ITER89P}$, $\beta_N \equiv \beta/(I/aB)$). With $q_0$ maintained >1, there appears to be no degradation in confinement for $q_{95}$ values down to 3. Using cryopumping for density control, we have begun experiments to extend high performance to long pulse lengths, where quasi steady-state values of $S_N$=6×$10^{15}$ n/s and $\beta_N$H~6.5 have been achieved for > 2 s in an ELMing H–mode.

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