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Comparison of long pulse single and double null divertor plasma behaviors in EAST H.Y. GUO, X. GAO, J. LI, G.-N. LUO, S. ZHU, J.F. CHANG, W. GAO, X.Z. GONG, Q.S. HU, Q. LI, T.F. MING, J. OU, Y.J. SHI, B.N. WAN, D.S. WANG, J. WANG, Z.W. WU, B.J. XIAO, Q. XU, L. ZHANG, W. ZHANG, Institute of Plasma Physics, Chinese Academy of Sciences, EAST TEAM — Divertor performance has been assessed in the new EAST superconducting tokamak for both single null (SN) and double null (DN) configurations. Stable DN discharges over 60 seconds have been achieved for the first time in EAST with active wall conditioning and divertor pumping. Particle and heat fluxes to both inner and outer divertor targets are lower for DN, but with stronger asymmetry favoring outer divertors, as compared to SN. Plasmas exhibit a large amplitude broadband turbulence in the outer divertors for both SN and DN, as indicated by Langmuir probe measurements. The turbulence level is significantly reduced in the inner divertors, especially for DN. DN operation also leads to an up-down asymmetry with higher power and particle fluxes to the divertors with their ∇B drift toward the X-point. Revering B_T shows a strong influence on the observed divertor asymmetries. As an active means to control power and particle fluxes to the target plates, localized divertor puffing has been explored in EAST under long pulse operating conditions. This presentation will highlight these recent advances.

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