Abstract Submitted
for the DPP17 Meeting of
The American Physical Society

**Shafranov shift bifurcation of turbulent transport in the high $\beta_p$ scenario on DIII-D**[1] J. MCCLENAGHAN, Oak Ridge Associated Universities, A. M. GAROFALO, G.M. STAEBLER, General Atomics, J. QIAN, X. GONG, S.Y. DING, Institute of Plasma Physics, Chinese Academy of Sciences, — The Shafranov shift stabilization of turbulence creates a bifurcation in transport leading to formation of a large radius internal transport barrier (ITB) in the high $\beta_p$ scenario on DIII-D. The high $\beta_p$ scenario exhibits high confinement at high $\beta_N$ and high bootstrap fraction in the absence of rapid rotation or negative central shear. Spontaneous formation of an ITB at fixed $\beta_N$ is examined. The energy confinement improves following formation of the ITB. The improvement is associated with a decrease in the minimum mid-radius characteristic turbulence parameter associated with the Shafranov shift: $\alpha - s$, where $\alpha = q^2 R d\beta/d\rho$ is a measure of the Shafranov shift, and s is the magnetic shear. After ITB formation, $\alpha - s > 0$ within region of ITB and $\alpha - s < 0$ outside the ITB. Before ITB formation, $\alpha - s < 0$ throughout the entire core. TGLF transport simulations show a bifurcation of the transport depending on the electron pressure gradient scale length. Before ITB formation, the experimental scale length is on the high-transport side of bifurcation. After ITB formation, experimental scale length is on the low-transport side of the bifurcation in the region of the ITB.

[1]Work supported in part by the US Department of Energy, Office of Science, Office of Fusion Energy Sciences DE-FC02-04ER54698 (Cooperative Agreement DE-SC0010685), and by the National Magnetic Confinement Fusion Program of China (No.2015GB102002, 2015GB10

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Date submitted: 12 Jul 2017 Electronic form version 1.4