Abstract Submitted for the 50th Annual Meeting
Division of Plasma Physics
November 17–21, 2008, Dallas, Texas

Category Number and Subject: 5.4.0 Divertors, edge physics, and fueling

[ ] Theory [X] Experiment

Edge MHD Stability of Co-injected QH-mode Discharges in DIII-D,* T.H. Osborne, K.H. Burrell, M.S. Chu, P.B. Snyder, W.P. West, *General Atomics* – In this paper we compare the ideal MHD stability of the H-mode edge transport barrier region in QH-mode discharges with neutral beam injection oriented toroidally in the same direction as the plasma current (Co-NBI) to previous results with neutral beam injection counter to the plasma current (Counter-NBI). QH-mode had until recently only been obtained in discharges with a large fraction of neutral beam heating in the counter current direction under conditions where low toroidal number peeling modes are the dominate instability (low plasma density and/or strong cross-sectional shaping). The high rotational shear in the edge of Counter-NBI discharges, which is thought to provide the saturation mechanism for the instability [1], was also present in the Co-NBI QH-mode discharges.

[1] P.B. Snyder, et al., 2006 *Proc. 21st Intl. Conf. on Plasma Physics and Controlled Nucl. Fusion* (Chengdu) (IAEA Vienna) Paper TH/4-1Ra.

*Work supported by the US DOE under DE-FC02-04ER54698 and DE-AC52-07NA27344.