

**Abstract Submitted for the Forty-Eighth Annual Meeting  
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Category Number and Subject: 5.6.2. DIII-D Tokamak

Theory     Experiment

**Decoupling the Effects of Momentum and Power Input From Neutral Beam Injection,\*** W.M. Solomon, *PPPL*, K.H. Burrell, J.S. deGrassie, R.-M Hong, J.T. Scoville, *GA*, and M. Peng, *ORNL* – At least one reason that plasma rotation remains relatively poorly understood is the limited opportunity to decouple the effects of power and torque, which are simultaneously input into the plasma by neutral beam injection. With the newly rotated counter neutral beam line on DIII-D, we now have the possibility to separate out the two effects and begin to systematically study momentum transport. In particular, three torque scans at approximately fixed ion temperature were performed, by using the DIII-D plasma control system to hold beta constant. We investigate the dependence of the ratio of momentum confinement time to ion thermal confinement time on NBI power and torque. Experiments conducted with balanced beam injection show that immediately after the beams turn on, the rotation is generally in the counter direction, presumably due to the larger prompt torque associated with the counter beams. However, after approximately 350 ms, the rotation changes to the co-direction.

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