Abstract Submitted
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Creating a Stochastic Magnetic Edge in HBT-EP[1] P.J. BYRNE, B. DEBONO, J.P. LEVESQUE, B. LI, M. MAUEL, D.A. MAURER, G.A. NAVRATIL, N. RATH, D. SHIRAKI, Columbia University — The newly-installed control wall in the HBT-EP tokamak (http://www.seas.columbia.edu/apam/hbtep/) are able to apply radial fields more than an order magnitude larger than our previous studies and large enough to allow study of the plasma response associated with driven tearing modes, the onset of island overlap, and the creation of a stochastic edge. Understanding plasma response effects while applying fields able to create vacuum island overlap are particular interest for ELM mitigation.[2] Control RMP fields will be applied in HBT-EP using both static and rotating fields to study the effects of the relative rotation between the applied field and the plasma frame. Additionally, we have demonstrated the ability to strongly alter the plasma rotation with a biased probe, and we will be installing a "zero-net-turns" plasma shaping coil to increase the magnetic shear at the plasma edge. These experimental "knobs" will allow a detailed exploration of the magnitude of plasma shielding currents and the impact of stochastic fields on the plasma response and related efforts of mode control.

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[2]Evans, *et al.*, Nuclear Fusion, **48**, 024002 (2008).

P. J. Byrne
Columbia University

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