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Experimental Study of Biased Probe Induced *ExB* Rotation on MHD Modes* N. STILLITS, J.M. HANSON, M.E. MAUEL, D.A. MAURER, G.A. NAVRATIL, T.S. PEDERSEN, Columbia University, R. JAMES, U.S. Coast Guard Academy/Stevens Inst of Tech. — The effect of plasma rotation on the behavior of MHD modes is a topic of importance for both resistive wall and tearing mode stability and their effect on the performance of present and future magnetic fusion devices. On HBT-EP, a biased molybdenum electrode inserted into the edge plasma is used to change the intrinsic *ExB* rotation of MHD activity of both kink and tearing mode fluctuations in a controllable systematic way. It has been possible to brake MHD mode rotation to zero rotation frequency using this technique. For large applied bias voltage, MHD activity is observed to accelerate in the direction opposite to the naturally occurring mode rotation with frequencies up to two or three times the natural rotation rate. Measurements will be presented using a triple probe array to quantify changes in the edge profiles of the fluctuating electron temperature, plasma density, and potential near the rotating magnetic islands under electrode bias. A Hall magnetic field sensor array and external pickup coils are also used to characterize the plasma and MHD fluctuations during bias probe induced mode rotation changes. Initial calculations of the effect of magnetic islands on perpendicular plasma conductivity will be discussed. *Supported by U.S. DOE Grant DE-FG02-86ER53222

David Maurer
Columbia University

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