

Abstract Submitted
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Measurements of long-range correlations and bicoherence during biasing in HSX¹ ROBERT WILCOX, HSX Plasma Lab, University of Wisconsin, Madison, BOUDEWIJN VAN MILLIGEN, MARIA ANGELES PEDROSA, CIEMAT, Madrid, Spain, MIRKO RAMISCH, Institut für Plasmaforschung, Universität Stuttgart, Stuttgart, Germany, DAVID ANDERSON, HSX Plasma Lab, University of Wisconsin, Madison — Using toroidally-spaced Langmuir probes, long-range fluctuation correlations have been measured in floating potential signals during biased discharges in the HSX stellarator. The increase in long-range correlations during biasing occurs in the floating potential signals, but not in the ion saturation current signals. This has been linked to zonal flow formation in the TJ-II stellarator, both in biased discharges and in naturally occurring improved-confinement discharges [1]. Measurements of the auto-bicoherence of the poloidal electric field signals show an increase in broadband 3-wave coupling during biasing, which is analyzed and compared to both biased and naturally occurring enhanced-confinement discharges in TJ-II [2]. Additional measurements of fluctuation moments in HSX are also presented.

[1] M.A. Pedrosa, et al, Phys. Rev. Lett. 100 (2008) 215003.

[2] B.Ph. van Milligen, et al, Nucl. Fusion 48 (2008) 115003

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John Schmitt
HSX Plasma Lab, University of Wisconsin, Madison

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