

Abstract Submitted  
for the DPP98 Meeting of  
The American Physical Society

Sorting Category: 5.1.1.2 (experimental)

**Evidence for Correlations in DIII-D Te Fluctuation**

**Data**<sup>1</sup> P.A. POLITZER, General Atomics — Electron temperature fluctuations are a rich source of information on turbulence in both quiescent and strongly driven tokamak plasmas. Fast electron cyclotron emission (ECE) data from a range of DIII-D discharges has been studied for evidence of long-time correlations and of self-organized criticality. The rescaled adjusted range statistics (R/S) method used by Carreras *et al.*<sup>2</sup> provides evidence that, even in very quiet DIII-D plasmas, the Hurst parameter significantly exceeds the value for random statistics across the entire profile. Cross-correlation analysis applied to different spatial channels of the DIII-D ECE system indicate that low-order rational surfaces affect the radial extent of the correlations. Also, the method of biorthogonal decomposition<sup>3</sup> is shown to provide a useful tool for extracting significant information from very noisy signals.

<sup>1</sup>Supported by U.S. DOE Contract DE-AC03-89ER51114.

<sup>2</sup>B.A. Carreras *et al.*, Phys. Rev. Lett. **80** (1998) 4438.

<sup>3</sup>T. Dudok de Wit *et al.*, Phys. Plasmas **1** (1994) 3288.

Prefer Oral Session  
 Prefer Poster Session

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Special instructions: DIII-D Poster Session I (transport, turbulence, & stability), immediately following Bravenec

Date submitted: July 22, 1998

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