Abstract Submitted
for the DPP98 Meeting of
The American Physical Society

Sorting Category: 5.1.1.2 (experimental)

Analysis of Transient Turbulent Phenomena in BES Density Fluctuation Measurements[1] M. JAKUBOWSKI, R. FONCK, J.S. KIM, G.R. MCKEE, University of Wisconsin-Madison — Beam Emission Spectroscopy (BES) measures localized density fluctuations resulting from plasma turbulence. Wavelet transform spectral analysis techniques are utilized to characterize rapid phenomena observed in BES data from DIII–D. Applications include fluctuation suppression at L–H transitions on the time scale of < 0.1 ms, and isolation of transient or intermittent structures. Application of wavelet methods to time-delay correlation measurements between poloidally separated channels yields insight into poloidal velocity fluctuations. Since turbulent eddies propagate essentially at the $E_r \times B$ velocity (assuming small and essentially constant diamagnetic flows), such measurements obtained on a sufficiently rapid time scale may yield direct measurements of the fluctuating radial electric field and the associated electrostatic potential fluctuations, possibly allowing direct measurements of the fluctuation-induced particle transport in the core of hot tokamak plasmas.

[1]Work supported by U.S. DOE Grant DE-FG02-89ER53296 and Contract DE-AC03-76-89ER51114

G.R. McKee
mckee@gav.gat.com
University of Wisconsin

☐ Prefer Oral Session
☒ Prefer Poster Session

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

Date submitted: July 22, 1998 Electronic form version 1.3