

Abstract Submitted  
for the DPP01 Meeting of  
The American Physical Society

Sorting Category: 5.6.2 (Experimental/Observational)

**Comparison of Fluctuations in Lower and Upper Single Null Plasmas in DIII-D**<sup>1</sup> J.C. ROST, M. PORKOLAB, B.J. YOUNGBLOOD, Plasma Science and Fusion Center, MIT, G.R. MCKEE, U. Wisconsin, T.L. RHODES, UCLA, R.A. MOYER, UCSD, K.H. BURRELL, GA — Measurements were performed on DIII-D to compare the turbulence in upper single-null (USN) and lower single-null (LSN) plasmas with otherwise identical parameters, focusing on the effect of the geometry on the H-mode transition. Data was acquired in L-mode plasmas slightly below the H-mode threshold and ELMy H-mode plasmas with phase contrast imaging (PCI), beam emission spectroscopy, Langmuir probes, and reflectometry. In the L-mode discharges the poloidal velocity of the fluctuations shows a large shear in LSN ( $\nabla B$  drift toward the X-point) a few cm inside the left closed flux surface, while the USN at the same power does not. PCI data show that the  $k_\theta = 0$  modes are dominated by radially outward  $k_r$  modes in USN and inward modes in LSN. The ELMs are similar in both geometries; the fluctuations above 20 kHz increase sharply 0.3 ms before the rise in  $D_\alpha$  emission and start to decay immediately, while lower frequencies peak with the emission.

<sup>1</sup>Work supported by the US DOE under contracts DE-FG02-94ER54235 APTE, DE-FG03096ER54373, DE-FG03-01ER54615, DE-FG03-95ER54294, and DE-AC03-99ER54463.

Prefer Oral Session  
 Prefer Poster Session

Jon Rost  
rost@psfc.mit.edu  
Plasma Science and Fusion Center, MIT

Special instructions: Poster 7, Transport, Boundary Plasma

Date submitted: July 20, 2001

Electronic form version 1.4