

## 50th Annual Meeting of the Division of Plasma Physics

Monday–Friday, November 17–21, 2008; Dallas, Texas

### [Session UP6: Poster Session VIII: Astrophysical and Space Plasmas: Laboratory Astrophysics; Beams, Coherent Radiation and Computation; Basic Plasma Experiment; Divertors, Edge Physics, and Fuelling](#)

2:00 PM–2:00 PM, Thursday, November 20, 2008

- Marsalis A/B, 2:00pm - 5:00pm

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### **Abstract: UP6.00011 : Alignment of Velocity and Magnetic Fluctuations in Anisotropic MHD Turbulence**

[Preview Abstract](#)

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There has been recent theoretical interest in the effect of the alignment of velocity and magnetic fluctuations in three-dimensional (3D) MHD turbulence with a large-scale magnetic field [Boldyrev 2005, 2006]. This theory predicts that the angle  $\theta$  between the velocity and magnetic fluctuation vectors has a scaling of  $\theta \propto \lambda^{1/4}$ , where  $\lambda$  is the spatial scale of the fluctuations. There have also been simulations on 3D forced MHD turbulence that supports this prediction [Mason et al. 2006, 2007]. Based on decaying two-dimensional (2D) turbulence, we have found the scaling of  $\theta \propto \lambda^{1/4}$  within a range of time interval and spatial scales, despite the fact that Boldyrev's phenomenological theory relies on physical mechanisms operative in fully 3D turbulence in the presence of a strong external field. Higher resolution simulations and scaling analysis, based on pseudo-Alfvén waves in 2D, will be presented.

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