Geophysical Turbulence Program Seminar
National **C**enter for **A**tmospheric **R**esearch

Third moment scaling and energy dissipation in turbulent MHD fluctuations
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Abstract:

The theoretical result by Politano and Pouquet (1998 a,b; P&P) predicts the scaling of the third moment of MHD turbulent fluctuations, and gives the energy dissipation rates of forward and backward turbulence. It is exact in the inertial range and valid in its differential vector form even in anisotropic MHD turbulence. The P&P theorem does not seem to be recognized or exploited yet in studies of the solar wind, probably because solar wind turbulence is known to be anisotropic, but the anisotropic form of the P&P result is not so well understood.

In this talk, I will attempt to clarify the origin and meaning of the anisotropic vector differential form of the P&P theorem, and I will show some preliminary attempts to verify and use it with solar wind velocity, magnetic field and density data.

This effort is important to understand the anisotropy of solar wind turbulence, how it evolves with scale, and the contribution of inertial-range turbulence to heating the solar wind.

Politano, H., and A. Pouquet, von Karman-Howarth equation for MHD and its consequences on third-order longitudinal structure and correlation functions, Phys. Rev. E., 57(1) R21-R24, 1998a
Politano, H., and A. Pouquet, Dynamical length scales for turbulent magnetized flow, Geophys. Res. Lett., 25, 273-276, 1998b

When:	**Where:**
23 February 2007	Center Green Lab Building 1
Friday, 2:30 pm (Refreshments at 2:15pm)	Room 2126
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