

## Analysis & Probability Seminar

Tuesday, November 3, 2015 at 3:00 p.m. in Yost 306

**Speaker:** Wojbor Woyczynski, Professor, Department of Mathematics, Applied Mathematics, & Statistics, Case Western Reserve University

**Title:** Multiscale conservation laws driven by Lévy stable and Linnik diffusions: asymptotics, explicit representations, shock creation, preservation and dissolution

**Abstract:** Asymptotic behavior of supercritical multifractal fractal conservation laws (CLs) with  $L_1$  initial conditions is dictated by the linearized case. Thus obtaining explicit solutions of the latter is of interest. For  $\alpha < 1$ , CLs driven by Lévy  $\alpha$ -stable diffusions exhibit shocks for bounded, odd, and convex on  $R^+$ , initial data. For Lévy  $\alpha$ -Linnik diffusions,  $0 < \alpha \leq 2$ , the local behavior is strikingly different. The relevant CLs display shocks that do not dissipate over time while those for  $\alpha$ -stable diffusion ( $0 < \alpha \leq 1$ ) do. (With B. Gunaratnam, *J. Stat. Phys* (2015), and K. Gorska, *J. Math. Phys.* (2015). )