

MATHEMATICS COLLOQUIUM

Navier-Stokes equations and turbulence theory

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Abstract: Since its introduction in 1941, Kolmogorov's empirical theory of turbulence proved to be remarkably accurate in the experiments. However, its connection to the underlying equations of motion remains elusive. In this talk we will place the main tenets of the homogeneous turbulence theory in the framework of the Navier-Stokes equations and proceed to establish necessary and sufficient conditions for turbulence in the 3 dimensional flows. In particular, we will present sharp bounds on the average energy and enstrophy of the solutions of the Navier-Stokes equations in both general and turbulent cases and discuss the implications of turbulent assumptions to the problem of regularity.

Date: Friday, **February 1, 2008**
Time: 3:00 pm – 4:00 pm
Place: J. Wiener Lecture Hall, MAGC 1.302

Refreshments will be served at 2:50pm.

For further information or for special accommodations, contact Dr. Karen Yagdjian at 381-2145, via email at yagdjian@utpa.edu, or visit www.math.panam.edu/colloquia.html