

Stochastic PDE and Models of Turbulence

Sunday, September 1, 2002 (All day) - Monday, June 30, 2003 (All day)
(2002-2003)

During the 2002-2003 academic year IAS will conduct a program in statistical models of turbulence. Weinan E and Gregory Falkovich will be in residence for the year, and in related areas, John Ball will also be at the Institute.

Although the problem of 3 dimensional turbulence has been extensively studied over the past century, our mathematical understanding of important issues such as regularity, intermittency and coherent structures is still primitive.

The year's program will focus on more tractable models which share some of the features believed to occur in 3D turbulence. Over the past few years there has been a surge of interest in such models which include, advection of a passive scalar, and randomly driven Burgers. The main purpose of this program at IAS is to bring people from mathematics, physics and fluid mechanics communities to continue this work and to explore more realistic turbulence problems, such as 2D turbulence and wave turbulence. The minimum goal is to crystalize the mathematical formulation of the problem, the expected result, and identify critical obstacles where numerical computations and simplified models might help. A second goal is to examine the recent progress on analysis of invariant measures for nonlinear PDEs, and extend them to physically realistic situations.

Junior mathematicians with an established interest in the domain or a desire to learn about it are encouraged to apply for membership for the year, and if necessary for a grant. Senior mathematicians are also welcome to apply.

terms:

- [special year](#)