Department of Mathematics,
University of California San Diego

* *

Department Colloquium

Alex Dunlap

NYU

Stochastic partial differential equations in supercritical, subcritical, and critical dimensions

Abstract:

A pervading question in the study of stochastic PDE is how small-scale random forcing in an equation combines to create nontrivial statistical behavior on large spatial and temporal scales. I will discuss recen progress on this topic for several related stochastic PDEs - stochastic heat, KPZ, and Burgers equations - and some of their generalizations. These equations are (conjecturally) universal models of physical processes such as a polymer in a random environment, the growth of a random interface, branching Brownian motion, and the voter model. The large-scale behavior of solutions on large scales is complex, and in particular depends qualitatively on the dimension of the space. I will describe the phenomenology and then describe several results and challenging problems on invariant measures, growth exponents, and limiting distributions.

Todd Kemp

November 16, 2022

2:00 PM

APM 6402

* *