

*Department of Mathematics,
University of California San Diego*

Department Colloquium

Promit Ghosal

MIT

Fractal Geometry of the KPZ equation

Abstract:

The Kardar-Parisi-Zhang (KPZ) equation is a fundamental stochastic PDE related to many important models like random growth processes, Burgers turbulence, interacting particles system, random polymers etc. In this talk, we focus on how the tall peaks and deep valleys of the KPZ height function grow as time increases. In particular, we will ask what is the appropriate scaling of the peaks and valleys of the (1+1)-d KPZ equation and whether they converge to any limit under those scaling. These question will be answered via the law of iterated logarithms and fractal dimensions of the level sets. The talk will be based on joint works with Sayan Das and Jaeyun Yi. If time permits, I will also mention an interesting story about the (2+1)-d and (3+1)-d case (work in progress with Jaeyun Yi).

Jason Schweinsberg

November 9, 2022

2:00 PM