ATHENS *Pr*OBABILITY COLLOQUIUM

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Math Dept, University of Athens

"Random growth and Integrable systems"

Jeremy Quastel

Abstract:

The one-dimensional Kardar-Parisi-Zhang (KPZ) universality class contains random growth models, directed random polymers, stochastic Hamilton-Jacobi equations (e.g., the eponymous KPZ equation). It is characterized by unusual scale of fluctuations, some of which appeared earlier in random matrix theory, and which depend on the initial data, the explanation being that on large scales everything approaches a special scaling invariant Markov process, the KPZ fixed point, which turns out to be a new type of integrable system, leading to unexpected connections between probability and dispersive partial differential equations.

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