PHYSICS DEPARTMENT COLLOQUIUM

"Random shapes and random maps: multifractals in statistical mechanics and stochastic growth"

BY

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Complex fractal shapes have been fascinating scientists for a long time. One class of such patterns appears at critical points in equilibrium statistical mechanics (Ising spin clusters or percolation clusters). Another class is represented by clusters dynamically grown far from equilibrium, including diffusion-limited aggregates, dielectric breakdown patterns and the like. These two types of patterns are similar in their complexity, but the level of our understanding of them is dramatically different in the two cases. A recent mathematical breakthrough termed the stochastic Loewner evolution (SLE) may provide us with a conceptual framework for description of both types of complex patterns in two dimensions. In my talk I will review this recent development and its possible generalizations.

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4:00 PM IN 102 JFB
REFRESHMENTS AT 3:30 PM IN 219 JFB