Theoretical Statistics and Mathematics Unit

Indian Statistical Institute

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SEMINAR

Date: July 31, 2026
Time: 4:15 PM

VENUE:
L-Infinity, 5th Floor, A.N. Kolmogorov Bhavan, ISI Kolkata

SPEAKER:

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TITLE:

GFF level-set percolation on finite graphs

ABSTRACT:

Percolation on sequences of finite graphs with growing size gives rise to many interesting phenomena that are different from those coming from percolation on infinite graphs. It is a very important problem to give criteria for specific bounded degree finite graphs to exhibit mean-field (near-) critical behavior (i.e., like the Erd\H{o}s-R\'enyi random graphs). In this talk, we revisit this old problem by looking beyond the Bernoulli percolation and consider the level-set percolation of the zero-average Gaussian free field (GFF) on finite metric graphs. It turns out that for this model, one can deduce mean-field behavior for any family of graphs with spectral gap bounded away from 0 (which includes expanders, complete graphs etc.) --- a result unknown in such generality for Bernoulli percolation to the best of our knowledge. We will also discuss results on supercritical sharpness and possibilities to consider more general families of graphs. Based on joint works with Subhajit Goswami.

ALL ARE CORDIALLY INVITED

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