מכון ויצמן למדע

THE WEIZMANN INSTITUTE OF SCIENCE

FACULTY OF MATHEMATICS AND COMPUTER SCIENCE

Geometric Functional Analysis and Probability Seminar

Room 208 ,Math & CS Building II Building
on Thursday, Aug 06, 2015
at 11:05

please note unusual room

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Voter model percolation

Abstract:

The voter model on $\Z^d$ is a particle system that serves as a rough model for changes of opinions among social agents or, alternatively, competition between biological species occupying space. When $d \geq 3$, the set of (extremal) stationary distributions is a family of measures μ_α, for α between 0 and 1. A configuration sampled from μ_α is a strongly correlated field of 0's and 1's on $\Z^d$ in which the density of 1's is α.

We consider such a configuration as a site percolation model on $\Z^d$. We prove that if $d \geq 5$, the probability of existence of an infinite percolation cluster of 1's exhibits a phase transition in α. If the voter model is allowed to have sufficiently spread-out interactions, we prove the same result for $d \geq 3$.

These results partially settle a conjecture of Bricmont, Lebowitz and Maes (1987).
Joint work with Daniel Valesin (University of Groningen)

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