
THE WEIZMANN INSTITUTE OF SCIENCE
FACULTY OF MATHEMATICS AND COMPUTER SCIENCE
Geometric Functional Analysis and Probability Seminar

Room 155 ,Ziskind Building
on Thursday, Dec 23, 2021at 13:30

zoom link as well: <https://weizmann.zoom.us/j/96250855312?pwd=empqTUZGcU5TcHY5V1FsL2xDVnZwZz09>
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Depinning in the integer-valued Gaussian field and the BKT phase of the 2D Villain model

Abstract:

It is shown that the Villain model of two-component spins over two dimensional lattices exhibits slow, non-summable, decay of correlations at any temperature at which the dual integer-valued Gaussian field exhibits depinning. For the latter, we extend the recent proof by Lammers of the existence of a depinning transition in the integer-valued Gaussian field in two-dimensional cubic graphs to all doubly periodic graphs, in particular to \mathbb{Z}^2 . Taken together these two statements yield a new perspective on the Berezinskii-Kosterlitz-Thouless phase transition in the Villain model, and complete a new proof of depinning in two-dimensional integer-valued height functions. Based on joint work with: Michael Aizenman, Matan Harel and Ron Peled.