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Department of
Mathematics

Inn'formal Probability Seminar

Marcin Lis (TU Wien)

"On the duality between height functions and continuous spin models."

Abstract

We revisit the classical phenomenon of duality between random integervalued height functions with positive definite potentials and abelian spin models with O(2) symmetry. We use it to derive new results in quite high generality including: a universal upper bound on the variance of the height function in terms of the Green's function (a GFF bound) which among others implies localisation on transient graphs; monotonicity of said variance with respect to a natural temperature parameter; the fact that delocalisation of the height function implies a BKT phase transition in planar models; and also delocalisation itself for height functions on periodic "almost" planar graphs.

Joint work with Diederik van Engelenburg.

Tuesday | 02.05.2023 | 14:15

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