IST AUSTRIA
Institute of Science and Technology

Mathematics and CS Seminar

Entropic repulsion for the Gaussian free field conditioned on disconnection by level sets

Alberto Chiarini (ETH Zürich)

Host: Lazlo Erdös

We investigate level-set percolation of the discrete Gaussian free field on $\mathbb{Z}^d$, $d\geq 3$, in the strongly percolative regime. We consider the event that the level set of the Gaussian free field below a level α disconnects the discrete blow-up of a compact set $A\subseteq \mathbb{R}^d$ from the boundary of an enclosing box. We derive asymptotic large deviation upper bounds on the probability that the local averages of the Gaussian free field deviate from a specific multiple of the harmonic potential of A, when disconnection occurs. If certain critical levels coincide, which is plausible but open at the moment, these bounds imply that conditionally on disconnection, the Gaussian free field experiences an entropic push down proportional to the harmonic potential of the set A. In particular, due to the slow decay of correlations, the disconnection event affects the field on the whole lattice. (Joint work with M. Nitzschner)

Thursday, January 10, 2019 04:00pm - 06:00pm

IST Austria Campus Big Seminar room Ground floor / Office Bldg West (I21.EG.101)

This invitation is valid as a ticket for the IST Shuttle from and to Heiligenstadt Station. Please find a schedule of the IST Shuttle on our webpage: https://ist.ac.at/en/campus/how-to-get-here/ The IST Shuttle bus is marked IST Shuttle (#142) and has the Institute Logo printed on the side.