

WAHRSCHEINLICHKEITSTHEORIE

(§ 99 Abs.4 UG)

Freitag, den 09. Jänner 2026 – 11:00 Uhr

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Hörsaal
F

Forschungsvortrag und Diskussion:

“Phase transitions and scaling limits”

We witness many phase transitions in everyday life (eg. ice melting to water). The mathematical approach to these phenomena revolves around the percolation model: given a graph, call each vertex open with probability p independently of the others and look at the subgraph induced by open vertices. Benjamini and Schramm conjectured in 1996 that, at $p=1/2$, on any planar graph, either there is no infinite connected components or infinitely many.

My work with Harel and Zelesko proves a stronger version of this conjecture for all planar graphs. In particular, we show that every unimodular invariantly amenable planar graph has $p_c \geq 1/2$. We then use this to establish fractal macroscopic behaviour in the loop $O(n)$ model.