Vienna School of Mathematics

PhD Colloquium

Lorca Heeney-Brockett

The Ising model and percolation

Abstract: This talk will be about the Ising model, a model of magnetism whose behaviour has proved interesting enough to study for more than 100 years. We will introduce the phase transition of the two-dimensional model and see (with lots of simulations!) the behaviour at and around the critical point. My main goal is to highlight the special relationship between the Ising model and another model, the random-cluster model, and see how this allows questions of understanding the phase transition to be translated into problems of percolation theory. If there is time, we will then consider an 'infinitely zoomed-out' limit of the Ising model and see how the relationship with percolation extends to a link between the continuum model and certain random fractal geometries.

January 19, 2026, 15:30-17:00
TUForMath room DAEGH18,
Freihaus, TU Wien
(Wiedner Hauptstrasse 8-10)