Bern-Fribourg Graduate Seminar

a seminar for Master and PhD students

Thursday 3rd March, 2022: 17:15 - 18:00

Room 2.52, Perolles 08, Fribourg

Ulrik Hansen

University of Fribourg

A Taste of Percolation

Abstract

In this talk, we will give a short introduction to percolation theory, the types of questions it asks and its broader interest to mathematics and physics. The model is attained from a fixed graph by randomly and independently deleting some of its edges. Depending on the likelihood of retaining a given edge, the model exhibits vastly different macroscopic behaviour, making it an excellent toy model for the study of phase transitions in mathematical physics.

The main focus of the talk will be the case of the square lattice, where everything was exactly solved in the 80's by Kesten, Aizenman, Barsky and Menshikov, although some of the arguments have been adapted to have a more modern flavour.