

---

# BERN-FRIBOURG GRADUATE SEMINAR

a seminar for Master and PhD students

---

Thursday 28<sup>th</sup> November, 2024: 17:15 - 18:00

Room B5, Exakte Wissenschaften, Bern

MARAN MOHANARANGAN

University of Fribourg

## Rotational invariance of critical planar percolation

### **Abstract**

For more than 50 years, mathematicians have been searching for a rigorous way to prove that an unusually strong symmetry is universal across physical systems at the critical point where they transition from one state to another. This powerful symmetry, known as conformal invariance, is actually a package of three separate symmetries that are all wrapped up in it. In 2020, a group of five mathematicians (Duminil-Copin, Kozłowski, Krachun, Manolescu, Oulamara) achieved a breakthrough by rigorously proving that one of these symmetries, namely rotational invariance, is universal across a wide range of models. In this talk, we will explore their methods and highlight the key steps of their proof in the particular case of Bernoulli percolation on the square lattice.