universität innsbruck

Department of Mathematics

Inn'formal Probability Seminar

Lorca Heeney-Brockett (TU Wien)

"Sharpness for a class of spin models"

Abstract:

The class of one-component spin models with an even single-site potential is large and diverse. A particularly well understood example is the Ising model, which is now known to undergo a sharp second-order phase transition. This is expected to also be the case for many other (but not all!) shaped potentials. However, results have been so far limited to the Ising model and its direct relatives such as the ϕ^4 model, which belongs to the special but opaque Simon-Griffiths class. It is natural to ask to whether there are instead general methods that can explain such behaviour in a broader setting.

In this talk, I will present a proof of sharpness for a class of spin models whose potentials are 'double-welled', based on the celebrated argument of Duminil-Copin and Tassion. The main idea is to replace the use of the random current and its switching lemma with a new graphical representation, which is interesting in its own right. Joint work with Diederik van Engelenburg and Marcin Lis.

Tuesday | 28.04.2026 | 15.30
HS 11 | Architecture building