

**Asymptotic behaviour of random walks in random potentials:
a variational approach**

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Simple random walk on a multi-dimensional lattice is a classical and well-understood model in probability theory. In this talk, I will explore how the asymptotic behaviour of the walk is affected by introducing a random potential on the lattice. For this purpose, I will give a variational formula for the so-called free energy of the model, involving an infimum. This formula can be shown to always have minimizers. It turns out that the structure of these minimizers sheds light on the asymptotic behaviour of the walk. The talk will not assume any knowledge of probability beyond the undergraduate level.