Contribution ID: **13** Contribution code: **Papon-1** Type: **Scheduled Talks**

On the scaling limit of interfaces in the critical planar Ising model perturbed by a (random or not) magnetic field

Friday, May 23, 2025 11:00 AM (1 hour)

In this talk, I will present some recent results on the scaling limit of interfaces in the critical planar Ising model perturbed by a magnetic field. I will first consider the case when the field is a deterministic function. In this case, I will show that in the so-called near-critical regime and when the Ising model has Dobrushin boundary conditions, the interface separating $+1$ and -1 spins has a scaling limit whose law is conformally covariant and absolutely continuous with respect to SLE_3. Its limiting law is a massive version of SLE_3 in the sense of Makarov and Smirnov. I will also discuss the scaling limit of this interface when the magnetic perturbation is not near-critical. In the second part of the talk, I will look at the case when the magnetic field is given by a collection of iid centered Gaussian random variables, one for each vertex. In this setting, in the near-critical regime, I will show that almost surely in the disorder, the scaling limit of the quenched law of the ± 1 interface is absolutely continuous with respect to SLE_3. I will then show that this contrasts with the scaling limit of the quenched law of the collection of nested spin loops, which turns out to be almost surely singular with respect to nested CLE_3. This also contrasts with the deterministic case where it is known that in the near-critical regime, any subsequential limit of the collection of nested spin loops is absolutely continuous with respect to nested CLE_3.

Author: Ms PAPON, Léonie (Durham University)

Presenter: Ms PAPON, Léonie (Durham University)