

# Ising model, Glauber Dynamics and Random Tilings

*mercredi 1 juin 2022 09:30 (1 heure)*

In this talk, I will give a panorama of results for the zero-temperature Glauber dynamics of the 3-dimensional (classical) Ising model. It is well known that, with suitable Dobrushin-type boundary conditions, the Boltzmann-Gibbs distribution of a 3d Ising interface at zero temperature coincides with the uniform measure on rhombus tilings of a certain finite (but large) domain  $D$  of the plane. In the same situation, the Glauber dynamics can be seen as a Markov evolution on the set of tilings of  $D$ . The holy grail conjecture in this respect, suggested by an “anisotropic mean-curvature flow” heuristics for the interface motion, is that the mixing time of the (continuous-time) dynamics is of order  $L^{2+o(1)}$ , with  $L$  the diameter of the domain. I will present old and new results that prove this conjecture under the assumption that the asymptotic limit shape in  $D$  (that describes the non-random, typical shape of the Ising interface, for  $L \rightarrow \infty$ ) has no facets.

Based on joint works with B. Laslier, as well as on older works with P. Caputo and F. Martinelli

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