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Stellingen
Propositions belonging to the thesis
Dynamical Gibbs-non-Gibbs transitions
and
Brownian percolation
by Julián Martínez

1. A crucial property of a Gibbs measure in the mean-field setting is the fact that the distribution of a single spin conditional on its exterior only depends on the magnetization of the exterior. The same is true in the local-mean-field setting when the magnetization is replaced by the empirical density. The results in this thesis are expected to carry over to both of these settings in full generality. [see subsection 1.4.1.]

2. In mean-field and local-mean-field systems, dynamic Gibbs-non-Gibbs transitions are equivalent to bifurcations in the set of global minima of the large deviation rate function for the trajectories of the magnetization, respectively, the local magnetization conditional on their endpoint. The results in this thesis provide a proof for independent spin-flip dynamics. [see Theorems 2.1.6 and 3.1.6.]

3. Plots of the optimal trajectories seem to suggest that a ”nature versus nurture” classification of these trajectories must involve some notion of distance between the total rate function and the static/dynamic part of the rate function. [see Figure 2.12]

4. In order to prove percolation of the trace of a Poisson field of Brownian sausages in dimensions $d \geq 4$, a reduction to Boolean percolation in dimension $d - 1$ is helpful. [see Proof 5.5.2.]

5. If the distribution of the radius in Boolean percolation has a polynomial tail (of sufficiently large order) and the crossing probabilities are small enough, then we have absence of percolation. [see Remark 5.2.5.]

6. The two main subjects of this thesis may be fruitfully connected via a study of conservation of the Gibbssianness for continuum models.

7. If a group of people change their opinion independently, then there is a unique most likely way in which the group can go from one distribution of opinions to another (see Proposition 2.1.5).

8. Argentina is very far from The Netherlands. During my time in Leiden, I started to hesitate about the validity of the quasi-locality assumption of physical reality. (see the cover).

9. During the preparation for my PhD I learned that collaboration with people from other countries and cultures is as important as reading articles and books.