

Report on the ESF short term visit 552

Purpose of the visit: As proposed in my application, I spent two weeks (9 May- 22 May 2005) visiting the Max Planck Institute (MPI) in Leipzig, Germany. The purpose of the visit was to work with Prof. A. Bovier (WIAS, Berlin & TU-Berlin) and F. den Hollander and to attend the concentration period on metastability and aging held at the MPI. This concentration period has been organized by Prof. A. Bovier and S. Müller (MPI-Leipzig). During this period I followed courses and talks of various experts on metastability and aging and this gave me a picture of the actual status of this field nowadays.

Description of the work carried out during the visit: During my stay at MPI I worked with Prof. A. Bovier on the metastability problem described in my application. During this period, A. Bovier, F. den Hollander and myself focused on estimating the capacities related to the dynamics.

Description of the main results obtained: For the capacities, we found the correct upper bound by relying on known results about the Wulff droplet. The correct lower bound is more difficult to obtain. The discussions at Leipzig permitted to find an approach based on the FK-representation of the Ising model. This approach permit to reduce the initial problem to a situation where capacities of one dimensional paths are involved. We constructed an explicit algorithm that generates these paths. This approach seems to be promising and we hope it will permit us to obtain the adequate lower bound.

Future collaboration with host institution: No precise future collaboration with the MPI is planned at this point. But, the collaboration with A. Bovier and F. den Hollander is still ongoing and I hope to visit again Prof. A. Bovier at WIAS-Berlin in the near future.

Projected publications/articles resulting or to result from your grant: Although we hope to arrive at our final result in a reasonable amount of time, for the moment no specific publication is planned.

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