Eric Bertin (SPEC - Saclay):

Dynamical ultrametricity and localization in trap models

The trap model at its critical temperature is shown to present dynamical ultrametricity (in the sense of Cugliandolo and Kurchan), using the explicit large time behaviour of the correlation function. This approach allows to calcultate also finite time corrections to dynamical ultrametricity, which are found to decay only logarithmically with time. We discuss the consequences of these results for the multilevel trap model, as well as possible links with the behaviour of mean field models. On the other side, we study by numerical simulations a one dimensional generalization of the trap model, which exhibits non trivial localization properties in the dynamical regime.

Anton Bovier (WIAS - Berlin):

From statics to dynamics in simple spin glass models

One of the main dynamical features expected in the dynamics of spin glass models is slow relaxation to equilibrium that is commonly characterized as "aging". In this talk I will report on some recent progress in the rigorous analysis of these phenomena in some extremely simplified models of spin glasses. In particular I will give a full description of the static and dynamics properties of the random energy model and their connection.

Pierluigi Contucci (Matematica - Bologna):

A classification theorem for stochastically stable quenched measures

We will show how to classify a stochastically stable quenched measure in terms of the properties of the random overlap matrix.

Ton Coolen (King's College London):

Dynamics of minority games

The Minority Game (MG) is defined as a stochastic process (without detailed balance, but with quenched disorder) which describes decision-making by competing agents in a simple market. We show how generating functional techniques à la De Dominicis can be used to solve the dynamics of different versions of the MG (e.g. batch and on-line MG, including decision noise), in the infinite size limit. The result of our analysis is an exact macroscopic dynamical theory in the form of closed equations for correlation- and response functions defined via an effective continuous-time single-agent process, which are exact in both the ergodic and in the non-ergodic regime of the minority game. Our solution resolves most of the debates which have been raging in literature concerning the nature of the microscopic process and the validity or otherwise of several previously proposed approximations and/or assumptions.

Francesco Guerra (Roma 1):

Quadratic replica coupling in the Sherrington-Kirkpatrick mean field spin glass model

We propose to study properties of the model by coupling two replicas with a term proportional to the square of the deviation of the overlap with respect to its replica symmetric value. As a simple application, we get complete control of the thermodynamic variables, and their rescaled fluctuations, in the infinite volume limit, in the high temperature, or high external field, regime. We compare our results with the expected Almeida-Thouless transition to the spontaneous replica symmetry breaking Parisi regime. Our method is also compared with the recent proposal of Michel Talagrand to couple two replica with a term linear in the overlap.

Jorge Kurchan (ESPCI - Paris):

Replica versus dynamic methods in disordered systems

I will review the present level of achievements of replica and dynamic methods, with special attention on their comparison and on the respective perspectives for the future.

Michel Talagrand (CNRS Paris, and Ohio):

Gaussian averages, Bernoulli averages and Gibbs' measures