

ATELIER « SYSTÈMES DÉSORDONNÉS : VERRES DE SPIN »
8–13 JUIN 2009

WORKSHOP “DISORDERED SYSTEMS: SPIN GLASSES”
JUNE 8–13, 2009

Ultrametricity in spin glasses and related systems

FRANCESCO GUERRA

Dipartimento di Fisica
Università di Roma “La Sapienza”
Piazzale Aldo Moro 5
I-00185 Roma
ITALY

`francesco.guerra@roma1.infn.it`

We will review how the property of ultrametricity for the overlap distributions arises in spin glasses and related systems. We start from the treatment given by Mezard, Parisi and Virasoro, in the frame of the replica trick, and arrive to the recent important results of Panchenko and Talagrand. The property of stochastic stability, encoded in the Ghirlanda-Guerra identities, plays a central role. Its physical meaning will be explained. Possible extensions to other model, as neural networks, will be discussed.