## Mathematics and CS Seminar

# The free energy in the Sherrington-Kirkpatrick model

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The Sherrington-Kirkpatrick model (SK model) was introduced by Sherrington and Kirkpatrick in 1975 to describe spin glasses. Some years later, towards the end of the seventies, it was Giorgio Parisi to discover the right formula for the limit of the free energy in the SK model, which, since then, has gone under the name of Parisi Ansatz or Parisi Formula. Althought this formula was believed to be correct almost immediately, it took the mathematical and physical community thirty years of work (with contributions from Guerra, Aizenman, Ruelle and many others) before Talagrand finally managed to put together all the known theory to show, in 2006, the validity of the Parisi Ansatz. In this short talk we will introduce the model and give an overview of some results, with particular focus on the Guerra-Toninelli theorem, which (only in the early 2000s) rigorously proved the existence of the limit of the free energy.

**Tuesday, May 29, 2018 04:00pm - 06:00pm**
Big Seminar room Ground floor / Office Bldg West (I21.EG.101)

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