

SEMINARIO

CONJUNTO DE MODELAMIENTO ESTOCÁSTICO Y NÚCLEO MILENIO MESCD.

EXPOSITOR

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TÍTULO

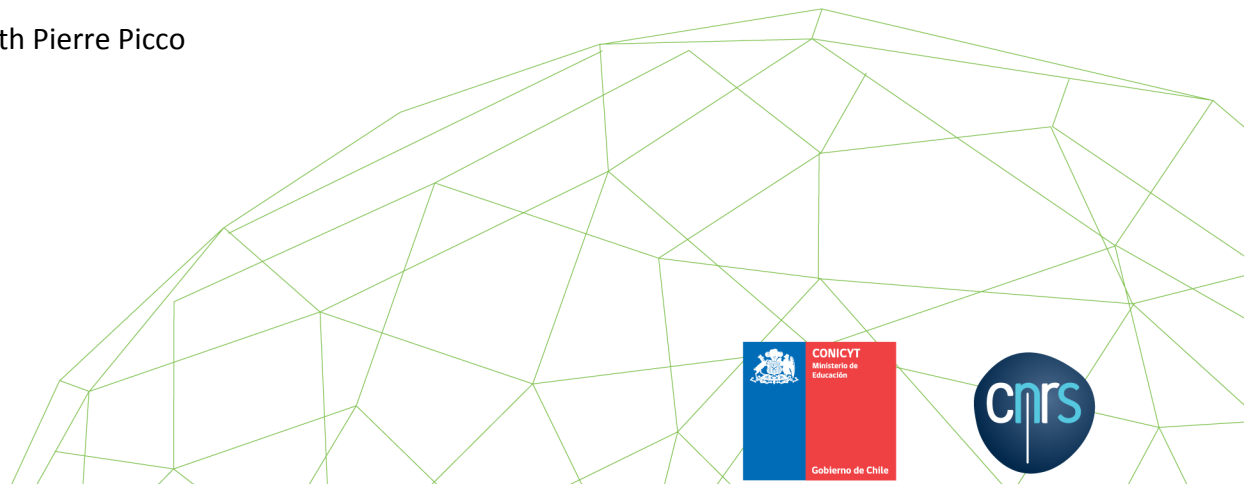
Phase Transitions on the Long Range Ising Models in presence of an random external field

Resumen:

We study the ferromagnetic one-dimensionasl Random Field Ising Model with (RFIM) in presence of an external random field. The interaction between two spins decays as $d^{\alpha-2}$ where d is the distance between two sites and $\alpha \in [0,1/2)$ is a parameter of the model. We consider an external random field on $\mathbb{Z}$ with independent but not identically distributed random variables. Specifically for each $i \in \mathbb{Z}$, the distribution of h_i is $P[h_i = \pm \theta(1+|i|)^{-\nu/2}]$.

This work, whose main goal is the study of the existence of a phase transition at a strictly positive temperature for different values of ν is inspired on the very recent article [2] where the 2D Ising Model with spatially dependent but not random external field is studied. In the random case, we combine some of the martingale difference techniques used in the previous articles of Cassandro, Picco and Orlandi [3], and the Aizenmann & Wehr method [3]. Some of the classical results, the key parts of this work and some of the technical difficulties will be discussed in this talk.

Joint work with Pierre Picco



References:

- [1] M. Aizenman and C. M. Newman. Discontinuity of the percolation density in one-dimensional $1/|x - y|$, 107(4):611–647, 1986.
- [2] Rodrigo Bissacot, Marzio Cassandro, Leandro Cioletti, and Errico Presutti. Phase transitions in ferromagnetic ising models with spatially dependent magnetic fields. Communications in Mathematical Physics, 337(1):41–53, 2015.
- [3] Marzio Cassandro, Enza Orlandi, and Pierre Picco. Phase transition in the 1d random field Ising model with long range interaction. Communications in Mathematical Physics, 288(2):731–744, 2009.

Fecha: Lunes 25 de Julio, 16:30 hrs.

Lugar: Centro de Modelamiento matemático, Universidad de Chile (Sala de Seminarios, 7° piso).

