

# Seminario

## Departamento de Física Teórica

### *“Markov Chain Monte Carlo and ergodicity”*

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#### Abstract:

Given a physical system (e.g., the antiferromagnetic  $q$ -state Potts model on some lattice on the torus), we usually invent some dynamics (e.g., the Wang--Swendsen--Kotecky algorithm) such that it will converge to the desired target probability distribution (e.g., the usual Gibbsian distribution) if some conditions are met. One of these conditions is the ergodicity of the algorithm (i.e., its ability to start from any point of the configuration space and reach any other point in a finite time). At zero temperature, the antiferromagnetic  $q$ -state Potts model does display some interesting physical phenomena, but the ergodicity of the Wang--Swendsen--Kotecky algorithm cannot be taken for granted. In this talk, we will describe how ergodicity holds or not depending on  $q$  and some properties of the lattice.

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