

Seminario Conjunto AGCO y Matemáticas Discretas

Speaker

Sergio Rica

**Facultad de Ingeniería y Ciencias and UAI Physics Center
Universidad Adolfo Ibáñez**

Title

Thermodynamics of small systems through a reversible and conservative discrete automaton.

Abstract: The focus of this talk will be the Q2R model which is a reversible and conservative cellular automaton. The Q2R model possesses quite a rich and complex dynamics. Indeed, the configuration space is composed of a huge number of cycles with exponentially long periods, that we attempt to characterize. Furthermore, a coarse-graining approach is applied to the time series of the total magnetization, leading to a master equation that governs the macroscopic irreversible dynamics of the Q2R automata. The methodology is replicated for various system sizes. In the case of small systems, we show that the master equation leads to a tractable probability transfer matrix of moderate size, which provides a consistent and tractable thermodynamic description. This work is in collaboration with Felipe Urbina and Marco Montalva.

Miércoles 14 de Junio a las 14:30 hrs, Sala 33 del Depto. de Industria, ubicado en Av. República 701.

