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Kuramoto model of synchronization: equilibrium and non equilibrium aspects.

Plan of the talks:

- Synchronization transition and the Kuramoto model of globally coupled oscillators
- The noisy Kuramoto model: linear stability analysis of the incoherent stationary state
- Generalized Kuramoto model with inertia
 - The model as a long-range interacting statistical mechanics system
 - Non equilibrium first-order synchronisation transition
 - Analysis in the continuum limit: the Kramers equation
- A long-range interacting stochastic system of particles with a non equilibrium stationary state
 - Formulation of the model and its statistical mechanics properties
 - Fluctuations: Jarzynski and Hatano-Sasa relations
- Dynamics of a lattice of oscillators interacting with a power-law coupling
 - Kuramoto model with a power-law coupling
 - The noisy Kuramoto: linear stability analysis of the incoherent state
 - Adding inertia
- Application: Electrical power distribution models.