Séminaire de physique statistique

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(voir dans annonce)

**The simplest of all nonequilibrium steady states:
Ornstein-Uhlenbeck processes**

Jean-Marc Luck

IPhT

The historical Ornstein-Uhlenbeck process is defined by the Langevin equation for the velocity of a Brownian particle. A multivariate Ornstein-Uhlenbeck process is a higher-dimensional extension of the latter. It describes the coupled linear relaxational dynamics of several degrees of freedom subjected to additive noises. Such a process is generically irreversible. The corresponding nonequilibrium stationary state can be analyzed by means of linear algebra. Its main characteristics, including probability current, entropy production rate, and fluctuation-dissipation ratio, can be expressed in terms of a single constant skew-symmetric matrix measuring the amount of irreversibility. These concepts are illustrated by explicit results on arrays of resistively coupled RL and RC electrical circuits in an inhomogeneous temperature profile.

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