

SEMPARIS – Séminaires en région parisienne

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Seminaires du LPTM , Universite de Cergy Pontoise

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LPTM, Distanciel TEAMS

Domaines : math-ph

Titre : *Large Deviations for Markov Trajectories in Random Media*

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Résumé : *For Markov processes converging towards non-equilibrium steady-states, the large deviations properties of a long trajectory will be discussed from two perspectives : (1) The large deviations at Level 2.5 characterize the joint distribution of the time-averaged density and of the time-averaged flows. The large deviations of any time-additive observable of the trajectory can be then derived from this Level 2.5 via contraction. The Level 2.5 is also useful to analyze the inference of Markov models from the trajectory data.*

(2) The Ruelle thermodynamic formalism for trajectories over the large time T can be rephrased as the large deviation theory for the Shannon information per unit time of the trajectories. The microcanonical analysis consists in evaluating the exponential growth in T of the number of trajectories with a given information, while the canonical analysis amounts to study the associated β -deformed dynamics in order to obtain the generating function of the cumulants of the information, the first cumulant being the famous Kolmogorov-Sinai entropy.

These general frameworks will be illustrated with simples examples of random walks in random media.
