Gallavotti–Cohen fluctuation relation in infinite dimension: some recent results and examples

Armen Shirikyan

University of Cergy–Pontoise, France
`Armen.Shirikyan@u-cergy.fr`

The talk is based on the joint works with V. Jakšić (University of McGill), V. Nersesyan (University of Versailles), and C.-A. Pillet (University of Toulon)

Session: 34. SPDE: stochastic analysis and dynamics

The Gallavotti-Cohen fluctuation relation is a general asymptotic result about probabilities of rare events under a given deterministic or stochastic dynamics. Roughly speaking, it says that, in a stationary regime, the probability of observing a negative value for the time average of the entropy production is exponentially small compared to that for the opposite value. Due to contributions of Kurchan, Lebowitz–Spohn, Maes and many others, the Gallavotti–Cohen fluctuation relation is rather well understood for many finite-dimensional stochastic systems. In this talk, I shall describe some recent results concerning the fluctuation relation in the inifnite-dimensional case and discuss some examples.

References

[1] V. Jakšić, V. Nersesyan, C.-A. Pillet, and A. Shirikyan, *Large deviations from a stationary measure for a class of dissipative PDE's with random kicks*, Preprint, arXiv:1212.0527, 2012.

[2] V. Jakšić, V. Nersesyan, C.-A. Pillet, and A. Shirikyan, *Large deviations and Gallavotti–Cohen principle for dissipative PDEs with rough noise*, Preprint, arXiv:1312.2964, 2013.