Ergodicity of Markov semigroups and application to singular SDEs on Hilbert spaces.

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17 août 2022

The common principle of proving convergence to equilibrium for a Markov dynamics is to show that the corresponding semigroup exhibits some regularity and some tightness properties, and in the first part of the talk we shall recall such strategies. Then, following [1] we shall explain that the problem of mere existence of an invariant distribution can be tackled from a purely measure theoretic perspective. More precisely, we shall characterize those finite measures m for which there exists a density ρ such that $\rho \cdot m$ is an invariant distribution for the given semigroup. The above mentioned characterization allows to prove ergodicity of a class of singular SDEs on Hilbert spaces, as those considered in [2].

Références

[1] L.Beznea, I. Cîmpean, M. Röckner, A new approach to the existence of invariant measures for Markovian semigroups, *Ann. Inst. H. Poincare Probab. Statist.*, **55**, Number 2, 977-1000 (2019). arXiv :1508.06863v3

[2] L.Beznea, I. Cîmpean, M. Röckner, A natural extension of Markov processes and applications to singular SDEs, *Ann. Inst. H. Poincare Probab. Statist.* **56**, No. 4, 2480-2506 (2020). arXiv :1904.01607v3