

Institute for Applied Mathematics, Bonn University

Oberseminar Stochastik

Thursday, 14 October 2021, 16:30

Online

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Exponential ergodicity for time-periodic McKean-Vlasov SDE

As extensions to the corresponding results derived for time homogeneous McKean-Vlasov SDEs, the exponential ergodicity is proved for time-periodic distribution dependent SDEs in three different situations:

1. in the quadratic Wasserstein distance and relative entropy for the dissipative case;
2. in the Wasserstein distance induced by a cost function for the partially dissipative case; and
3. in the weighted Wasserstein distance induced by a cost function and a Lyapunov function for the fully non-dissipative case.

The main results are illustrated by time inhomogeneous granular media equations, and are extended to reflecting McKean-Vlasov SDEs in a convex domain.