



Mathematics and CS Seminar

The Wasserstein space of stochastic processes

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Host: M. Beiglböck, N. Berestycki, L. Erdős, J. Maas, F. Toninelli

Wasserstein distance induces a natural Riemannian structure for the probabilities on the Euclidean space. This insight of classical transport theory is fundamental for tremendous applications in various fields of pure and applied mathematics. We believe that an appropriate probabilistic variant, the adapted Wasserstein distance AW , can play a similar role for the class FP of filtered processes, i.e. stochastic processes together with a filtration. In contrast to other topologies for stochastic processes, probabilistic operations such as the Doob-decomposition, optimal stopping and stochastic control are continuous w.r.t. AW . We also show that (FP, AW) is a geodesic space, isometric to a classical Wasserstein space, and that martingales form a closed geodesically convex subspace. (Joint work with Daniel Bartl and Gudmund Pammer)

Wednesday, April 27, 2022 03:00pm - 03:50pm

Heinzel Seminar Room (I21.EG.101), Office Building West



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