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On the (in)stability of the identity map in optimal transportation

In the optimal transport problem, it is well-known that the geometry of the target domain plays a crucial role in the regularity of the optimal transport. In the quadratic cost case, for instance, Caffarelli showed that having a convex target domain is essential in guaranteeing the optimal transport's continuity. In this talk, we shall explore how, quantitatively, important convexity is in producing continuous optimal transports.