

# PRESERVATION OF FUNCTIONAL INEQUALITIES UNDER LOG-LIPSCHITZ PERTURBATIONS

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Given a probability measure satisfying some functional inequalities (Poincaré, log-Sobolev, etc.), it is natural to wonder if these remain valid for a perturbation of the measure. In particular, if there exists a globally Lipschitz map pushing forward the source measure towards its perturbation, then it is easy to transport certain functional inequalities. For example, Caffarelli's contraction theorem states that the optimal transport map between the Gaussian measure and a log-concave perturbation is 1-Lipschitz.

In this talk I will show how such a map exists if we consider log-Lipschitz perturbations of a measure on a Riemannian manifold, via the interpolation given by the Langevin diffusion associated to the source measure (aka Kim-Milman's heat flow transport map), assuming as well control on the curvature of the manifold at first and second order in the sense of Bakry-Émery-Ricci.