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Regularity of optimal transportation maps on nearly spherical manifolds

Given a couple of smooth positive measures of same total mass on a compact Riemannian manifold M, we look for a smooth optimal transportation map G, pushing one measure to the other at a least total squared distance cost. The recent local C^2 estimate of Ma–Trudinger–Wang enabled G. Loeper to treat the standard sphere case. In this talk, we discuss this topic on manifolds with curvature sufficiently close to 1 in C^2 norm.

This is a joint work with P. Delanoe.