

Paul Pegon: Asymptotics for optimal quantization in branched optimal transport

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The problem of optimal quantization of measures consists in finding the best approximation of a given measure by an atomic measure with a fixed number of atoms, usually expressed through Wasserstein distances. One can formulate the same problem considering instead the irrigation distances of branched optimal transport, where the transport cost behaves as a concave power of the mass and depends on all the trajectories of the particles. We study the asymptotic behaviour of optimal quantizers for absolutely continuous measures as the number of atoms grows to infinity. We compute the limit distribution of the corresponding point clouds and show in particular a branched transport version of Zador's theorem. Moreover, we establish the asymptotic quasi-uniformity of optimal quantizers in terms of separation distance and covering radius of the atoms, when the measure is uniform. This is a joint work with Mircea Petrache.