

A GRADIENT FLOW APPROACH TO QUANTIZATION OF MEASURES

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The problem of quantization of a d -dimension probability distribution by discrete probabilities with a given number of points can be stated as follows: given a probability density ρ , approximate it in the Wasserstein metric by a convex combination of a finite number N of Dirac masses. In a recent paper in collaboration with E. Caglioti and F. Golse we studied a gradient flow approach to this problem in one dimension. By embedding the problem in L^2 , we find a continuous version of it that corresponds to the limit as the number of particles tends to infinity. Under some suitable regularity assumptions on the density, we prove uniform stability and quantitative convergence result for the discrete and continuous dynamics.