
CHUANG XU, University of Alberta

Best finite constrained approximations of one-dimensional probabilities

This paper studies best finitely supported approximations of one-dimensional probability measures with respect to the L^r -Kantorovich (or transport) distance, where either the locations or the weights of the approximations' atoms are prescribed. Necessary and sufficient optimality conditions are established, and the rate of convergence (as the number of atoms goes to infinity) is discussed. Special attention is given to the case of best uniform approximations (i.e., all atoms having equal weight). The elementary approach is based on best approximations of (monotone) L^r -functions by step functions, which is different from, and naturally complementary to, the classical Voronoi partition approach. This is a joint work with Dr. Arno Berger.