

Simone Di Marino: The shape of Kantorovich potentials: on the existence of minimizers for the Lieb-Oxford inequality

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We explain the connection between the classical Lieb-Oxford inequality and multimarginal optimal transport with repulsive cost. We can see that the first order condition is linked with the Kantorovich potential, and we show, through a detailed analysis of the shape of the potentials, that if a minimizer exists, then it should be compactly supported, extending the case $N=1$ which was already settled by Lieb and Oxford in their original contribution.

This is a work in preparation with R. Lelotte (U. Paris-Dauphine)