
SEDI BARTZ, University of Massachusetts Lowell

Open questions in multi-marginal monotonicity and convex analysis

In the two-marginal case, aspects of monotonicity and convex analysis underline optimal transport theory. Similarly to the two-marginal case, multi-marginal monotonicity and convex analysis underline multi-marginal optimal transport theory yet can be studied as an independent topic. We discuss basic extensions of the classical theory and point out several open questions regarding the construction of multi-marginal convex antiderivatives, a multi-marginal Minty type characterization of maximal monotonicity and a multi-marginal extension of the maximal monotonicity of the convex subdifferential. We illustrate our discussion by several examples.