

On the apparent non-convexity of several generalizations of optimal transport

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The optimal transport problem benefits from several convex formulations which make it well suited to mathematical analysis. Nevertheless, several interesting generalizations (with applications in particular to Einstein's and Schroedinger's equations) involving complex-valued vector or matrix density fields apparently lose this convex character which makes their analysis much more problematic. We will present some situations where relaxed or convexified formulations can be provided.

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