Duality in $\mathcal{W}_\infty$ optimal transport and a property of absolute minimizers

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The ∞-Wasserstein distance is different from the p-Wasserstein distances since the associated optimal transport problem is neither linear or convex with respect to the transport plan. The problem is, however, quasi-convex (level-convex), so that a few years ago Barron, Bocea and Jensen introduced a dual problem.

I will present an existence theorem for dual maximizer and an interesting additional minimality property of the aboslute minimizers which can be proved using the dual maximizers. I will then introduce the same minimality property for more general problems and I will show that this property is satisfied by ∞-harmonic functions. (From a joint work win J. Louet and a work in progress with C. Brizzi).

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