

Integral criteria for transportation cost inequalities

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Abstract

Abstract. In this paper, we provide a characterization of a large class of transportation-cost inequalities in terms of exponential integrability of the cost function under the reference probability measure. Our results completely extend the previous works by Djellout, Guillin and Wu [cite{DGW03}](#) and Bolley and Villani [cite{BV03}](#).

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Bibliography

1. S. G. Bobkov, I. Gentil, and M. Ledoux. Hypercontractivity of Hamilton-Jacobi equations. *Journal de Mathématiques Pures et Appliquées* 80(7) (2001), 669-696. [Math. Review MR1846020 \(2003b:47073\)](#)
2. F. Bolley, A. Guillin, and C. Villani. Quantitative concentration inequalities for empirical measures on non-compact spaces. *To appear in Prob. Th. Rel. Fields.* (2005). Math. Review number not available.
3. F. Bolley and C. Villani. Weighted Csiszar-Kullback-Pinsker inequalities and applications to transportation inequalities. *Annales de la Faculté des Sciences de Toulouse* 14 (2005), 331-352. [Math. Review MR2172583](#)
4. V. V. Buldygin and Yu.V. Kozachenko. *Metric characterization of random variables and random processes*. Translations of Mathematical Monographs, 188. American Mathematical Society [Math. Review MR1743716 \(2001g:60089\)](#)
5. P. Cattiaux and N. Gozlan. Deviations bounds and conditional principles for thin sets. *To appear in Stoch. Proc. Appl.* (2005). Math. Review number not available.
6. P. Cattiaux and A. Guillin. Talagrand's like quadratic transportation cost inequalities. *Preprint.* (2004). Math. Review number not available.
7. A. Dembo and O. Zeitouni. *Large deviations techniques and applications*. Second edition. Applications of Mathematics 38. Springer Verlag (1998). [Math. Review MR1619036 \(99d:60030\)](#)
8. H. Djellout, A. Guillin and L. Wu. Transportation cost-information inequalities for random dynamical systems and diffusions. *Annals of Probability*, 32(3B) (2004), 2702–2732. [Math. Review MR2078555 \(2005i:60031\)](#)
9. I. Gentil, A. Guillin and L. Miclo. Modified logarithmic Sobolev inequalities and transportation inequalities. *Probab. Theory Related Fields* 133 (3) (2005), 409-436. [Math. Review MR2198019](#)
10. N. Gozlan. Conditional principles for random weighted measures. *ESAIM Probab. Stat.* 9 (2005), 283-306 (electronic). [Math. Review MR2174872](#)
11. N. Gozlan. Principe conditionnel de Gibbs pour des contraintes fines approchées et inégalités de transport. PhD Thesis, Université Paris 10-Nanterre, (2005). Math. Review number not available.
12. N. Gozlan and C. Léonard. A large deviation approach to some transportation cost inequalities. *Preprint.* (2005). Math. Review number not available.
13. Yu. V. Kozachenko and E. I. Ostrovskii. Banach spaces of random variables of sub-Gaussian type. (Russian) *Theor. Probability and Math. Statist.* 3 (1986), 45-56. [Math. Review MR0882158 \(88e:60009\)](#)
14. K. Marton. A simple proof of the blowing-up lemma. *IEEE Trans. Inform. Theory.* 32(3) (1986), 445-446. [Math. Review MR0838213 \(87e:94018\)](#)
15. K. Marton. Bounding \overline{d} -distance by informational divergence: a method to prove measure concentration. *Ann. Probab.* 24(2) (1996), 857-866. [Math. Review MR1404531 \(97f:60064\)](#)

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16. F. Otto and C. Villani. Generalization of an inequality by Talagrand and links with the logarithmic Sobolev inequality. *J. Funct. Anal.* 173(2) (2000), 361-400. [Math. Review MR1760620 \(2001k:58076\)](#)
17. Talagrand, M. Transportation cost for Gaussian and other product measures. *Geom. Funct. Anal.* 6(3) (1996), 587-600. [Math. Review MR1392331 \(97d:60029\)](#)
18. C. Villani. *Topics in optimal transportation*. Graduate Studies in Mathematics, 58. American Mathematical Society, [Math. Review MR1964483 \(2004e:90003\)](#)



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