**Sagiv, Amir; Steinerberger, Stefan**

Transport and interface: an uncertainty principle for the Wasserstein distance. (English)

Zbl 1442.28005

SIAM J. Math. Anal. 52, No. 3, 3039-3051 (2020).

**MSC:**

28A75 Length, area, volume, other geometric measure theory

34B24 Sturm-Liouville theory

**Keywords:**

Wasserstein; uncertainty principle; nodal set; Sturm-Liouville theory

**Full Text:** DOI arXiv

**References:**

[1] L. Ambrosio, N. Fusco, and D. Pallara, Functions of Bounded Variation and Free Discontinuity Problems, Oxford University Press, Oxford, UK, 2000. - Zbl 0957.49001

[2] P. Bérard and B. Helffer, Sturm’s theorem on zeros of linear combinations of eigenfunctions, Expo. Math., 38 (2020), pp. 27-50. - Zbl 1443.34004

[3] P. Bérard and B. Helffer, Sturm’s Theorem on the Zeros of Sums of Eigenfunctions: Gelfand’s Strategy Implemented, arXiv:1807.03990, 2018. - Zbl 1472.34004

[4] D. Bilyk, F. Dai, and S. Steinerberger, General and refined Montgomery lemmata, Math. Ann., 373 (2019), pp. 1283-1297. - Zbl 1449.42005

[5] A. Bondarenko, D. Radchenko, and M. Viazovska, Optimal asymptotic bounds for spherical designs, Ann. of Math., 178 (2013), pp. 443-452. - Zbl 1270.05026

[6] A. Bondarenko, D. Radchenko, and M. Viazovska, Well separated spherical designs, Constr. Approx., 41 (2015), pp. 93-112. - Zbl 1314.52020

[7] R. Dobrusin, Definition of a system of random variables by means of conditional distributions, Teor. Veroyatnost. Primenen., 15 (1970), pp. 469-497.

[8] B. Gariboldi and G. Gigante, Optimal Asymptotic Bounds for Designs on Manifolds, arXiv:1811.12676, 2018.

[9] A. Hurwitz, Über die Fourierschen konstanten integrierbarer funktionen, Math. Ann. 57 (1903), pp. 425-446. - Zbl 34.0414.01

[10] P. L. Lions and F. Pacella, Isoperimetric inequalities for convex cones, Proc. Amer. Math. Soc., 109 (1990), pp. 477-485. - Zbl 0717.52008

[11] J. Liouville, Mémoire sur le développement de fonctions ou parties de fonctions en séries dont les divers termes sont assujétis à satisfaire à une même équation différentielle du second ordre, contenant un paramètre variable, J. Math. Pures Appl., 1 (1836), pp. 253-265.

[12] F. Morgan, The Levy-Gromov isoperimetric inequality in convex manifolds with boundary, J. Geom. Anal., 18 (2008), pp. 1053-1057. - Zbl 1149.53021

[13] M. Ritore and E. Vernadakis, Isoperimetric Inequalities in Euclidean convex bodies, Trans. Amer. Math. Soc., 367 (2015), pp. 493-5014. - Zbl 1316.49052

[14] S. Steinerberger, Oscillatory functions vanish on a large set, Asian J. Math., to appear.

[15] S. Steinerberger, Wasserstein Distance, Fourier Series and Applications, arXiv:1803.08011, 2018.

[16] S. Steinerberger, Generalized designs on graphs: Sampling, spectra, symmetries, J. Graph Theory, 93 (2020), pp. 253-267. - Zbl 1455.05178

[17] S. Steinerberger, A Metric Sturm-Liouville theory in two dimensions, Calc. Var. Partial Differential Equations, 59 (2020), 12. - Zbl 1431.28004

[18] S. Steinerberger, Quantitative projections in the Sturm oscillation theorem, J. Math. Pure Appl., to appear.

[19] C. Sturm, Mémoire sur les équations différentielles linéaires du second ordre, J. Math. Pures Appl., 1 (1836), pp. 106-186.

[20] C. Sturm, Mémoire sur une classe d’équations à différences partielles, J. Math. Pures Appl., 1 (1836), pp. 373-444.

[21] L. N. Vasershtein, Markov processes on a countable product space, describing large systems of automata, Problemy Peredachi Informatsii, 5 (1969), pp. 64-73.

[22] C. Villani, Topics in Optimal Transportation, Grad. Stud. Math. 58, AMS, Providence, RI, 2003. - Zbl 1106.90004
This reference list is based on information provided by the publisher or from digital mathematics libraries. Its items are heuristically matched to zbMATH identifiers and may contain data conversion errors. It attempts to reflect the references listed in the original paper as accurately as possible without claiming the completeness or perfect precision of the matching.