

1. Record Nr.	UNINA9910958126703321
Autore	Barthe Franck
Titolo	Positive Gaussian Kernels Also Have Gaussian Minimizers
Pubbl/distr/stampa	Providence : , : American Mathematical Society, , 2022 ©2022
ISBN	9781470470258 147047025X
Edizione	[1st ed.]
Descrizione fisica	1 online resource (102 pages)
Collana	Memoirs of the American Mathematical Society ; ; v.276
Classificazione	26D1547G10
Altri autori (Persone)	WolffPawe
Disciplina	519.2/3 519.23
Soggetti	Gaussian processes Kernel functions Inequalities (Mathematics) Integral operators Real functions -- Inequalities -- Inequalities for sums, series and integrals Operator theory -- Integral, integro-differential, and pseudodifferential operators -- Integral operators
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	Cover -- Title page -- Chapter 1. Introduction -- 1.1. Background and motivation -- 1.2. Notation and main results -- 1.3. Acknowledgments -- Chapter 2. Well-posedness of the Minimization Problem and the Minimum Value -- 2.1. A non-degeneracy condition -- 2.2. Calculations for centered Gaussian functions -- 2.3. Ensuring finiteness for some functions -- 2.4. On the effect of translating Gaussian functions and consequences of positivity -- 2.5. Case analysis and non-degeneracy hypotheses -- Chapter 3. Proof of the Main Theorem -- 3.1. Decomposition of the kernel -- 3.2. More on quadratic forms -- 3.3. Preliminaries and general strategy of the proof -- 3.4. Optimal transport map -- 3.5. Classes of test functions -- 3.6. Transportation argument -- 3.7. Surjectivity of the change of variable map -- 3.8. Approximation argument -- Chapter 4. Geometric Brascamp-Lieb Inequality -- 4.1. Finding the infimum on centered Gaussian functions

-- 4.2. Geometric version of Inverse Brascamp-Lieb inequalities -- 4.3. Relation with the results of Chen, Dafnis and Paouris -- Chapter 5. Dual Form of Inverse Brascamp-Lieb Inequalities -- Chapter 6. Interpolation -- Chapter 7. Positivity in the Rank One Case -- 7.1. No kernel -- 7.2. With a kernel -- Chapter 8. Positivity Condition in the General Case -- 8.1. Recursive structure of the problem -- 8.2. Formulation of the characterization result -- 8.3. Useful notation for the proof -- 8.4. Necessity of Condition (C) -- 8.5. Sufficiency of Condition (C) -- Bibliography -- Back Cover.

Sommario/riassunto

"We study lower bounds on multilinear operators with Gaussian kernels acting on Lebesgue spaces, with exponents below one. We put forward natural conditions when the optimal constant can be computed by inspecting centered Gaussian functions only, and we give necessary and sufficient conditions for this constant to be positive. Our work provides a counterpart to Lieb's results on maximizers of multilinear operators with real Gaussian kernels, also known as the multidimensional Brascamp-Lieb inequality. It unifies and extends several inverse inequalities"--
