

1. Record Nr.	UNINA9910966324603321
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Titolo	Local L^p -Brunn-Minkowski inequalities for $p < 1$ // Alexander V. Kolesnikov, Emanuel Milman
Pubbl/distr/stampa	Providence : , : American Mathematical Society, , 2022 ©2022
ISBN	9781470470920 1470470926
Edizione	[1st ed.]
Descrizione fisica	1 online resource (90 pages)
Collana	Memoirs of the American Mathematical Society ; ; v.277
Classificazione	52A4052A2335P1558J50
Altri autori (Persone)	MilmanEmanuel
Disciplina	516/.08 516.08
Soggetti	Convex domains L^p spaces Minkowski geometry Inequalities (Mathematics) Convex and discrete geometry -- General convexity -- Inequalities and extremum problems Convex and discrete geometry -- General convexity -- Asymptotic theory of convex bodies Partial differential equations -- Spectral theory and eigenvalue problems -- Estimation of eigenvalues, upper and lower bounds Global analysis, analysis on manifolds -- Partial differential equations on manifolds; differential operators -- Spectral problems; spectral geometry; scattering theory
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	Cover -- Title page -- Chapter 1. Introduction -- 1.1. Previously Known Partial Results -- 1.2. Main Results -- 1.3. Spectral Interpretation via the Hilbert-Brunn-Minkowski operator -- 1.4. Method of Proof -- 1.5. Applications -- Chapter 2. Notation -- Chapter 3. Global vs. Local Formulations of the \wedge -Brunn-Minkowski Conjecture -- 3.1. Standard Equivalent Global Formulations -- 3.2. Global vs. Local \wedge -Brunn-Minkowski -- Chapter 4. Local \wedge -Brunn-Minkowski Conjecture -Infinitesimal Formulation -- 4.1. Mixed Surface

Area and Volume of 2 functions -- 4.2. Properties of Mixed Surface Area and Volume -- 4.3. Second $^{\wedge}\{ \}$ -Minkowski Inequality -- 4.4. Comparison with classical =1 case -- 4.5. Infinitesimal Formulation On 1 -- 4.6. Infinitesimal Formulation On -- Chapter 5. Relation to Hilbert-Brunn-Minkowski Operator and Linear Equivariance -- 5.1. Hilbert-Brunn-Minkowski operator -- 5.2. Linear equivariance of the Hilbert-Brunn-Minkowski operator -- 5.3. Spectral Minimization Problem and Potential Extremizers -- Chapter 6. Obtaining Estimates via the Reilly Formula -- 6.1. A sufficient condition for confirming the local -BM inequality -- 6.2. General Estimate on $\mathcal{D}()$ -- 6.3. Examples -- Chapter 7. The second Steklov operator and $\mathcal{B}()$ -- 7.1. Second Steklov operator -- 7.2. Computing $\mathcal{B}()$ -- Chapter 8. Unconditional Convex Bodies and the Cube -- 8.1. Unconditional Convex Bodies -- 8.2. The Cube -- Chapter 9. Local log-Brunn-Minkowski via the Reilly Formula -- 9.1. Sufficient condition for verifying local log-Brunn-Minkowski -- 9.2. An alternative derivation via estimating $\mathcal{B}()$ -- Chapter 10. Continuity of \mathcal{B} , \mathcal{BNH} , \mathcal{D} with application to $_{\wedge}\{ \}$ -- 10.1. Continuity of \mathcal{B} , \mathcal{BNH} , \mathcal{D} in \wedge -topology -- 10.2. The Cube -- 10.3. Unit-balls of $_{\wedge}\{ \}$ -- Chapter 11. Local Uniqueness for Even $^{\wedge}\{ \}$ -Minkowski Problem. Chapter 12. Stability Estimates for Brunn-Minkowski and Isoperimetric Inequalities -- 12.1. New stability estimates for origin-symmetric convex bodies with respect to variance -- 12.2. Improved stability estimates for all convex bodies with respect to asymmetry -- Bibliography -- Back Cover.

Sommario/riassunto

"The L_p -Brunn-Minkowski theory for $p < 1$, proposed by Firey and developed by Lutwak in the 90's, replaces the Minkowski addition of convex sets by its L_p counterpart, in which the support functions are added in L_p -norm. Recently, Boroczky, Lutwak, Yang and Zhang have proposed to extend this theory further to encompass the range. In particular, they conjectured an L_p -Brunn-Minkowski inequality for origin-symmetric convex bodies in that range, which constitutes a strengthening of the classical Brunn-Minkowski inequality. Our main result confirms this conjecture locally for all (smooth) origin-symmetric convex bodies in R^n and. In addition, we confirm the local log-Brunn-Minkowski conjecture (the case $p = 1$) for small-enough C^2 -perturbations of the unit-ball of R^n for $n \geq 2$, when the dimension n is sufficiently large, as well as for the cube, which we show is the conjectural extremal case. For unit-balls of R^n with $n \geq 2$, we confirm an analogous result for $p = 1$, a universal constant. It turns out that the local version of these conjectures is equivalent to a minimization problem for a spectral-gap parameter associated with a certain differential operator, introduced by Hilbert (under different normalization) in his proof of the Brunn-Minkowski inequality. As applications, we obtain local uniqueness results in the even L_p -Minkowski problem, as well as improved stability estimates in the Brunn-Minkowski and anisotropic isoperimetric inequalities"--