

L_p -MIXED INTERSECTION BODIES

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Abstract. This paper presents the concept of L_p -mixed intersection body, and study the monotonicity of the operator $I_{p,i}$ for L_p -mixed intersection body. Meanwhile, we establish Busemann-type inequalities and the dual Brunn-Minkowski type inequalities for L_p -mixed intersection body.

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REFERENCES

- [1] T. BONNESEN, W. FENCHEL, *Theory of convex bodies*, BCS Associates, Moscow, ID, 1987, German original: Springer, Berlin, 1934.
- [2] H. BUSEMANN, *Volume in terms of concurrent cross-section*, Pacific J. Math. 1953, 3: 1–12.
- [3] R. J. GARDNER, *Geometric Tomography*, Cambridge: Cambridge Univ. Press, 1995.
- [4] S. HELGASON, *The Radon transform*, Second edition, Progress in Mathematics, Vol. 5, Birkhäuser, Boston, 1999.
- [5] G. H. HARDY, J. E. LITTLEWOOD AND G. PÒLYA, *Inequalities*, Cambridge: Cambridge Univ. Press, 1959.
- [6] E. LUTWAK, *Intersection bodies and dual mixed volumes*, Adv. Math. 1988, 71: 232–261.
- [7] E. LUTWAK, D. YANG AND G. Y. ZHANG, *L_p affine isoperimetric inequalities*, J. Differential Geom. 2000, 56: 111–132.
- [8] E. LUTWAK, *The Brunn-Minkowski-Firey theory I: mixed volumes and the Minkowski problem*, J. Differential Geom., 1993, 38: 131–150.
- [9] E. LUTWAK, *Dual mixed volumes*, Pacific J. Math., 1975, 58: 531–538.
- [10] E. LUTWAK, *Centroid bodies and dual mixed volumes*, Proc. London Math. Soc., 1990, 60: 365–391.
- [11] E. LUTWAK, *Inequalities for Hadwiger's harmonic Quermassintegrals*, Math. Ann., 1988, 280: 165–175.
- [12] T. Y. MA, *On L_p -mixed centroid bodies and dual L_p -mixed centroid bodies*, Acta Mathematica Sinica, Chinese Series, 2010, 53 (2): 302–314.
- [13] R. SCHNEIDER, *Convex Bodies: The Brunn-Minkowski Theory*, Cambridge: Cambridge Univ. Press, 1993.
- [14] W. D. WANG AND G. S. LENG, *Dual mixed guermassintegrals*, Indian J. Pure Appl. Math, 2005, 36 (4): 177–188.
- [15] J. YUAN, L. Z. ZHAO AND G. S. LENG, *Inequalities for L_p -centroid body*, Taiwan. J. Math. 2008, 29 (2): 209–220.
- [16] W. Y. YU, D. H. WU, G. S. LENG, *Qusai L_p -Intersection bodies*, Acta Mathematica Sinica, English Series, 2007, 23 (11): 1937–1948.
- [17] G. Y. ZHANG, *Centered bodies and dual mixed volumes*, Tran. Amer. Math. 1994, 345: 777–801.