ON MIXED COMPLEX INTERSECTION BODIES

WEI WANG, RIGAO HE AND JUN YUAN

Abstract. Complex intersection bodies were introduced by Koldobsky, Paouris and Zymonopoulou. In this paper some geometric inequalities for mixed complex intersection bodies which are dual forms of inequalities for mixed complex projection bodies are established.

Mathematics subject classification (2010): 52A40, 52A20.
Keywords and phrases: Complex intersection body, dual mixed volume, star body.

REFERENCES

[1] J. ABARDIA AND A. BERNIG, *Projection bodies in complex vector spaces*, Adv. Math., **211** (2011), 830–846.

[2] S. CAMPI, *Convex intersection bodies in three and four dimensions*, Mathematika, **46** (1999), 15-27.

[3] R. J. GARDNER, *On the Busemann-Petty problem concerning central sections of centrally symmetric convex bodies*, Bull. Amer. Math. Soc., **30** (1994), 222–226.

[4] R. J. GARDNER, *Intersection bodies and the Busemann-Petty problem*, Trans. Amer. Math. Soc., **342** (1994), 435–445.

[5] R. J. GARDNER, *A positive answer to the Busemann-Petty problem in three dimensions*, Ann. Math., **140** (1994), 435–447.

[6] R. J. GARDNER, *Geometric Tomography*, second ed., Cambridge University Press, New York, 2006.

[7] R. J. GARDNER, A. KOLDOBSKY AND T. SCHLUMPRECHT, *An analytic solution to the Busemann-Petty problem on sections of convex bodies*, Ann. Math., **149** (1999), 691–703.

[8] P. GOODEY AND W. WEIL, *Intersection bodies and ellipsoids*, Mathematika, **42** (1995), 295–304.

[9] E. GRINBERG AND G. ZHANG, *Convolutions, transforms, and convex bodies*, Proc. Lond. Math. Soc., **78** (1999), 77–115.

[10] G. H. HARDY, J. E. LITTLEWOOD AND G. PÓLYA, *Inequalities*, second ed., Cambridge University Press, Cambridge, 1988.

[11] A. KOLDOBSKY, *Intersection bodies in* $\mathbb{R}^4$, Adv. Math., **136** (1998), 1–14.

[12] A. KOLDOBSKY, *Intersection bodies, positive definite distributions, and the Busemann-Petty problem*, Amer. J. Math., **120** (1998), 827–840.

[13] A. KOLDOBSKY, *A functional analytic approach to intersection bodies*, Geom. Funct. Anal., **10** (2000), 1507–1526.

[14] A. KOLDOBSKY, *Fourier Analysis in Convex Geometry*, American Mathematical Society Press, Providence, 2005.

[15] A. KOLDOBSKY, G. PAOURIS AND M. ZYMONOPOULOU, *Complex Intersection Bodies*, J. London Math. Soc., **88** (2013), 538–562.

[16] M. LUDWIG, *Intersection bodies and valuations*, Amer. J. Math., **128** (2006), no. 6, 1409–1428.

[17] E. LUTWAK, *Dual mixed volumes*, Pac. J. Math., **58** (1975), 531–538.

[18] E. LUTWAK, *On some affine isoperimetric inequalities*, J. Differential Geom., **23** (1986), 1–13.

[19] E. LUTWAK, *Volume of mixed bodies*, Trans. Amer. Math. Soc., **294** (1986), 487–500.

[20] E. LUTWAK, *Intersection bodies and dual mixed volumes*, Adv. Math., **71** (1988), 232–261.

[21] E. LUTWAK, *Inequalities for mixed projecton bodies*, Trans. Amer. Math. Soc., **339** (1993), 901–916.

[22] M. MOSZYŃSKA, *Quotient star bodies, intersection bodies, and star duality*, J. Math. Anal. Appl., **232** (1999), 45–60.

[23] F. E. SCHUSTER, *Volume inequalities and additive maps of convex bodies*, Mathematika, **53** (2006), no. 2, 211–234.

[24] G. ZHANG, *Intersection bodies and the Busemann-Petty inequalities in* $\mathbb{R}^4$, Ann. Math., **140** (1994), 331–346.

[25] G. ZHANG, *A positive solution to the Busemann-Petty problem in* $\mathbb{R}^4$, Ann. Math., **149** (1999), 535–543.

[26] C. J. ZHAO, *On intersection and mixed intersection bodies*, Geom. Dedicata, **144** (2009), 109–122.

Mathematical Inequalities & Applications
www.ele-math.com
mia@ele-math.com