

Contents

Introduction	i
1 Convexity in Vector Spaces	1
1.1 Introduction	1
1.2 Functionals and Hyperplanes	3
1.3 Convex Sets in Vector Spaces	5
1.3.1 Convex Sets	5
1.3.2 Convex Hulls	6
1.3.3 Convex Cones	8
1.3.4 Convex Polytopes	11
1.4 Linear Transformations and Convexity	12
1.5 Euclidean Notions	14
1.6 Chapter Summary	14
2 Zonohedra	17
2.1 Introduction	17
2.2 The Minkowski Sum	18
2.2.1 Definition and Properties	18
2.2.2 Some Two-Dimensional Examples	20
2.3 Zonohedra	22
2.3.1 Definitions	23
2.4 Construction of Zonogons	25
2.5 Vectors in General Position	28
2.6 Construction of Zonohedra	29
2.6.1 An Example	29
2.6.2 Zonohedral Generators in General Position	32
2.6.3 Zones	34
2.7 Zonohedra as Convex Polytopes	37
2.8 Coefficient Sequences for Zonohedra	39