

Contents

Preface	vii
Introduction	ix
Notation	xiii
1 Basic notions	1
1 Preliminaries	1
2 Small submodules and the radical	11
3 Cosmall inclusions and coclosed submodules	20
4 Projectivity conditions	26
5 Hollow dimension of modules	47
2 Preradicals and torsion theories	55
6 Preradicals and colocalisation	55
7 Torsion theories	70
8 Torsion theories related to small modules	74
9 Corational modules	84
10 Proper classes and τ -supplements	94
3 Decompositions of modules	103
11 The exchange property	103
12 LE-modules and local semi-T-nilpotency	124
13 Local direct summands	142
14 The total and LE-decompositions	162
15 Stable range 1 and cancellation	180
16 Decomposition uniqueness and biuniformity	194
4 Supplements in modules	207
17 Semilocal and weakly supplemented modules	207
18 Weak supplements and hollow dimension	218
19 Semilocal endomorphism rings	227
20 Supplemented modules	233
21 Submodules with unique coclosure	257

5	From lifting to perfect modules	265
22	Lifting modules	265
23	Finite direct sums of lifting modules	277
24	The lifting property for infinite sums	289
25	Σ -lifting modules	296
26	Semi-discrete and quasi-discrete modules	307
27	Discrete and perfect modules	317
28	Injective modules lifting in $\sigma[\mathcal{M}]$	331
29	Extending modules lifting in $\sigma[\mathcal{M}]$	347
	Appendix	359
30	Hall's Marriage Theorem	359
31	König's Graph Theorem	362
	Bibliography	363
	Index	387