
Contents

Preface	ix
Chapter 1. Dynamical systems	1
§1.1. Introduction by examples	2
§1.2. Subshifts	25
§1.3. Minimal Cantor systems	40
§1.4. Hyperbolic dynamics	79
§1.5. Holomorphic dynamics	110
Exercises	122
Chapter 2. Group actions	129
§2.1. Structure of orbits	130
§2.2. Micro-supported actions and Rubin's theorem	150
§2.3. Automata	163
§2.4. Groups acting on rooted trees	179
Exercises	212
Chapter 3. Groupoids	219
§3.1. Basic definitions	219
§3.2. Actions and correspondences	232
§3.3. Fundamental groups	259
§3.4. Complexes of groups and orbispaces	265
§3.5. Compactly generated groupoids	286
§3.6. Hyperbolic groupoids	297

Exercises	308
Chapter 4. Iterated monodromy groups	311
§4.1. Iterated monodromy groups of self-coverings	312
§4.2. Self-similar groups	322
§4.3. Expanding maps and contracting groups	333
§4.4. Iterated monodromy groups of correspondences	349
§4.5. Hyperbolicity	374
§4.6. Iterations of polynomials	414
§4.7. Dynamics on the sphere	438
§4.8. Other applications	469
Exercises	491
Chapter 5. Groups from groupoids	501
§5.1. Full groups	501
§5.2. AF groupoids and bounded type	518
§5.3. Torsion groups	536
§5.4. Homology of totally disconnected étale groupoids	563
§5.5. Almost finite groupoids	576
§5.6. Purely infinite groupoids	584
Exercises	591
Chapter 6. Growth and amenability	597
§6.1. Growth of groups	597
§6.2. Groups of intermediate growth	599
§6.3. Inverted orbits	617
§6.4. Linearly repetitive actions	624
§6.5. Families of groups and non-uniform exponential growth	630
§6.6. Amenability	637
Exercises	669
Bibliography	673
Index	689