

Contents

Preface	ix
1 Dynamical systems	1
1.1 Pseudogroups	1
1.2 First examples	3
1.3 Foliations, laminations and holonomy	6
1.4 Markov pseudogroups	15
1.5 Hyperbolic spaces and groups	20
2 Growth	33
2.1 Growth types	34
2.2 Growth in groups	36
2.3 Orbit growth for pseudogroups	44
2.4 Expansion growth	51
3 Entropy	61
3.1 Entropy of classical systems	62
3.1.1 Topological entropy of a transformation	62
3.1.2 Invariant measures	65
3.1.3 Measure-theoretic entropy	66
3.1.4 Examples	68
3.1.5 Variational principle	70
3.2 Entropy of pseudogroups	73
3.3 Geometric entropy of foliations	76
3.4 Relating various entropies	79
3.5 Examples and constructions	84
3.5.1 Pullback	84
3.5.2 Gluing	85
3.5.3 Turbulization	86
3.6 Entropy and resiliency	89

4	Invariant measures	97
4.1	Basic definitions and facts	97
4.2	Transverse invariant measures and homology	101
4.3	Measures and orbit growth	102
4.4	Transverse invariant measures in codimension 1	104
4.5	Vanishing entropy and invariant measures	106
4.6	Entropy, geodesic flow and invariant measures	108
4.7	Harmonic measures	125
4.8	Patterson–Sullivan measures	142
5	Hausdorff dimension	155
5.1	Definitions and basic facts	155
5.2	Julia sets	161
5.3	Dimension in foliated manifolds	166
5.4	Dimension of a hyperbolic boundary	176
5.5	Dimension of a limit set	179
6	Varia	183
6.1	Complexity growth	183
6.2	Expansive systems	187
6.3	Pseudo-orbits and pseudoleaves	191
6.4	Generic leaves	201
	Bibliography	211
	Index	223