

Contents

1	Introduction	1
1.1	Uniform stability of groups	1
1.2	Main results and methods	3
1.3	Outline of the memoir	6
2	U(1)-stability of groups	9
2.1	Quasimorphisms and the comparison map	9
3	Preliminaries and basic constructions	15
3.1	Uniform stability and asymptotic homomorphisms	15
3.2	Ultraproducts and internal maps	18
3.3	Internal liftings and defect diminishing	22
4	A cohomological interpretation of stability	27
4.1	Submultiplicative norms and abelian kernels	27
4.2	Lifting with an abelian kernel	29
4.3	Linearization and the Lie algebra	31
4.4	Uniform stability of amenable groups	36
5	Asymptotic cohomology of groups	41
5.1	Basic definitions and some cohomological algebra	41
5.2	The L^∞ -cohomology and $H_a(G, \mathcal{V})$	47
5.3	Amenable actions and cohomology of subgroups	53
6	The induction module	57
6.1	The $*G$ -action on $\mathcal{L}_b^\infty(*G, \mathcal{W})^{\sim * \Gamma}$	57
6.2	$\mathcal{L}^\infty(*D, \mathcal{W})$ and the Eckmann–Shapiro induction	61
6.3	Internal contraction and fixed points	65
7	Vanishing of $H_a^2(\Gamma, \mathcal{W})$	71
7.1	Asymptotic Mautner property and ergodicity	71
7.2	Property- $G(\mathcal{Q}_1, \mathcal{Q}_2)$ and the main theorem	78
7.3	Groups with property- $G(\mathcal{Q}_1, \mathcal{Q}_2)$	81
8	Conclusions and discussion	87
	References	89