
Contents

Preface	V
1 Prerequisites	1
1.1 Real and Complex Lie Groups	1
1.2 Formal Groups and p -Adic Lie Groups	3
1.3 Algebraic Groups	4
2 Extensions	11
2.1 Extensions of Unipotent Groups and Isogenies	11
2.2 Extensions of Commutative Lie Groups	23
3 Groups of Extreme Nilpotency Class	29
3.1 Maximal Nilpotency Class	29
3.2 Groups with a Big Centre	37
4 Chains	49
4.1 Preliminaries	49
4.2 Three-Dimensional Chains	53
4.3 Chains with One-Dimensional Commutator Subgroup	69
5 Groups with Few Types of Isogenous Factors	81
5.1 A Useful Theorem	81
5.2 Uni-Minimal and Uni-Maximal Groups	82
5.3 Semi-Commutative Groups and Lie Algebras	101
5.4 Aligned Groups and Aligned Lie Algebras	109
5.5 Co-Aligned Groups and Co-Aligned Lie Algebras	117
5.6 Aligned and Co-Aligned Commutative Groups	139
5.7 Characterisations of Chains by Factors	142

6	Three-Dimensional Affine Groups	149
6.1	Reduction to Subclasses	149
6.2	$\dim G' = 1$	151
6.3	$\dim G' = 2$	155
6.4	Characterisation of Three-Dimensional Unipotent Groups.....	158
7	Normality of Subgroups	167
7.1	Quasi-Normal Subgroups	167
7.2	Hamiltonian Groups	175
7.3	Topological Quasi-Normality	183
7.4	Super-Hamiltonian Groups	188
	References	199
	Notation	205
	Index	207