
Contents

| | | |
|----------|---|-----------------|
| | <i>Preface</i> | <i>page</i> vii |
| 1 | Reductive Groups and Steinberg Maps | 1 |
| | 1.1 Affine Varieties and Algebraic Groups | 2 |
| | 1.2 Root Data | 15 |
| | 1.3 Chevalley's Classification Theorems | 27 |
| | 1.4 Frobenius Maps and Steinberg Maps | 40 |
| | 1.5 Working with Isogenies and Root Data; Examples | 53 |
| | 1.6 Generic Finite Reductive Groups | 68 |
| | 1.7 Regular Embeddings | 80 |
| 2 | Lusztig's Classification of Irreducible Characters | 92 |
| | 2.1 Generalities about Character Tables | 93 |
| | 2.2 The Virtual Characters of Deligne and Lusztig | 105 |
| | 2.3 Unipotent Characters and Degree Polynomials | 120 |
| | 2.4 Towards Lusztig's Main Theorem 4.23 | 134 |
| | 2.5 Geometric Conjugacy and the Dual Group | 152 |
| | 2.6 The Jordan Decomposition of Characters | 167 |
| | 2.7 Average Values and Unipotent Support | 181 |
| | 2.8 On the Values of Green Functions | 195 |
| 3 | Harish-Chandra Theories | 211 |
| | 3.1 Harish-Chandra Theory for BN -Pairs | 212 |
| | 3.2 Harish-Chandra Theory for Groups of Lie Type | 225 |
| | 3.3 Lusztig Induction and Restriction | 236 |
| | 3.4 Duality and the Steinberg Character | 248 |
| | 3.5 d -Harish-Chandra Theories | 257 |
| 4 | Unipotent Characters | 271 |
| | 4.1 Characters of Weyl Groups | 272 |
| | 4.2 Families of Unipotent Characters and Fourier Matrices | 285 |

| | | |
|-----------------|---|------------|
| 4.3 | Unipotent Characters in Type A | 297 |
| 4.4 | Unipotent Characters in Classical Types | 301 |
| 4.5 | Unipotent Characters in Exceptional Types | 317 |
| 4.6 | Decomposition of R_L^G and d -Harish-Chandra Series | 326 |
| 4.7 | On Lusztig's Jordan Decomposition | 343 |
| 4.8 | Disconnected Groups, Groups with Disconnected Centre | 351 |
| Appendix | Further Reading and Open Questions | 363 |
| | <i>References</i> | 371 |
| | <i>Index</i> | 390 |