

Contents

<i>Preface</i>	<i>page</i>	ix
1	Coalgebras, bialgebras and Hopf algebras. $U_q(b_+)$	1
2	Dual pairing. $SL_q(2)$. Actions	9
3	Coactions. Quantum plane \mathbb{A}_q^2	17
4	Automorphism quantum groups	23
5	Quasitriangular structures	29
6	Roots of unity. $u_q(sl_2)$	34
7	q -Binomials	39
8	Quantum double. Dual-quasitriangular structures	44
9	Braided categories	52
10	(Co)module categories. Crossed modules	58
11	q -Hecke algebras	64
12	Rigid objects. Dual representations. Quantum dimension	70
13	Knot invariants	77
14	Hopf algebras in braided categories. Coaddition on \mathbb{A}_q^2	84
15	Braided differentiation	91
16	Bosonisation. Inhomogeneous quantum groups	98
17	Double bosonisation. Diagrammatic construction of $u_q(sl_2)$	105
18	The braided group $U_q(n_+)$. Construction of $U_q(\mathfrak{g})$	113
19	q -Serre relations	120
20	R -matrix methods	126
21	Group, algebra, Hopf algebra factorisations. Bicrossproducts	132
22	Lie bialgebras. Lie splittings. Iwasawa decomposition	139
23	Poisson geometry. Noncommutative bundles. q -Sphere	146
24	Connections. q -Monopole. Nonuniversal differentials	153
<i>Problems</i>		159
<i>Bibliography</i>		166
<i>Index</i>		167