

Contents

Preface	vii
1 Q-curvature	1
1.1 The flat model of conformal geometry	1
1.2 Q -curvature of order 4	5
1.3 GJMS-operators and Branson's Q -curvatures	21
1.4 Scattering theory	31
1.5 Residue families and the holographic formula for Q_n	46
1.6 Recursive structures	59
2 Conformal holonomy	79
2.1 Cartan connections and holonomy groups	79
2.2 Holonomy groups of conformal structures	89
2.2.1 The first prolongation of the conformal frame bundle	90
2.2.2 The normal conformal Cartan connection - invariant form	94
2.2.3 The normal conformal Cartan connection - metric form	97
2.2.4 The tractor connection and its curvature	99
2.3 Conformal holonomy and Einstein metrics	103
2.4 Classification results for Riemannian and Lorentzian conformal holonomy groups	109
2.5 Conformal holonomy and conformal Killing forms	111
2.6 Conformal holonomy and conformal Killing spinors	115
2.7 Lorentzian conformal structures with holonomy group $SU(1, m)$	128
2.7.1 CR geometry and Fefferman spaces	129
2.7.2 Conformal holonomy of Fefferman spaces	135
2.8 Further results	137
Bibliography	139
Index	149