

Contents

Chapter 1. Introduction	1
Chapter 2. Preliminaries	11
2.1. The F -method	11
2.2. Notation and induced representations	14
2.3. A branching problem	19
Chapter 3. Singular vectors	25
3.1. The l' -equivariance	25
3.2. Families of singular vectors of the first type	34
3.3. Families of singular vectors of the second type	42
3.4. Singular vectors of the third type	44
3.5. Singular vectors of the fourth type	46
3.6. Middle degree cases	50
Chapter 4. Conformal symmetry breaking differential operators on differential forms	53
4.1. Families of the first type	55
4.2. Families of the second type	57
4.3. Hodge conjugation	58
4.4. Operators of the third type	62
4.5. Operators of the fourth type	63
4.6. Operators on middle degree forms	64
4.7. Proof of Theorem 3	65
4.8. Examples	66
Chapter 5. Geometric formulas for conformal symmetry breaking operators	75
5.1. Preparations	75
5.2. Even-order families of the first and second type	77
5.3. Odd-order families of the first and second type	82
5.4. Operators of the third and fourth type	89
Chapter 6. Factorization identities for conformal symmetry breaking operators	91
6.1. Branson-Gover, gauge companion and Q -curvature operators	91
6.2. Main factorizations	93
6.3. Supplementary factorizations	98
6.4. Applications	104

Appendix: Gegenbauer and Jacobi polynomials	109
Bibliography	111