1. Record Nr. UNISALENTO991003556219707536

Autore	Kobayashi, Toshiyuki
Titolo	Conformal Symmetry Breaking Operators for Differential Forms on Spheres [e-book] / by Toshiyuki Kobayashi, Toshihisa Kubo, Michael Pevzner
Pubbl/distr/stampa	Singapore : Springer, 2016
ISBN	9789811026560
Descrizione fisica	1 online resource (ix, 192 p.)
Collana	Lecture Notes in Mathematics, 0075-8434 ; 2170
Classificazione	AMS 22E46 AMS 22E45 AMS 53A30 AMS 58J70 LC QA641-670
Altri autori (Persone)	Kubo, Toshihisaauthor Pevzner, Michael
Disciplina	516.36
Soggetti	Topological groups Lie groups Fourier analysis Partial differential equations Differential geometry Mathematical physics
Lingua di pubblicazione	Inglese
Formato	Software
Livello bibliografico	Monografia
Sommario/riassunto	This work is the first systematic study of all possible conformally covariant differential operators transforming differential forms on a Riemannian manifold X into those on a submanifold Y with focus on the model space (X, Y) = (Sn, Sn-1). The authors give a complete classification of all such conformally covariant differential operators, and find their explicit formulæ in the flat coordinates in terms of basic operators in differential geometry and classical hypergeometric polynomials. Resulting families of operators are natural generalizations of the Rankin–Cohen brackets for modular forms and Juhl's operators from conformal holography. The matrix-valued factorization identities

among all possible combinations of conformally covariant differential operators are also established. The main machinery of the proof relies on the "F-method" recently introduced and developed by the authors. It is a general method to construct intertwining operators between C-induced representations or to find singular vectors of Verma modules in the context of branching rules, as solutions to differential equations on the Fourier transform side. The book gives a new extension of the F-method to the matrix-valued case in the general setting, which could be applied to other problems as well. This book offers a self-contained introduction to the analysis of symmetry breaking operators for infinite-dimensional representations of reductive Lie groups. This feature will be helpful for active scientists and accessible to graduate students and young researchers in differential geometry, representation theory, and theoretical physics