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regular case"; "4. Quaternion full Fock space and symmetric Fock space"; "5. The slice monogenic case"; "References"
"Multi Mq-monogenic Function in Different Dimension""1.
Introduction"; "2. Separately holomorphic and monogenic functions";
"3. Clifford-algebra-valued functions in several variables"; "4.
Associated algebra of Clifford type 1"; "4.1. Decomposition of the q-
Cauchy-Riemann system"; "5. Example 1"; "6. Associated algebra
of Clifford type 2"; "7. Example 2"; "8. Definition of separately Mq-
monogenic functions"; "9. Conclusions"; "Acknowledgment";
"References"; "The Fractional Monogenic Signal"; "1. Introduction";
"2. Preliminaries"; "2.1. Quaternions"
"2.1.1. Real quaternions.""; "2.1.2. Complex quaternions.""; "2.2.
Rotations"; "2.3. Quaternionic analysis"; "2.3.1. Dirac operator."";
"2.3.2. Integral formulae.""; "2.3.3. Hardy spaces.""; "3. The analytic
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analytic fractional signal"; "4. The fractional Riesz operator"; "4.1.
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fractional Riesz operator"; "5. Fractional monogenic signal"; "5.1.
Properties of the fractional monogenic signal"; "6. Concluding
remarks"; "References"
"Weighted Bergman Spaces""1. Introduction"; "2. The L^p -Bloch space
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Carleson measures"; "Acknowledgment"; "References"; "On Appell
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in Verma modules for $sl(2)$ "; "3. Hermite bases in Verma modules for
 $sl(2)$ "; "References"; "Integral Formulas for k-hypermonogenic
Functions in R^3 "; "1. Introduction"; "2. Preliminaries"
"3. Integral formulas for k-hypermonogenic functions"

Sommario/riassunto

Hypercomplex analysis is the extension of complex analysis to higher dimensions where the concept of a holomorphic function is substituted by the concept of a monogenic function. In recent decades this theory has come to the forefront of higher dimensional analysis. There are several approaches to this: quaternionic analysis which merely uses quaternions, Clifford analysis which relies on Clifford algebras, and generalizations of complex variables to higher dimensions such as split-complex variables. This book includes a selection of papers presented at the session on quaternionic and hypercomplex analysis at the ISAAC conference 2013 in Krakow, Poland. The topics covered represent new perspectives and current trends in hypercomplex analysis and applications to mathematical physics, image analysis and processing, and mechanics.
