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   Titolo   Topics in Clifford Analysis : Special Volume in Honor of Wolfgang
                       Sprößig / / edited by Swanhild Bernstein

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   Collana   Trends in Mathematics, , 2297-0215

   Disciplina   512.57

   Soggetti   Functions of complex variables
                       Algebra
                       Field theory (Physics)
                       Potential theory (Mathematics)
                       Difference equations
                       Functional equations
                       Algebraic geometry
                       Functions of a Complex Variable
                       Field Theory and Polynomials
                       Potential Theory
                       Several Complex Variables and Analytic Spaces
                       Difference and Functional Equations
                       Algebraic Geometry

   Lingua di pubblicazione   Inglese

   Formato   Materiale a stampa

   Livello bibliografico   Monografia

   Nota di bibliografia   Includes bibliographical references.

   Nota di contenuto   Part I - Clifford analysis theories -- Cauchy's formula in Clifford
                       analysis: An Overview -- Quaternionic Hyperbolic Function Theory --
                       Slice Regular and Harmonicity in Clifford Analysis -- Some notions of
                       Subharmonicity over the Quaternions -- Part II - Applications to Elliptic
                       Partial Differential Equations -- A Fatou Theorem and Poisson's Integral
                       Representation Formula for Elliptic Systems in the Upper-Half Space --
                       Hardy Spaces for Three-Dimensional Vekua Equation -- Radial and
                       Angular Derivatives of Distributions -- Applications of Parabolic Dirac
                       Operators to the Instationary Viscous MHD Equations on Conformally

Flat Manifolds -- Generalized Riesz Transforms, Quasi-Monogenic Functions and Frames -- Part III - Monogenic Polynomials and Numerical Methods -- Quaternionic Operator Calculus for Boundary Value Problems of Micropolar Elasticity -- Constructive Orthonormalization of Monogenic Polynomials on a Finite Cylinder -- Comments on an Orthogonal Family of Monogenic Functions on Spheroidal Domains -- Newton's Approach to General Algebra Equations over Clifford Algebras -- Part IV - Differential Geometry -- Connections in Euclidean and Non-Commutative Geometry -- Conformal Parametrisation of Loxodroms by Tripels of Circles -- Automorphic Forms and Dirac Operators on Conformally Flat manifolds -- Higher order Fermionic and Bosonic Operators -- Clifford Möbius Geometry -- Separation of Variables in the Semistable Range -- Variety of Idempotents in Nonassociative Algebras -- Part V - Discrete Clifford Analysis -- Relativistic Wave Equations on the Lattice: An Operational Perspective -- Cauchy-Pompeiu Formula for Discrete Monogenic Functions -- A Useful Transformation for Solving the Discrete Beltrami Equation and Reducing a Difference Equation of Second Order to a System of Equations of First Order.

Sommario/riassunto	Quaternionic and Clifford analysis are an extension of complex analysis into higher dimensions. The unique starting point of Wolfgang Sprößig's work was the application of quaternionic analysis to elliptic differential equations and boundary value problems. Over the years, Clifford analysis has become a broad-based theory with a variety of applications both inside and outside of mathematics, such as higher-dimensional function theory, algebraic structures, generalized polynomials, applications of elliptic boundary value problems, wavelets, image processing, numerical and discrete analysis. The aim of this volume is to provide an essential overview of modern topics in Clifford analysis, presented by specialists in the field, and to honor the valued contributions to Clifford analysis made by Wolfgang Sprößig throughout his career.