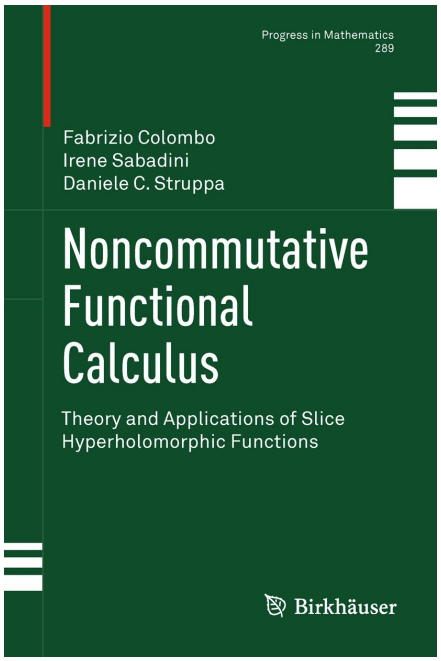

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Mathematics : Operator Theory

Politecnico di Milano, P.F.C., Sabadini, I., Struppa, D.C.

Noncommutative Functional Calculus

Theory and Applications of Slice Hyperholomorphic Functions

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- The fundamental technical tools is the newly developed theory of slice hyperholomorphic functions (which includes functions of a paravector variable with values in a Clifford algebra and quaternionic valued functions of a quaternionic variable).
- The monograph is based on results by the authors and thus it is completely original, except for a few pages of basic material and an Appendix.

This book presents a functional calculus for n-tuples of not necessarily commuting linear operators. In particular, a functional calculus for quaternionic linear operators is developed. These calculi are based on a new theory of hyperholomorphicity for functions with values in a Clifford algebra: the so-called slice monogenic functions which are carefully described in the book. In the case of functions with values in the algebra of quaternions these functions are named slice regular functions.
 Except for the appendix and the introduction all results are new and appear for the first time organized in a monograph. The material has been carefully prepared to be as self-contained as possible. The intended audience consists of researchers, graduate and postgraduate students interested in operator theory, spectral theory, hypercomplex analysis, and mathematical physics.

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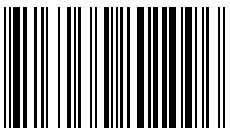

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