

1. Record Nr.	UNINA9910257379203321
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Titolo	Hyponormal Quantization of Planar Domains : Exponential Transform in Dimension Two / / by Björn Gustafsson, Mihai Putinar
Pubbl/distr/stampa	Cham : , : Springer International Publishing : , : Imprint : Springer, , 2017
ISBN	3-319-65810-7
Edizione	[1st ed. 2017.]
Descrizione fisica	1 online resource (X, 150 p. 16 illus. in color.)
Collana	Lecture Notes in Mathematics, , 1617-9692 ; ; 2199
Disciplina	515.7246
Soggetti	Functions of complex variables Operator theory Potential theory (Mathematics) Numerical analysis Functions of a Complex Variable Operator Theory Potential Theory Numerical Analysis
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	1 Introduction -- 2 The exponential transform -- 3 Hilbert space factorization -- 4 Exponential orthogonal polynomials -- 5 Finite central truncations of linear operators -- 6 Mother bodies -- 7 Examples -- 8 Comparison with classical function spaces -- A Hyponormal operators -- Glossary -- Index -- References.
Sommario/riassunto	This book exploits the classification of a class of linear bounded operators with rank-one self-commutators in terms of their spectral parameter, known as the principal function. The resulting dictionary between two dimensional planar shapes with a degree of shade and Hilbert space operators turns out to be illuminating and beneficial for both sides. An exponential transform, essentially a Riesz potential at critical exponent, is at the heart of this novel framework; its best rational approximants unveil a new class of complex orthogonal polynomials whose asymptotic distribution of zeros is thoroughly studied in the text. Connections with areas of potential theory,

approximation theory in the complex domain and fluid mechanics are established. The text is addressed, with specific aims, at experts and beginners in a wide range of areas of current interest: potential theory, numerical linear algebra, operator theory, inverse problems, image and signal processing, approximation theory, mathematical physics.
