

## Contents

Editorial Introduction .....	vii
<i>Daniel Alpay and Israel Gohberg</i> Inverse Problems for First-Order Discrete Systems .....	1
<i>Mihály Bakonyi and Kazumi N. Stovall</i> Stability of Dynamical Systems via Semidefinite Programming .....	25
<i>Tom Bella, Vadim Olshevsky and Lev Sakhnovich</i> Ranks of Hadamard Matrices and Equivalence of Sylvester–Hadamard and Pseudo-Noise Matrices .....	35
<i>Yurij M. Berezansky and Artem D. Pulemyotov</i> Image of a Jacobi Field .....	47
<i>Vladimir Bolotnikov and Alexander Kheifets</i> The Higher Order Carathéodory–Julia Theorem and Related Boundary Interpolation Problems .....	63
<i>Ramón Bruzual and Marisela Domínguez</i> A Generalization to Ordered Groups of a Kreĭn Theorem .....	103
<i>Shiv Chandrasekaran, Ming Gu, Jianlin Xia and Jiang Zhu</i> A Fast QR Algorithm for Companion Matrices .....	111
<i>Nurhan Çolakoglu</i> The Numerical Range of a Class of Self-adjoint Operator Functions .....	145
<i>Dario Fasino</i> A Perturbative Analysis of the Reduction into Diagonal-plus-semiseparable Form of Symmetric Matrices .....	157
<i>Stephan Ramon Garcia</i> The Eigenstructure of Complex Symmetric Operators .....	169
<i>Alexei Yu. Karlovich</i> Higher Order Asymptotic Formulas for Traces of Toeplitz Matrices with Symbols in Hölder–Zygmund Spaces .....	185
<i>Sawinder P. Kaur and Israel Koltracht</i> On an Eigenvalue Problem for Some Nonlinear Transformations of Multi-dimensional Arrays .....	197

<i>Igor V. Nikolaev</i>	
On Embedding of the Bratteli Diagram into a Surface .....	211
<i>Vadim Olshevsky, Ivan Oseledets, and Eugene Tyrtyshnikov</i>	
Superfast Inversion of Two-Level Toeplitz Matrices Using Newton	
Iteration and Tensor-Displacement Structure .....	229
<i>Leiba Rodman and Ilya M. Spitkovsky</i>	
On Generalized Numerical Ranges of Quadratic Operators.....	241
<i>James Rovnyak and Lev A. Sakhnovich</i>	
Inverse Problems for Canonical Differential Equations with	
Singularities .....	257
<i>Lev A. Sakhnovich</i>	
On Triangular Factorization of Positive Operators.....	289
<i>Tavan T. Trent</i>	
Solutions for the $H^\infty(D^n)$ Corona Problem Belonging to $\exp(L^{\frac{1}{2^n-1}})$ ...	309
<i>Hugo J. Woerdemann</i>	
A Matrix and its Inverse: Revisiting Minimal Rank Completions.....	329



<http://www.springer.com/978-3-7643-8538-5>

Recent Advances in Matrix and Operator Theory  
Ball, J.A.; Eidelman, Y.; Helton, J.W.; Olshevsky, V.;  
Rovnyak, J. (Eds.)  
2008, VII, 340 p., Hardcover  
ISBN: 978-3-7643-8538-5  
A product of Birkhäuser Basel