

LEIBA RODMAN

Curriculum Vitae

August 2008

ADDRESS: Department of Mathematics, College of William and Mary,  
P. O. Box 8795, Williamsburg, Virginia 23187-8795, USA.

PHONE: (757)-221-2027 (office); (757)-229-9877 (home)

FAX: (757)-221-7400, (757)-221-2988

E-MAIL: lxrodm@math.wm.edu

HOME PAGE: <http://www.math.wm.edu/lxrodm>

PERSONAL DATA: Born June 9, 1949 in Riga, Latvia. U. S. citizen.  
Married with four children.  
Home address:  
4952 Burnley Drive, Williamsburg, VA 23188, USA.

#### PROFESSIONAL EDUCATION

- 1966 - 1971      Diploma (approximately equivalent to M. S. degree)  
                    in Mathematics  
                    Latvian State University, Riga, Latvia.  
                    Thesis: "On the augmentation ideal in group algebras".
- 1974 - 1976      M. A. degree (with distinction)  
                    in Statistics - Operations Research  
                    Tel-Aviv University, Tel-Aviv, Israel.  
                    Thesis: "On the many-armed bandit problem".
- 1974 - 1978      Ph. D. degree (with distinction) in Mathematics  
                    Tel-Aviv University, Tel-Aviv, Israel.  
                    Thesis: "Spectral theory of analytic matrix functions".  
                    Ph. D. adviser: Prof. I. Gohberg.

## ACADEMIC EMPLOYMENT

- 1988 - present Professor, Department of Mathematics,  
College of William and Mary, Williamsburg, Virginia.
- 1987 - 1988 Visiting Professor, Department of Mathematics,  
College of William and Mary, Williamsburg, Virginia.
- 1987 - 1989 Professor, Department of Mathematics,  
Arizona State University, Tempe, Arizona.
- Fall 1986 Visiting Associate Professor, Department of Mathematics,  
University of California, San Diego.
- Aug. 1984 - 1987 Associate Professor, Department of Mathematics,  
Arizona State University, Tempe, Arizona.
- Oct. 1983 - 1987 Associate Professor, Department of Mathematics,  
Tel-Aviv University, Tel-Aviv, Israel.
- Apr. 1981 -  
Sept. 1983 Senior Lecturer, Department of Mathematics,  
Tel-Aviv University, Tel-Aviv, Israel.
- Aug. 1980 -  
Feb. 1981 Visiting Scientist, Department of Mathematics,  
Vrije Universiteit, Amsterdam, The Netherlands.
- 1979 - 1980 Part-time Instructor,  
Department of Mathematics and Statistics,  
University of Calgary, Calgary, Alberta, Canada.
- 1978 - 1980 Post-doctoral Fellow,  
Department of Mathematics and Statistics,  
University of Calgary, Calgary, Alberta, Canada.
- 1973 - 1978 Instructor (last position),  
Departments of Mathematics and of Statistics,  
Tel-Aviv University, Tel-Aviv, Israel.

## RESEARCH INTERESTS

Operator theory, matrix analysis, matrix and operator valued functions, general preserver problems, systems and control, stability, differential equations, optimization and interpolation, combinatorial matrix theory, almost periodic functions, abstract harmonic analysis, geometry of matrices.

## MAJOR EXTERNAL RESEARCH GRANTS

1983 - 1985	Fund for Basic Research, Israel Academy of Sciences and Humanities.
1985 - 2004, 2005 - 2009	National Science Foundation Grants.
1989 - 1993, 1995 - 1998	Binational Israel - U. S. A. Foundation Grants.
Summers of 1990, 1991, 1992, 1994, 1996	Research Experiences for Undergraduates, NSF.
1991 - 1994	U. S. A. - The Netherlands International Cooperation Grant.
1996 - 1998	NATO Collaborative Research Grant.
2006 - 2007	Collaboration grant with Universities of Ljubljana and Maribor, Slovenia.
2008 - 2009	USA - Slovenia grant (joint with C.-K. Li)

## TEACHING

Undergraduate and graduate courses in linear algebra, differential equations, functional analysis, abstract algebra, real analysis, operator theory, complex analysis, multivariable calculus, senior seminar.

Developed and taught an upper level undergraduate course in Applied Linear Algebra.

Participated in the ATLAST Workshop (July 1995) on teaching of linear algebra through the use of software tools.

## UNDERGRADUATE RESEARCH SUPERVISION

### Honors Theses

J. E. Rubin, Deterministic communicable disease models, Honors Thesis, 1991.

6 Honors Theses committees.

### Research Experiences for Undergraduates

(Unless otherwise indicated, at the Department of Mathematics, College of William and Mary)

J. E. Rubin, Direct complements of invariant Lagrangian subspaces, REU, 1990.

A. Bartelt, Minimal rank of tri-diagonal partial matrices, REU, 1991 (advised jointly with C. R. Johnson and H. J. Woerdeman).

P. P. Mehta, Linear operators preserving the inner and outer  $c$ -spectral radii, REU, 1992 (advised jointly with C. K. Li).

D. S. Keeler, On the numerical range of  $3 \times 3$  matrices, REU, 1994 (advised jointly with I. M. Spitkovsky).

A. L. Cohen, Convergence of matrix sets, REU, 1994 (advised jointly with D. P. Stanford).

D. Quint, Almost periodic factorization of  $2 \times 2$  triangular matrix functions: applications of a structure preserving transformation, REU, 1996 (advised jointly with I. M. Spitkovsky).

J. Lin, Determinants of zero - one matrices with constant row and column sums, REU, 1996 (advised jointly with C. K. Li).

B. Lins, P. Meade, Normal matrices and polar decompositions in indefinite inner products, 1999 - 2000 academic year.

P. Meade, Shell of operators in Krein spaces, Spring and Fall 2001.

E. J. Yarkoni (Ben Gurion University of the Negev, Israel; advised jointly with I. Lewkowicz), Convex invertible sets, 2003 - 2004 academic year.

H. Seyalioglu, Common invariant cones, Spring 2005, Fall 2006 (advised jointly with I. M. Spitkovsky).

A. Rastogi, Almost periodic factorization of  $2 \times 2$  triangular matrix functions: new cases, Fall 2007, Spring 2008 (advised jointly with I. M. Spitkovsky).

S. Clark, Preservers of nonnegative matrices, Fall 2007, Spring 2008 (advised jointly with C.-K. Li).

#### Publications with undergraduates

Items [132], [140], [144], [162], [174], [183], [185], [202], [206], [217], [241], [314] in the list of publications below. All but [314] refereed.

### POST DOC MENTORSHIP

C. Mehl (Technische Universität Berlin, Germany), 1999 - 2000 academic year.

M. C. B. Reurings (Vrije Universiteit, Amsterdam), 2003 - 2004 academic year.

### ACTIVITIES IN PERIODICALS, PROFESSIONAL ORGANIZATIONS

Associate Editor, Linear Algebra and its Applications (1988 - 1999).

Advisory Editor, Linear Algebra and its Applications (2000 - 2002).

Senior Editor, Linear Algebra and its Applications (2003 - 2007).

Associate Editor, Integral Equations and Operator Theory (since 2003).

Associate Editor, Complex Analysis and Operator Theory (since 2006).

Editor-in-Chief, Operators and Matrices (since 2006).

Steering Committee, International Workshops in Operator Theory (since 1987).

Advisory Committee (chair), International Linear Algebra Society (2002 - 2005).

Member of American Mathematical Society (since 1980), Society of Industrial and Applied Mathematics (since 1986), International Linear Algebra Society (since 1990).

### REFEREE AND REVIEW

Reviewer for Zentralblatt MATH (until 2007) and Mathematical Reviews (from 1979).

Refereed papers for many journals in operator theory, linear algebra, differential and integral equations, networks, systems and control, and general mathematical journals.

Reviewed grant proposals for NSF (Modern Analysis, Algebra and Number Theory, Applied Mathematics), National Security Agency, International Science Foundation, Israel Science Foundation, National Science Council, United States - Israel Binational Science Foundation.

## PROFESSIONAL MEETINGS AND CONFERENCES

Organizing committee:

Conference on Operator Theory and Functional Analysis, Mesa, Arizona, 1987.

8th Workshop on Numerical Ranges and Radii, Bremen, Germany, 2006.

International Workshop on Operator Theory and its Applications, College of William and Mary, 2008.

Organized 18 invited and special sessions at various conferences.

Gave presentations at 181 conferences.

## PUBLICATIONS

### BOOKS

1. (with I. Gohberg, P. Lancaster), *Matrix Polynomials*, Academic Press, New York - London, 1982, 409+xiv pp.
2. (with I. Gohberg, P. Lancaster), *Matrices and Indefinite Scalar Products*, Birkhäuser Verlag, Basel, 1983, 372+xvii pp.
3. (with I. Gohberg, P. Lancaster), *Invariant Subspaces of Matrices with Applications*, J. Wiley, New York, 1986, 692+xv pp.; re-publication, SIAM, 2006.
4. *An Introduction to Operator Polynomials*, Birkhäuser Verlag, Basel, 1989, 389+xii pp.
5. (with J. A. Ball, I. Gohberg), *Interpolation of Rational Matrix Functions*, Birkhäuser Verlag, Basel, 1990, 605 pp.
6. (with P. Lancaster), *Algebraic Riccati Equations*, Oxford University Press, New York, 1995, 480+xvii pp.
7. (with I. Gohberg, P. Lancaster), *Indefinite Linear Algebra and Applications*, Birkhäuser Verlag, Basel, 2005, 357+xii pp.

### EDITED VOLUMES

8. (with I. Gohberg, J. W. Helton (eds.)), *Contributions to Operator Theory and its Applications*, Proc. of 1987 Mesa Conference on Operator Theory and Functional Analysis, *Operator Theory: Advances and Applications*, Vol 35 (1988), Birkhäuser Verlag, 530 pp.
9. (with J. A. Ball, P. Van Dooren (eds.)), *Special Volume on Matrix Valued Functions*,

- Linear Algebra and Applications*, Vol 137 - 138 (1990), 748 pp.
10. (with D. O'Leary, H. Shapiro (eds.)), Proceedings of 3rd Conference of International Linear Algebra Society, *Linear Algebra and Applications*, Vol 212 - 213 (1994), 554 pp.
  11. (with J. A. Ball, J. W. Helton, M. Klaus (eds.)), Proceedings of the International Workshop in Operator Theory and its Applications, Virginia Tech, 2002, Current Trends in Operator Theory and its Applications, *Operator Theory: Advances and Applications*, Vol 149 (2004), Birkhäuser Verlag, xxii + 595 pp.
  12. (with H. Bart, I. Koltracht, A. S. Markus (eds.)), Special Volume dedicated to P. Lancaster, *Linear Algebra and Applications*, Vol 385 (2004), 476 pp.
  13. (with C.-K. Li, C. Tretter (eds.)), Proceedings of 8th Workshop on Numerical Ranges and Radii, *Linear and Multilinear Algebra*, Vol 56 (2008).
  14. (with J. A. Ball, V. Bolotnikov, J. W. Helton, I. M. Spitkovsky (eds.)), Recent advances and new directions in applied and pure operator theory, Birkhäuser Verlag, to appear.

## REFEREED ORIGINAL RESEARCH PAPERS

15. On the many-armed bandit problem, *Annals of Probability*, 6 (1978), 491 - 498.
16. (with I. Gohberg, P. Lancaster), Spectral analysis of matrix polynomials, I. Canonical forms and divisors. *Linear Algebra and Applications*, 20 (1978), 1 - 44.
17. (with I. Gohberg, P. Lancaster), Spectral analysis of matrix polynomials, II. The resolvent form and spectral divisors. *Linear Algebra and Applications*, 21 (1978), 65 - 88.
18. (with I. Gohberg, P. Lancaster), Representation and divisibility of operator polynomials, *Canadian Math. Journal*, 30, 5 (1978), 1045 - 1069.
19. (with I. Gohberg, M. A. Kaashoek), Spectral analysis of families of operator polynomials and a generalized Vandermonde matrix, I. The finite dimensional case, *Topics in Functional Analysis*, (eds. I. Gohberg and M. Kac), Academic Press (1978), 91 - 128.
20. (with I. Gohberg, M. A. Kaashoek), Spectral analysis of families of operator polynomials and a generalized Vandermonde matrix, II. The infinite dimensional case, *Journal of Functional Analysis*, 30 (1978), 359 - 389.
21. On existence of common multiples of monic operator polynomials, *Integral Equations and Operator Theory*, 1 (1978), 400 - 414.
22. (with I. Gohberg, L. Lerer), On canonical factorizations of operator polynomials, spectral divisors, and Toeplitz matrices, *Integral Equations and Operator Theory*, 1 (1978), 176 - 214.
23. (with I. Gohberg, L. Lerer), Factorization indices for matrix polynomials, *Bull. of Amer. Math. Soc.*, 84 (1978), 275 - 277.
24. (with I. Gohberg), On spectral analysis of non-monic matrix and operator polynomials, I. Reduction to monic polynomials, *Israel Journal of Mathematics*, 30 (1978), 133 - 151.
25. (with I. Gohberg), On spectral analysis of non-monic matrix and operator polynomials, II. Dependence on the finite spectral data, *Israel Journal of Mathematics*, 30 (1978), 321 - 334.
26. (with I. Gohberg), On the spectral structure of monic matrix polynomials and the extension problem, *Linear Algebra and Applications*, 24 (1979), 157 - 172.
27. On analytic equivalence of operator polynomials, *Integral Equations and Operator Theory*, 2 (1979), 48 - 61.
28. (with M. Schaps), On the partial multiplicities of a product of two matrix polynomials, *Integral Equations and Operator Theory*, 2 (1979), 565 - 599.
29. (with I. Gohberg, P. Lancaster), Perturbation theory for divisors of operator polynomials, *SIAM J. of Mathematical Analysis*, 10 (1979), 1161 - 1183.
30. (with I. Gohberg, P. Lancaster), On selfadjoint matrix polynomials, *Integral Equations and Operator Theory*, 2/3 (1979), 434 - 439.
31. (with I. Gohberg, L. Lerer), Stable factorizations of operator polynomials, I. Spectral divisors simply behaved at infinity, *J. of Mathematical Analysis and Applications*, 74 (1980), 401 - 431.
32. (with I. Gohberg, L. Lerer), Stable factorizations of operator polynomials, II. Main results and applications to Toeplitz operators, *Journal*

- of *Mathematical Analysis and Applications*, 74 (1980), 401 - 431.
33. (with I. Gohberg, P. Lancaster), Spectral analysis of selfadjoint matrix polynomials, *Annals of Mathematics*, 112 (1980), 33 - 71.
  34. (with P. Lancaster), Existence and uniqueness theorems for the algebraic Riccati equation, *International Journal of Control*, 32 (1980), 285 - 309.
  35. On extremal solutions of the algebraic Riccati equations, *Algebraic and Geometric Methods in Linear Systems Theory, AMS Lectures in Applied Mathematics*, (eds. C. I. Byrnes and C. F. Martin), 18 (1980), 311 - 327.
  36. On connected components in the set of divisors of monic matrix polynomials, *Linear Algebra and Applications*, 31 (1980), 33 - 42.
  37. On nonnegative invariant subspaces in indefinite scalar product spaces, *Linear and Multilinear Algebra*, 10 (1981), 1 - 14.
  38. Remark on irreducible factorizations of polynomials in several variables, *Canadian Mathematical Bulletin*, 2 (1981), 493 - 496.
  39. (with I. Gohberg, M. A. Kaashoek, L. Lerer), Common multiples and common divisors of operator polynomials, I. Spectral method, *Indiana Journal of Mathematics*, 30 (1981), 321 - 356.
  40. (with I. Gohberg), Analytic matrix functions with prescribed local data, *Journal d'Analyse Mathématique*, XL (1981), 90 - 128.
  41. (with M. A. Kaashoek, C. V. M. van der Mee), Analytic operator functions with compact spectrum, I. Spectral linearization and equivalence, *Integral Equations and Operator Theory*, 4 (1981), 504 - 547.
  42. On global geometric properties of the set of subspaces in Hilbert space, *Journal of Functional Analysis*, 45 (1982), 226 - 235.
  43. (with I. Gohberg, P. Lancaster), Factorization of selfadjoint matrix polynomials with constant signature, *Linear and Multilinear Algebra*, 11 (1982), 209 - 224.
  44. (with I. Gohberg, P. Lancaster), Perturbations of  $H$ -selfadjoint matrices, with applications to differential equations, *Integral Equations and Operator Theory*, 5 (1982), 718 - 757.
  45. (with M. A. Kaashoek, C. V. M. van der Mee), Analytic operator functions with compact spectrum, II. Spectral pairs and factorization, *Integral Equations and Operator Theory*, 5 (1982), 791 - 827.
  46. (with I. Gohberg, M. A. Kaashoek, L. Lerer), Common multiples and common divisors of operator polynomials, II. Vandermonde and resultant, *Linear and Multilinear Algebra*, 12 (1982), 159 - 203.
  47. (with A. C. M. Ran), Stability of neutral invariant subspaces in indefinite inner products and stable symmetric factorizations, *Integral Equations and Operator Theory*, 6 (1983), 536 - 571.
  48. (with I. Gohberg, P. Lancaster), A sign characteristic for selfadjoint meromorphic matrix functions, *Applicable Analysis*, 16 (1983), 165 - 185.
  49. (with M. A. Kaashoek, C. V. M. van der Mee), Analytic operator functions with compact spectrum, III. Hilbert space case: inverse problem and applications, *Journal of Operator Theory*, 10 (1983), 219 - 250.
  50. (with I. Gohberg, L. Lerer), Wiener-Hopf factorization of piecewise matrix polynomials, *Linear Algebra and Applications*, 52/53 (1983), 315 - 350.



51. Maximal invariant neutral subspaces and application to the algebraic Riccati equation, *Manuscripta Mathematica*, 43 (1983), 1 - 12.
52. (with I. Gohberg), Analytic operator valued functions with prescribed local data, *Acta Math. (Szeged)*, 45 (1983), 189 - 200.
53. (with K. Clancey), Eigenspaces of families of Toeplitz operators with rational matrix symbol, *Manuscripta Mathematica*, 45 (1983), 1 - 12.
54. (with L. Lerer, M. Tismenetsky), Bezoutian and Schur-Cohn problem for operator polynomials, *J. of Mathematical Analysis and Applications*, 103 (1984), 83 - 102.
55. (with A. C. M. Ran), Stability of invariant maximal semidefinite subspaces, I. *Linear Algebra and Applications*, 62 (1984), 51 - 86.
56. (with A. C. M. Ran), Stability of invariant maximal semidefinite subspaces, II. Applications: selfadjoint rational matrix functions, algebraic Riccati equations, *Linear Algebra and Applications*, 63 (1984), 133 - 173.
57. (with I. Gohberg, M. A. Kaashoek, L. Lerer), Minimal divisors of rational matrix functions with prescribed zero and pole structure, *Topics in Operator Theory, Systems, and Networks*, (eds. H. Dym, I. Gohberg), *Operator Theory: Advances and Applications*, 12 (1984), 241 - 275, Birkhäuser Verlag.
58. On the structure of selfadjoint Toeplitz operators with rational matrix symbol, *Proceedings of American Math. Society*, 92 (1984), 487 - 494.
59. (with C. R. Johnson), Inertial possibilities for completions of partial Hermitian matrices, *Linear and Multilinear Algebra*, 16 (1984), 179 - 195.
60. (with C. R. Johnson), Convex sets of Hermitian matrices with constant inertia, *SIAM Journal of Algebraic and Discrete Methods*, 6 (1985), 351 - 359.
61. (with J. W. Helton), Signature preserving linear maps of Hermitian matrices, *Linear and Multilinear Algebra*, 17 (1985), 29 - 37.
62. (with A. C. M. Ran), Stability of solutions of the operator differential equation in transport theory, *Integral Equations and Operator Theory*, 8 (1985), 75 - 118.
63. (with I. Gohberg, P. Lancaster), Perturbations of analytic Hermitian matrix functions, *Applicable Analysis*, 20 (1985), 23 - 48.
64. (with D. A. Herrero), The multicyclic  $n$ -tuples of an  $n$ -multicyclic operator, and the analytic structures on its spectrum, *Indiana Journal of Mathematics*, 34 (1985), 619 - 629.
65. On factorization of operator polynomials and analytic operator functions, *Rocky Mountain Journal of Mathematics*, 16 (1986), 153 - 162.
66. (with I. Gohberg, M. A. Kaashoek, L. Lerer), On Toeplitz and Wiener-Hopf operators with contourwise rational matrix and operator symbols, *Constructive Methods of Wiener-Hopf Factorization*, (eds. I. Gohberg, M. A. Kaashoek), *Operator Theory: Advances and Applications*, 21 (1986), 75 - 126, Birkhäuser Verlag.
67. (with I. Gohberg), On distance between lattices of invariant subspaces of matrices, *Linear Algebra and Applications*, 76 (1986), 85 - 120.
68. (with I. Gohberg), Interpolation and local data for meromorphic matrix and operator functions, *Integral Equations and Operator Theory*, 9 (1986), 60 - 94.
69. (with I. Gohberg, P. Lancaster), On Hermitian solutions of the symmetric algebraic Riccati equation, *SIAM Journal on Control and Optim.*, 24 (1986), 1323 - 1334.
70. (with I. Gohberg, P. Lancaster), Quadratic matrix polynomials with a parameter,

- Advances in Applied Mathematics*, 7 (1986), 253 - 282.
71. (with P. Lancaster, A. C. M. Ran), Hermitian solutions of the discrete algebraic Riccati equation, *International Journal of Control*, 44 (1986), 777 - 802.
  72. Stable invariant subspaces modulo a subspace, *Operator Theory: Advances and Applications* (eds. H. Bart, I. Gohberg, M. A. Kaashoek), 19 (1986), 399 - 413, Birkhäuser Verlag.
  73. (with C. R. Johnson), Completion of partial matrices to contractions, *Journal of Functional Analysis*, 69 (1986), 260 - 267.
  74. (with C. S. Ballantine, S. Pierce), Simultaneous congruence of convex compact sets of Hermitian matrices with constant rank, *Linear Algebra and Applications*, 87 (1987), 49 - 60.
  75. (with P. Lancaster, A. C. M. Ran), An existence and comparison theorem for the discrete algebraic matrix equation, *Linear and Multilinear Algebra*, 20 (1987), 353 - 361.
  76. (with J. A. Ball, I. Gohberg), Minimal factorization of meromorphic matrix functions in terms of local data, *Integral Equations and Operator Theory*, 10 (1987), 309 - 348.
  77. Structure of infinite dimensional stable canonical equations with periodic coefficients, *Journal of Differential Equations*, 68 (1987), 221 - 237.
  78. (with A. C. M. Ran), Stable real invariant semidefinite subspaces and stable factorizations of symmetric rational matrix functions, *Linear and Multilinear Algebra*, 22 (1987), 25 - 55.
  79. (with S. Pierce), Congruences and norms of Hermitian matrices, *Canadian Mathematical Journal*, XXXIX (1987), 1446 - 1458.
  80. (with J. W. Helton), Vandermonde and resultant matrices: an abstract approach, *Mathematical System Theory*, 20 (1987), 169 - 192; correction: 21 (1988), 61.
  81. (with A. C. M. Ran), A matricial boundary value problem which appears in the transport theory, *J. of Mathematical Analysis and Applications*, 130 (1988), 200 - 222.
  82. (with C. K. Fong, D. A. Herrero), Invariant subspaces lattices that complement every subspace, *Illinois Journal of Mathematics*, 32 (1988), 151 - 158.
  83. (with C. R. Johnson), Completion of Toeplitz partial contractions, *SIAM Journal on Matrix Analysis and Applications*, 9 (1988), 159 - 167.
  84. Bezout equation, Vandermonde operators, and common multiples of operator polynomials, *Journal of Mathematical Analysis and Applications*, 133 (1988), 68 - 78.
  85. (with J. Agler, J. W. Helton, S. McCullough), Positive semidefinite matrices with given sparsity pattern, *Linear Algebra and Applications*, 107 (1988), 101 - 149.
  86. (with A. C. M. Ran), On parameter dependence of the solutions of algebraic Riccati equations, *Mathematics of Control, Signals, and Systems*, 1 (1988), 269 - 284.
  87. (with A. C. M. Ran), Stability of invariant Lagrangian subspaces, I. *Operator Theory: Advances and Applications*, 32 (1988), 181 - 228.
  88. (with S. Pierce), Linear preservers of the class of Hermitian matrices with balanced inertia, *SIAM J. of Matrix Analysis and Applications*, 9 (1988), 461 - 472.
  89. (with C. R. Johnson), Chordal inheritance principles and positive definite completions of partial matrices over rings, *Operator Theory: Advances and Applications*, 35 (1988), 107 - 127.
  90. (with J. W. Helton, S. Pierce), Ranks of extremal positive semidefinite

- matrices with given sparsity pattern, *SIAM J. on Matrix Analysis and Applications*, 10 (1989), 407 - 423.
91. (with A. C. M. Ran), Stability of invariant Lagrangian subspaces, II. *Operator Theory: Advances and Applications*, 40 (1989), 391 - 425.
  92. (with A. C. M. Ran), Semidefinite perturbations of analytic Hermitian matrix functions, *Integral Equations and Operator Theory*, 12 (1989), 739 - 745.
  93. (with N. Cohen, C. R. Johnson, H. J. Woerdeman), Ranks of completions of partial matrices, *Operator Theory: Advances and Applications*, 40 (1989), 165 - 185.
  94. (with A. C. M. Ran), On stability of invariant subspaces of matrices, *American Mathematical Monthly*, 97 (1990), 809 - 823.
  95. On exact controllability of operators, *Rocky Mountain Journal of Mathematics*, 20 (1990), 549 - 560.
  96. (with J. A. Ball, I. Gohberg), Two-sided Lagrange-Sylvester interpolation problems for rational matrix functions, *Proc. of Symposia in Pure Mathematics*, 51 (1990), 17 - 83.
  97. (with J. A. Ball, I. Gohberg), Sensitivity minimization and bitangential Nevanlinna-Pick interpolation in the contour integral form, *Institute of Mathematics and Applications*, Vol 23 (eds. F. A. Grünbaum, J. W. Helton, P. Khargonekar), (1990), 3 - 35.
  98. (with C.-K. Li), Some extremal problems for positive matrices and operators, *Linear Algebra and Applications*, 140 (1990), 139 - 154.
  99. (with J. A. Ball, I. Gohberg), Two-sided Nudelman interpolation problem for rational matrix functions, *Analysis and Partial Differential Equations*, (ed. C. Sadosky), (1990), 371 - 416, Marcel Dekker.
  100. (with J. A. Ball, I. Gohberg, T. Shalom), On the eigenvalues of matrices with given upper triangular part, *Integral Equations and Operator Theory*, 13 (1990), 488 - 497.
  101. On factorization of selfadjoint operator polynomials, *Proceedings of Symposia in Pure Mathematics*, 51 (1990), 295 - 306.
  102. (with J. A. Ball, I. Gohberg), Common minimal divisors and multiples for rational matrix functions, *Linear Algebra and Applications*, 137-138 (1990), 621 - 662.
  103. (with P. Nylén), Approximation numbers and Yamamoto's theorem in Banach algebras, *Integral Equations and Operator Theory*, 13 (1990), 728 - 749.
  104. (with A. C. M. Ran), Stable invariant Lagrangian subspaces: factorization of symmetric rational matrix functions and other applications, *Linear Algebra and Applications*, 137-138 (1990), 575 - 620.
  105. (with J. A. Ball, I. Gohberg), Simultaneous residue interpolation problems for rational matrix functions, *Integral Equations and Operator Theory*, 13 (1990), 611 - 637.
  106. (with R. Curtain), Infinite dimensional algebraic Riccati equations: comparison theorems, *Systems and Control Letters*, 153 (1990), 154 - 159.
  107. (with D. Alpay, J. A. Ball, I. Gohberg), Realizations and factorizations of rational matrix functions with symmetries, *Operator Theory: Advances and Applications*, 47 (1990), 1 - 60.
  108. (with S. Pierce), On simultaneous congruence of Hermitian matrices, *SIAM Journal of Matrix Analysis and Applications*, 12 (1991), 70 - 83.

109. (with V. I. Paulsen), Positive definite completions of matrices over  $C^*$ -algebras, *Journal of Operator Theory*, 25 (1991), 237 - 253.
110. (with R. Bru, H. Schneider), Extensions of Jordan bases for invariant subspaces of a matrix, *Linear Algebra and Applications*, 150 (1991), 209 - 226.
111. (with J. A. Ball, N. Cohen), Zero data and interpolation problems for rectangular matrix polynomials, *Linear and Multilinear Algebra*, 29 (1991), 53 - 78.
112. (with A. Ben-Artzi, D. Z. Djokovic), Totally isotropic subspaces for pairs of Hermitian forms and applications to Riccati equations. *Linear Algebra and Applications*, 159 (1991), 121 - 128.
113. (with L. Lerer, M. Tismenetsky), Inertia theorems for matrix polynomials, *Linear and Multilinear Algebra*, 30 (1991), 157 - 182.
114. (with J. A. Ball, I. Gohberg), Boundary Nevanlinna-Pick interpolation for rational matrix functions, *J. of Mathematical Systems, Estimation, and Control*, 1 (1991), 131 - 164.
115. (with D. Z. Djokovic, C.-K. Li), Isometries of symmetric gauge functions, *Linear and Multilinear Algebra*, 30 (1991), 81 - 92.
116. (with L. Gurvits, I. M. Spitkovsky), Spectrum assignment for Hilbert space operators, *Houston J. of Mathematics*, 17 (1991), 501 - 523.
117. (with A. C. M. Ran), On symmetric factorizations of rational matrix functions, *Linear and Multilinear Algebra*, 29 (1991), 243 - 261.
118. (with J. A. Ball, I. Gohberg), Nehari interpolation problem for rational matrix functions: the generic case; in: C. Foiaş et al  $H^\infty$ -Control Theory, (eds. E. Mosca, L. Pandolfi), *Lecture Notes in Mathematics*, 1496 (1991), 277 - 308, Springer Verlag.
119. (with A. C. M. Ran), Stable Hermitian solutions of discrete algebraic Riccati equations, *Mathematics of Control, Systems, and Signals*, 5 (1992), 165 - 193.
120. (with A. C. M. Ran), Laurent interpolation for rational matrix function and a local factorization principle, *J. of Mathematical Analysis and Applications*, 164 (1992), 524 - 541.
121. (with C.-K. Li, N.-K. Tsing), Linear operators preserving certain equivalence relations originating in systems theory, *Linear Algebra and Applications*, 161 (1992), 165 - 225.
122. (with T. Shalom), On inversion of symmetric Toeplitz matrices, *SIAM Journal of Matrix Analysis and Applications*, 13 (1992), 530 - 549.
123. (with A. C. M. Ran), Stable solutions of real algebraic Riccati equations, *SIAM Journal of Control*, 30 (1992), 63 - 81.
124. (with T. Shalom), Jordan forms of completions of partial upper triangular matrices, *Linear Algebra and Applications*, 168 (1992), 221 - 249.
125. (with L. Lerer), Spectrum separation and inertia for operator polynomials, *J. of Mathematical Analysis and Applications*, 169 (1992), 260 - 282.
126. (with A. C. M. Ran), Generalized canonical factorization of matrix and operator functions with definite Hermitian part, *Integral Equations and Operator Theory*, 15 (1992), 673 - 696.
127. (with C. R. Johnson, C.-K. Li, S. Pierce, I. M. Spitkovsky), Linear maps preserving regional eigenvalue location, *Linear and Multilinear Algebra*, 32 (1992), 253 - 264.
128. (with L. Gurvits, T. Shalom), Controllability and completion of partial upper

- triangular matrices over rings, *Linear Algebra and Applications*, 172 (1992), 135 - 149.
129. (with D. Alpay, J. A. Ball, I. Gohberg), State space theory of automorphisms of rational matrix functions, *Integral Equations and Operator Theory*, 15 (1992), 349 - 377.
130. Pole shifting for matrices over real algebras, *Systems and Control Letters*, 19 (1992), 475 - 480.
131. (with I. Gohberg, T. Shalom, H. J. Woerdeman), Bounds for eigenvalues and singular values of completions of partial triangular matrices, *Linear and Multilinear Algebra*, 33 (1993), 233 - 250.
132. (with A. C. M. Ran, J. E. Rubin), Direct complements of invariant Lagrangian subspaces and minimal factorizations of skew-symmetric rational matrix functions, *Linear Algebra and Applications*, 180 (1993), 61 - 94.
133. (with M. A. Kaashoek, A. C. M. Ran), Local minimal factorizations of rational matrix functions in terms of null pole data: formulas for factors, *Integral Equations and Operator Theory*, 16 (1993), 98 - 130.
134. (with L. Lerer), Sylvester and Lyapunov equations and some interpolation problems for rational matrix functions, *Linear Algebra and Applications*, 185 (1993), 83 - 117.
135. (with L. Gurvits, T. Shalom), Controllability by completions of partial upper triangular matrices, *Mathematics of Control, Signals, and Systems*, 6 (1993), 30 - 40.
136. (with J. A. Ball, J. Kim, M. Verma), Minimal degree coprime factorization of rational matrix functions, *Linear Algebra and Applications*, 186 (1993), 117 - 164.
137. (with A. C. M. Ran, A. L. Rubin), Stability index of invariant subspaces of matrices, *Linear and Multilinear Algebra*, 36 (1993), 27 - 40.
138. (with J. A. Ball, I. Gohberg), The structure of flat gain rational matrices that satisfy two-sided interpolation requirements, *Systems and Control Letters*, 20 (1993), 401 - 412.
139. (with J. A. Ball, I. Gohberg), Two-sided tangential interpolation of real rational matrix functions, *Operator Theory: Advances and Applications*, 64 (1993), 73 - 102; errata: *Integral Equations and Operator Theory*, 18 (1994), 495 - 497.
140. (with C.-K. Li, P. P. Mehta), Linear operators preserving the inner and outer  $c$ -spectral radii, *Linear and Multilinear Algebra*, 36 (1994), 195 - 204.
141. (with D. Alpay, J. A. Ball, I. Gohberg),  $J$ -unitary preserving automorphisms of rational matrix functions: state space theory, interpolation and factorization, *Linear Algebra and its Applications*, 197/198 (1994), 531 - 566.
142. (with S. Pierce), Lipschitz properties of some actions of matrix groups, *Linear Algebra and its Applications*, 208/209 (1994), 135 - 174.
143. (with A. C. M. Ran), Factorization of matrix polynomials with symmetries, *SIAM Journal of Matrix Analysis and Applications*, 15 (1994), 846 - 864.
144. (with C.-K. Li, P. P. Mehta), A generalized numerical range: the range of a constrained sesquilinear form, *Linear and Multilinear Algebra*, 37 (1994), 25 - 49.
145. (with A. C. M. Ran), The rate of convergence of real invariant subspaces, *Linear Algebra and its Applications*, 207 (1994), 197 - 223.
146. (with C.-K. Li), Numerical range of matrix polynomials, *SIAM Journal of Matrix Analysis and Applications*, 15 (1994), 1256 - 1265.
147. (with P. Lancaster), Invariant neutral subspaces for symmetric and skew real pairs,

- Canadian Journal of Mathematics*, 46 (1994), 607 - 618.
148. (with D. Alpay, J. A. Ball, I. Gohberg), The two-sided residue interpolation in the Stieltjes class for matrix functions, *Linear Algebra and its Applications*, 208/209 (1994), 485 - 522.
  149. (with M. Krupnik), Completions of partial Jordan and Hessenberg matrices, *Linear Algebra and its Applications*, 212 - 213 (1994), 267 - 287; Errata, *Linear Algebra and its Applications*, 240 (1996), 235 - 236.
  150. (with H. J. Woerdeman), Perturbations, singular values and ranks of partial triangular matrices, *SIAM J. of Matrix Analysis and Applications*, 16 (1995), 278 - 288.
  151. (with P. Lancaster), Minimal symmetric factorizations of symmetric real and complex rational matrix functions, *Linear Algebra and its Applications*, 220 (1995), 249 - 282.
  152. (with L. Lerer), Inertia of operator polynomials and stability of differential equations, *Journal of Mathematical Analysis and Applications*, 192 (1995), 579 - 606.
  153. Homogeneous Riccati equations vs quadratic inequalities, *Systems and Control Letters*, 26 (1995), 283 - 288.
  154. (with L. Lerer), Common zero structure of rational matrix functions, *Journal of Functional Analysis*, 136 (1996), 1 - 38.
  155. (with M. Rakowski), Interpolation and divisibility of meromorphic matrix functions, *J. of Mathematical Analysis and Applications*, 199 (1996), 592 - 619.
  156. (with Y. Bolshakov, C. V. M. van der Mee, A. C. M. Ran, B. Reichstein), Polar decompositions in finite dimensional indefinite scalar product spaces: Special cases and applications, *Recent Developments in Operator Theory and its Applications*, OT 87 (eds. I. Gohberg, P. Lancaster, P. N. Shivakumar), Birkhäuser, 1996, pp. 61 - 94; Errata, *Integral Equations and Operator Theory*, 17 (1997), 497 - 501.
  157. (with S. A. McCullough), Two-selfadjoint operators in Krein space, *Integral Equations and Operator Theory*, 26 (1996), 202 - 209.
  158. (with L. Lerer), Symmetric factorizations and localization of zeroes of rational matrix functions, *Linear and Multilinear Algebra*, 40 (1996), 259 - 281.
  159. (with L. Lerer), Bezoutians for rational matrix functions, *Journal of Functional Analysis*, 141 (1996), 1 - 36.
  160. (with M. Bakonyi, I. M. Spitkovsky, H. J. Woerdeman), Positive extensions of matrix functions of two variables with support in an infinite band, *Comptes Rendues Acad. Sci. Paris, Serie I*, 323 (1996), 859 - 863.
  161. Products of symmetric and skew-symmetric matrices, *Linear and Multilinear Algebra*, 43 (1997), 19 - 34.
  162. (with D. S. Keeler, I. M. Spitkovsky), The numerical range of  $3 \times 3$  matrices, *Linear Algebra and its Applications*, 252 (1997), 115 - 139.
  163. (with Y. Bolshakov, C. V. M. van der Mee, A. C. M. Ran, B. Reichstein), Polar decompositions in finite dimensional indefinite scalar product spaces: General theory, *Linear Algebra and its Applications*, 261 (1997), 91 - 141.
  164. (with Y. Bolshakov, C. V. M. van der Mee, A. C. M. Ran, B. Reichstein), Extensions of isometries in finite dimensional indefinite scalar product spaces and polar decompositions, *SIAM J. of Matrix Analysis and Applications*,

- 18 (1997), 752 - 774.
165. (with L. Gurvits), Convergence of polynomially bounded semigroups of matrices, *SIAM Journal of Matrix Analysis and Applications*, 18 (1997), 360 - 368.
166. (with A. C. M. Ran), Rate of stability of solutions of matrix polynomial and quadratic equations, *Integral Equations and Operator Theory*, 27 (1997), 71 - 102.
167. (with A. S. Markus), Some results on numerical ranges and factorizations of matrix polynomials, *Linear and Multilinear Algebra*, 42 (1997), 169 - 185.
168. Non-Hermitian solutions of algebraic Riccati equations, *Canadian Journal of Mathematics*, 49 (1997), 840 - 854.
169. (with I. Y. Bar-Itzhack, D. Hershkowitz), Pointing in real Euclidean space, *Journal of Guidance, Control, and Dynamics*, 20 (1997), 916 - 922.
170. (with N. Cohen, I. Lewkowicz), Exponential stability of triangular differential inclusion systems, *Systems and Control Letters*, 30 (1997), 159 - 164.
171. (with L. Gurvits), Positivity and strict contractivity of functions of operators, *Integral Equations and Operator Theory*, 28 (1997), 17 - 27.
172. (with C.-K. Li), Remarks on numerical ranges of operators in spaces with an indefinite metric, *Proceedings of American Mathematical Society*, 126 (1998), 973 - 982.
173. (with I. M. Spitkovsky, H. J. Woerdeman), Carathéodory - Toeplitz and Nehari problems for matrix valued almost periodic functions, *Transactions of American Mathematical Society*, 350 (1998), 2185 - 2227.
174. (with D. Quint, I. M. Spitkovsky), New cases of almost periodic factorization of triangular matrix functions, *Michigan Journal of Mathematics*, 45 (1998), 73 - 102.
175. (with C. V. M. van der Mee, A. C. M. Ran), Classes of plus matrices in indefinite scalar product spaces, *Integral Equations and Operator Theory*, 30 (1998), 432 - 451.
176. (with A. A. Jafarian, P. Šemrl), Linear maps preserving the isomorphism class of lattices of invariant subspaces, *Proc. of Amer. Math. Soc.*, 126 (1998), 3607 - 3617.
177. (with D. Alpay, V. Bolotnikov), Tangential interpolation with symmetries and two-points interpolation for matrix valued  $H_2$ -functions, *Integral Equations and Operator Theory*, 32 (1998), 1 - 28.
178. (with C.-K. Li), Shapes and computer generation of numerical ranges of Krein space operators, *Electronic Journal of Linear Algebra*, 2 (1998), 31 - 47.
179. (with S. A. McCullough), Normal generalized selfadjoint operators in Krein spaces, *Linear Algebra and its Applications*, 283 (1998), 239 - 245.
180. (with J. A. Ball, Yu. Karlovich, I. M. Spitkovsky), Sarason interpolation and Toeplitz Corona theorem for almost periodic matrix functions, *Integral Equations and Operator Theory*, 32 (1998), 243 - 281.
181. (with I. M. Spitkovsky), Almost periodic factorization and corona theorem, *Indiana University Mathematics Journal*, 47 (1998), 1243 - 1256.
182. (with M. Bakonyi, I. M. Spitkovsky, H. J. Woerdeman), Positive matrix functions on the bitorus with prescribed coefficients in a band, *Journal of Fourier Analysis and Applications*, 5 (1999), 21 - 44.
183. (with C.-K. Li, J. S. J. Lin) Determinants of certain classes of zero-one matrices with equal line sums, *Rocky Mountain J. of Mathematics*, 29 (1999), 1363 - 1385.

184. (with L. Lerer), Inertia theorems for Hilbert space operators based on Lyapunov and Stein equations, *Mathematische Nachrichten*, 198 (1999), 131 - 148.
185. (with A. L. Cohen, D. P. Stanford), Pointwise and uniform convergence of sets of matrices, *SIAM J. Matrix Analysis and Applications*, 21 (1999), 93 - 105. Erratum, *SIAM J. Matrix Analysis and Applications*, 22 (2000), 971.
186. (with C. V. M. van der Mee, A. C. M. Ran), Stability of selfadjoint square roots and polar decompositions in indefinite scalar product spaces, *Linear Algebra and its Applications*, 302/303 (1999), 77 - 104.
187. (with L. Lerer), Bezoutians of rational matrix functions, matrix equations and factorizations, *Linear Algebra and its Applications*, 302/303 (1999), 105 - 133.
188. (with D. Alpay, V. Bolotnikov), One-sided tangential interpolation for operator-valued Hardy functions on polydisks, *Integral Equations and Operator Theory*, 35 (1999), 253 - 270.
189. (with V. Bolotnikov), Normal forms and joint numerical ranges of doubly commuting matrices, *Linear Algebra and its Applications*, 301 (1999), 187 - 194.
190. Finite dimensional spaces with indefinite scalar products: Research problems, *Obzornik za Matematiko in Fiziko*, Ljubljana, 46 (1999), 57 - 60.
191. (with C. V. M. van der Mee, A. C. M. Ran), Stability of polar decompositions, *Glasnik Matematički*, 35 (2000), 137 - 148.
192. (with M. I. Gekhtman), Normal forms of generic triangular band matrices and Jordan forms of nilpotent completions, *Linear Algebra and its Applications*, 308 (2000), 1 - 29.
193. (with P. Šemrl), Linear preservers of minimal rank, *Linear Algebra and its Applications*, 310 (2000), 73 - 82.
194. (with C. V. M. van der Mee, A. C. M. Ran), Stability of stationary transport equations with accretive collision operators, *J. of Functional Analysis*, 174 (2000), 478 - 512.
195. (with I. M. Spitkovsky, H. J. Woerdeman), Factorization of almost periodic matrix functions of several variables and Toeplitz operators, *Operator Theory: Advances and Applications*, 122 (2001), (H. Bart, I. Gohberg, A. C. M. Ran, eds.), 385 - 416.
196. (with A. C. M. Ran, D. Temme), Stability of pseudospectral factorizations, *Operator Theory: Advances and Applications*, (H. Bart, I. Gohberg, A. C. M. Ran, eds.) 122 (2001), 359 - 383.
197. (with D. Alpay, V. Bolotnikov), Two-sided tangential interpolation for Hilbert-Schmidt operator functions on polydisks, *Operator Theory: Advances and Applications*, 124 (2001), 21 - 62.
198. (with C. V. M. van der Mee, A. C. M. Ran), Real Hamiltonian polar decompositions, *SIAM J. of Matrix Analysis and Appl.*, 22 (2001), 1263 - 1273.
199. (with V. Bolotnikov), On positivity of analytic matrix functions in polydisks, *Linear Algebra and Appl.*, 328 (2001), 69 - 94.
200. (with V. Bolotnikov), Positive extension and completion problems for a class of structured matrices, *Linear and Multilinear Algebra*, 48 (2001), 189 - 235.
201. (with N. Zobin), Linear preservers of isomorphism types of lattices of invariant operator ranges, *Proc. of Amer. Math. Soc.*, 129 (2001), 2981 - 2986.
202. (with B. Lins, P. Meade, C. Mehl), Normal matrices and polar decompositions in indefinite inner products, *Linear and Multilinear Algebra*, 49 (2001), 45 - 89.



203. (with C. Mehl), Classes of normal matrices in indefinite inner products, *Linear Algebra and its Applications*, 336 (2001), 71 - 98.
204. (with V. Bolotnikov, C.-K. Li), Minimal distortion problems for classes of unitary matrices, *Electronic Journal of Linear Algebra*, 8 (2001), 26 - 46.
205. (with I. M. Spitkovsky, H. J. Woerdeman), Multiblock problems for almost periodic matrix functions of several variables, *New York Journal of Mathematics*, 7 (2001), 117 - 148.
206. (with B. Lins, P. Meade, C. Mehl), Research Problem: Indefinite inner product normal matrices, *Linear and Multilinear Algebra*, 49 (2001), 261 - 268.
207. (with I. M. Spitkovsky, H. J. Woerdeman), Contractive extension problems for matrix valued almost periodic functions of several variables, *Journal of Operator Theory*, 47 (2002), 3 - 35.
208. (with L. Lerer), Inertia bounds for operator polynomials, *Operator Theory: Advances and Applications*, 130 (2002), 255 - 276.
209. (with I. M. Spitkovsky, H. J. Woerdeman), Fredholmness and invertibility of Toeplitz operators with matrix almost periodic symbols, *Proceedings of Amer. Math. Soc.*, 130 (2002), 1365 - 1370.
210. (with I. M. Spitkovsky, H. J. Woerdeman), Abstract band method via factorization, positive and band extensions of multivariable almost periodic matrix functions, and spectral estimation, *Memoirs of Amer. Math. Soc.*, No. 762 (2002), 71 pp.
211. (with D. Alpay, V. Bolotnikov), Two-sided residue interpolation in matrix  $H_2$  spaces with symmetries: Conformal conjugate involutions, *Linear Algebra and its Applications*, 351/352 (2002), 27 - 68.
212. (with C. V. M. van der Mee, A. C. M. Ran), Polar decompositions and related classes of operators in spaces  $\Pi_\kappa$ , *Integral Equations and Operator Theory*, 44 (2002), 50 - 70.
213. (with V. Bolotnikov), Finite dimensional backward shift invariant subspaces of Arveson spaces, *Linear Algebra and its Applications*, 349 (2002), 265 - 282.
214. (with C. Mehl), Symmetric matrices with respect to sesquilinear forms, *Linear Algebra and its Applications*, 349 (2002), 55 - 75.
215. (with C.-K. Li),  $H$ -joint numerical ranges, *Bulletin of the Australian Mathematical Society*, 66 (2002), 105 - 117.
216. (with J. A. Ball, I. M. Spitkovsky), Toeplitz corona problem for algebras of almost periodic functions, *Operator Theory: Advances and Applications*, 135 (2002), 25 - 37.
217. (with V. Bolotnikov, C. K. Li, P. R. Meade, C. Mehl), Shells of matrices in indefinite inner product spaces, *Electronic J. of Linear Algebra*, 9 (2002), 67 - 92.
218. (with C.-K. Li, P. Šemrl), Linear transformations between matrix spaces that map one rank specific set into another, *Linear Algebra and its Applications*, 357 (2002), 197 - 208.
219. (with C.-K. Li, P. Šemrl), Linear maps on selfadjoint operators preserving invertibility, positive definiteness, numerical range, *Canadian Mathematical Bulletin*, 46 (2003), 216 - 228.
220. (with I. M. Spitkovsky, H. J. Woerdeman), Noncanonical factorizations of almost periodic multivariable matrix functions, *Operator Theory: Advances and Applications*, 142 (2003), 311 - 344.

221. (with V. Bolotnikov, A. Kheifets), Functions with Pick matrices having bounded number of negative eigenvalues, *Contemporary Mathematics*, 323 (2003), 393 - 417.
222. (with V. Bolotnikov, A. Kheifets), Pairs of functions with indefinite Pick matrices, *Linear Algebra and its Applications*, 367 (2003), 271 - 290.
223. (with V. Bolotnikov), Krein - Langer factorizations via pole triples, *Integral Equations and Operator Theory*, 47 (2003), 169 - 195.
224. (with C.-K. Li, I. M. Spitkovsky), On numerical ranges and roots, *J. of Mathematical Analysis and Applications*, 282 (2003), 329 - 340.
225. (with R. M. Guralnick, C.-K. Li), Multiplicative maps on invertible matrices that preserve matricial properties, *Electronic J. of Linear Algebra*, 10 (2003), 291 - 319.
226. (with V. Bolotnikov), Remarks on interpolation in reproducing kernel Hilbert spaces, *Houston Journal of Mathematics*, 30 (2004), 559 - 576.
227. (with V. Bolotnikov), Finite dimensional backward shift invariant subspaces of a class of reproducing kernel Hilbert spaces, *Linear and Multilinear Algebra*, 52 (2004), 321 - 334.
228. (with V. Bolotnikov, A. Kheifets), Nevanlinna - Pick interpolation: Pick matrices have bounded number of negative eigenvalues, *Proc. of Amer. Math. Soc.*, 132 (2004), 769 - 780.
229. (with C. Mehl, A. C. M. Ran), Semidefinite invariant subspaces: degenerate inner products, *Operator Theory: Advances and Applications*, 149 (2004), 467 - 486.
230. (with V. Bolotnikov, A. Kheifets), Operator valued jet functions with positive Carathéodory–Pick operators, *Integral Equations and Operator Theory*, 50 (2004), 291 - 304.
231. (with V. Bolotnikov, A. Kheifets), Jet functions having indefinite Carathéodory–Pick matrices, *Linear Algebra and its Applications*, 385 (2004), 215 - 286.
232. (with C. V. M. van der Mee, I. M. Spitkovsky, H. J. Woerdeman), Factorization of block triangular matrix functions in Wiener algebras on ordered abelian groups, *Operator Theory: Advances and Applications*, 149 (2004), 441 - 465.
233. (with C.-K. Li), Multiplicative preservers of  $C$ -numerical ranges and radii, *Linear and Multilinear Algebra*, 52 (2004), 265 - 279.
234. (with S. Pierce), Research problem: Lipschitz properties of matrix group actions, *Linear and Multilinear Algebra*, 52 (2004), 461 - 466.
235. (with C. Mehl and A. C. M. Ran), Hyponormal matrices and semidefinite invariant subspaces in indefinite inner products, *Electronic Journal of Linear Algebra*, 11 (2004), 192 - 204.
236. (with C.-K. Li), Inverse closed ray-nonsingular convex cones of matrices, *Linear Algebra and its Applications*, 400 (2005), 203 - 230.
237. (with C. M. V. van der Mee, I. M. Spitkovsky), Factorization of block triangular matrix functions with off-diagonal binomials, *Operator Theory: Advances and Applications*, 160 (2005), 423 - 437.
238. (with P. Šemrl, A. R. Sourour), Continuous adjacency preserving maps on real matrices, *Canadian Mathematical Bulletin*, 48 (2005), 267 - 274.
239. Invariant subspaces of selfadjoint matrices in skew symmetric inner products, *SIAM J. on Matrix Analysis*, 26 (2005), 901 - 907.
240. (with M. C. B. Reurings), One-sided tangential interpolation for

- Hilbert-Schmidt operator functions with symmetries in the bidisk,  
*Operator Theory: Advances and Applications*, 157 (2005), 277 - 311.
241. (with I. Lewkowicz, E. J. Yarkoni), Convex invertible sets and matrix sign function,  
*Linear Algebra and its Applications*, 396 (2005), 329 - 352.
242. (with A. Pankov), Spectra of periodic operator polynomials with finitely many diagonals,  
*Journal of Mathematical Analysis and Applications*, 309 (2005), 167 - 175.
243. (with L. Gurvits), On matrix polynomials with real roots, *SIAM J. on Matrix  
 Analysis and Applications*, 26 (2005), 758 - 764.
244. (with I. M. Spitkovsky),  $3 \times 3$  matrices with a flat portion on the boundary of the  
 numerical range, *Linear Algebra and its Applications*, 397 (2005), 193 - 207.
245. (with I. M. Spitkovsky), Analytic roots of invertible matrix functions,  
*Electronic Journal of Linear Algebra*, 13 (2005), 187 - 196.
246. (with C. Mehl, A. C. M. Ran), Polar decompositions of normal operators in  
 indefinite inner product spaces,  
*Operator Theory: Advances and Applications*, 162 (2006), 277 - 292.
247. (with A. C. M. Ran, M. C. B. Reurings), A perturbation analysis for nonlinear  
 selfadjoint operator equations, *SIAM  
 Journal of Matrix Analysis and Applications*, 28 (2006), 89 - 104.
248. Similarity vs unitary similarity and perturbation analysis of sign characteristics:  
 Complex and real indefinite inner products,  
*Linear Algebra and its Applications*, 416 (2006), 945 - 1009.
249. (with P. Šemrl), Orthogonality preserving bijective maps on real and complex  
 projective spaces, *Linear and Multilinear Algebra*, 54 (2006), 355 - 367.
250. (with M. Mbekhta, P. Šemrl), Linear maps preserving generalized invertibility,  
*Integral Equations and Operator Theory*, 55 (2006), 93 - 109.
251. (with D. Alpay, A. C. M. Ran), Basic classes of matrices with respect to  
 quaternionic indefinite inner product spaces,  
*Linear Algebra and its Applications*, 416 (2006), 242 - 269.
252. Bounded and stably bounded palindromic difference equations of first order,  
*Electronic Journal of Linear Algebra*, 15 (2006), 22 - 49.
253. (with I. M. Spitkovsky), Factorization of matrix functions with subgroup supported Fourier  
 coefficients, *Journal of Mathematical Analysis and Applications*, 323 (2006), 604 - 613.
254. (with C. Mehl, A. C. M. Ran), Invariant maximal positive subspaces and polar  
 decompositions, *Integral Equations and Operator Theory*, 56 (2006), 83 - 91.
255. (with C. Mehl and A. C. M. Ran), Extension to maximal semidefinite invariant subspaces  
 for hyponormal matrices in indefinite inner products,  
*Linear Algebra and its Applications*, 421 (2007), 110 - 116.
256. (with W. S. Cheung, C. K. Li), Operators with numerical range in a closed halfplane,  
*Taiwanese Journal of Mathematics*, 11 (2007), 471 - 481.
257. A note on indefinite Douglas' lemma,  
*Operator Theory: Advances and Applications*, 175 (2007), 225 - 229.
258. Canonical forms for symmetric and skewsymmetric quaternionic matrix pencils,  
*Operator Theory: Advances and Applications*, 176 (2007), 199 - 254.
259. (with T. Ehrhardt, C. V. M. van der Mee, and I. M. Spitkovsky), Factorization in

- weighted Wiener algebras on linearly ordered abelian groups, *Integral Equations and Operator Theory*, 58 (2007), 65 - 86.
260. Canonical forms for mixed symmetric-skewsymmetric quaternion matrix pencils, *Linear Algebra and its Applications*, 424 (2007), 184 - 221.
261. (with A. C. M. Ran), On the index of conditional stability of stable invariant Lagrangian subspaces, *SIAM J. of Matrix Analysis*, 29 (2007), 1181 - 1190.
262. (with P. Lancaster and U. Prells), Canonical structures for palindromic matrix polynomials, *Operators and Matrices* 1 (2007), 469 - 489.
263. Comparison of congruences and strict equivalences for real, complex, and quaternionic matrix pencils with symmetries, *Electronic Journal of Linear Algebra*, 16 (2007), 248 - 283.
264. Pairs of quaternionic selfadjoint operators with numerical range in a halfplane, *Linear and Multilinear Algebra*, 56 (2008), 179 - 184.
265. Pairs of hermitian and skew-hermitian quaternionic matrices: canonical forms and their applications, *Linear Algebra and its Applications*, 429 (2008), 981 - 1019.
266. (with C. Mehl, V. Mehrmann, A. C. M. Ran), Perturbation analysis of Lagrangian invariant subspaces of symplectic matrices, to appear in *Linear and Multilinear Algebra*.
267. (with P. Šemrl), Orthogonality preserving bijective maps on finite dimensional projective spaces over division rings, accepted in *Linear and Multilinear Algebra*.
268. (with I. M. Spitkovsky), On generalized numerical ranges of quadratic operators, *Operator Theory: Advances and Applications*, 179 (2008), 241 - 256.
269. (with D. Vokocin), Operator valued functions with Pick operators having negative subspaces of bounded dimensions, to appear in *Complex Analysis and Operator Theory*.
270. (with C.-K. Li), Preservers of spectral radius, numerical radius, or spectral norm of the sum on nonnegative matrices, accepted in *Linear Algebra and its Applications*.
271. Hamiltonian square roots of skew Hamiltonian quaternionic matrices, *Electronic Journal of Linear Algebra*, 17 (2008), 168 - 191.
272. Isotropic subspaces for pairs of hermitian matrices, submitted to *Electronic Journal of Linear Algebra*.
273. (with P. Šemrl), Preservers of generalized orthogonality on finite dimensional real vector and projective spaces, to appear in *Linear and Multilinear Algebra*.
274. (with I. M. Spitkovsky), Algebras of almost periodic functions with Bohr-Fourier spectrum in a semigroup: Hermite property and its applications, accepted in *J. of Functional Analysis*.
275. (with S. Clark, C.-K. Li), Spectral radius preservers of products of nonnegative matrices, *Banach Journal of Mathematical Analysis*, 2 (2008), 107 - 120.

#### EXPOSITORY AND SURVEY ARTICLES

276. (with A. C. M. Ran), The algebraic Riccati equation, *Topics*

- in *Operator Theory, Systems, and Networks*, (eds. H. Dym, I. Gohberg),  
*Operator Theory: Advances and Applications*, 12 (1985), 351 - 381, Birkhäuser Verlag.
277. Hermitian matrix polynomials, *Current Trends in Matrix Theory*, (eds. F. Uhlig, R. Grone), (1987), 305 - 329, North-Holland.
278. (with J. A. Ball, I. Gohberg), Realization and interpolation of rational matrix functions, *Operator Theory: Advances and Applications*, 33 (1988), 1 - 72.
279. Orthogonal matrix polynomials, *Orthogonal Polynomials: Theory and Practice*, (ed. P. Nevai), NATO ASI Series, (1990), 345 - 362, Kluwer Academic Publishers.
280. (with J. A. Ball, I. Gohberg), Tangential interpolation problems for rational matrix functions, *Proc. of Symposia in Pure Mathematics*, 40 (1990), 59 - 86.
281. (with P. Lancaster), Solutions of the continuous and discrete time algebraic Riccati equations, *The Riccati Equation*, (eds. S. Bittanti, A. J. Laub, J. C. Willems), (1991), 11 - 51, Springer Verlag.
282. (with J. A. Ball, I. Gohberg), The state space method in the study of interpolation by rational matrix functions, *Mathematical System Theory*, (ed. A. C. Antoulas), (1991), 503 - 508.
283. (with J. A. Ball, I. Gohberg), Interpolation problems for rational matrix functions and systems theory, *Proc. of International Symposium on Mathematical Theory of Networks and Systems*, (eds. H. Kimura, S. Kodama), (1992), 3 - 12.
284. Matrix functions, *Handbook of Algebra*, (ed. M. Hazewinkel), Vol. 1 (1996), 117 - 154. Correction and Addition, *Handbook of Algebra*, Vol. 3 (2003), p. 63, North-Holland, Amsterdam.
285. (with S. A. McCullough), Hereditary classes of operators and matrices, *American Mathematical Monthly*, 104 (1997), 415 - 430.
286. Completions of triangular matrices: A survey of results and open problems, *Structured Matrices in Mathematics, Computer Science, and Engineering: Part II, Contemporary Mathematics*, (V. Olshevsky, ed.), (2001), 279 - 293.
287. (with A. C. M. Ran), A class of robustness problems in matrix analysis, *Operator Theory: Advances and Applications*, 134 (2002), 337 - 389.
288. (with Y. H. Au-Yeung, C.-K. Li),  $H$ -unitary and Lorentz matrices: A review, *SIAM J. of Matrix Analysis*, 25 (2004), 1140 - 1162.
289. (with J. A. Ball, J. W. Helton, M. Klaus), IWOTA 2002 and recent achievements and new directions in Operator Theory and Applications, *Operator Theory: Advances and Applications*, 149 (2004), i - xxii.
290. (with P. Lancaster), Canonical forms for hermitian matrix pairs under strict equivalence and congruence, *SIAM Review*, 47 (2005), 407 - 443.
291. (with P. Lancaster), Canonical forms for symmetric/skew-symmetric real matrix pairs under strict equivalence and congruence, *Linear Algebra and its Applications*, 406 (2005), 1 - 76.

## BOOK REVIEWS

292. K. Clancey and I. Gohberg, Factorization of Matrix Functions and Singular Integral Equations, Birkhäuser Verlag, 1981, *Mededelingen van het Wiskundig*

- Genootschap* (Notices of the Dutch Mathematical Society) 26 (1983), 78 - 79.
293. T. Ya. Azizov and I. S. Iohvidov, Linear Operators in Spaces with an Indefinite Metric, *Bulletin of American Mathematical Society*, 25 (1991), 811 - 823.
294. C. D. Ahlbrandt and A. C. Peterson, Discrete Hamiltonian Systems: Difference Equations, Continued Fractions, and Riccati Equations, *SIAM Review*, 40 (1998), 749 - 751.
295. H. E. Rose, Linear Algebra. A Pure Mathematical Approach, *SIAM Review*, 45 (2003), 618 - 620.
296. H. Abu-Kandil, G. Freiling, V. Ionescu, and G. Jank, Matrix Riccati Equations in Control and Systems Theory, *IEEE Control Systems Magazine*, 25/1 (2005), 102 - 103, 109.

#### REPORTS, CONFERENCE PROCEEDINGS, ETC.

Technical reports are included only if the results have not appeared in other publications.

297. Equivalence of linear operator polynomials, *Proc. of 4th International Symposium on Mathematical Theory of Networks and Systems*, (1979), 389 - 392, Delft, The Netherlands.
298. (with I. Gohberg, L. Lerer), On factorization, indices, and completely decomposable matrix polynomials, *Technical Report, Department of Mathematical Sciences, Tel-Aviv University*, 80-47 (1980), 72 pp.
299. (with M. A. Kaashoek, C. V. M. van der Mee), Spectral analysis of analytic operator functions with compact spectrum, *Proc. of 5th International Symposium on Mathematical Theory of Networks and Systems*, (1981), 134 - 138, Santa Monica, California.
300. (with I. Gohberg, P. Lancaster), A sign characteristic for selfadjoint rational matrix functions, *Mathematical Theory of Networks and Systems*, (ed. P. A. Fuhrmann), *Lecture Notes on Control and Information Sciences*, 58 (1984), 363 - 369.
301. (with J. A. Ball, N. Cohen), On interpolation problems for rectangular matrix polynomials, *Proceedings of 27th IEEE Conference on Decision and Control*, Austin, Texas, (1988), 1370 - 1372.
302. (with A. C. M. Ran), Discrete algebraic Riccati equations: perturbations and stability of solutions, *Proceedings of IEEE International Symposium on Circuits and Systems*, (1990), 1197 - 1198.
303. (with A. C. M. Ran), Robust solutions of algebraic Riccati equations, *Proc. of American Control Conference*, (1990), 3058 - 3059.
304. (with A. C. M. Ran), Perturbation analysis of algebraic matrix Riccati equations, *Proceedings of 29th IEEE Conference on Decision and Control*, (1990), 1855 - 1856.
305. (with J. A. Ball, N. Cohen, M. Rakowski), Spectral data and minimal divisibility of rectangular meromorphic matrix functions, *Technical Report, Dept. of Mathematics, College of William and Mary*, 91.04 (1991), 21 pp.
306. (with L. Lerer), Bezoutians and factorizations of rational matrix functions and

- matrix equations, *Systems and Networks: Mathematical Theory and Applications*, (eds. U. Helmke, R. Mennicken, J. Saurer), (1994), 761 - 766, Akademie Verlag.
307. (with M. Rakowski), Divisibility in a class of rational matrix functions, *Systems and Networks: Mathematical Theory and Applications*, (eds. U. Helmke, R. Mennicken, J. Saurer), (1994), 829 - 834, Akademie Verlag.
308. (with A. C. M. Ran), Rate of stability of Hermitian solutions of algebraic Riccati equations, *Proceedings of 5th SIAM Conference on Applied Linear Algebra*, (ed. J. G. Lewis), (1994), 3 - 6.
309. (with I. M. Spitkovsky), Spectrum assignment problems, *Linear and Complex Analysis Problem Book 3, Part I*, (eds. V. Havin, N. K. Nikolskii), *Lecture Notes in Mathematics*, 1574 (1994), 223 - 225, Springer Verlag.
310. (with I. Gohberg, M. A. Kaashoek), Local and global analytic equivalence of analytic operator functions, *Linear and Complex Analysis Problem Book 3, Part I*, (eds. V. Havin, N. K. Nikolskii), *Lecture Notes in Mathematics*, 1574 (1994), 205 - 206, Springer Verlag.
311. (with I. Y. Bar-Itzhack, D. Hershkowitz), Pointing, *Proceedings of 35th IEEE Conference on Decision and Control*, (1996), 3139 - 3144, Kobe, Japan.
312. (with A. C. M. Ran), Rate of stability of symmetric factorizations, *Proc. of European Control Conference*, (1997), 2 pp., Brussels, Belgium.
313. State space methods for tangential interpolation problems, *Proc. of 36th Conference on Decision and Control*, (1997), San Diego, California, pp. 4420 - 4424.
314. (with B. Lins, P. Meade, C. Mehl), Polar decompositions of indecomposable normal matrices in indefinite inner products: Explicit formulas and open problems. Preprint 2000-9, Fakultät für Mathematik, Technische Universität Chemnitz, Germany, August 2000, 26 pp.
315. (with H. Bart, I. Koltracht, A. S. Markus), Personal notes, *Linear Algebra and its Applications*, 385 (2004), 7 - 21.
316. (with C.-K. Li, C. Tretter), Preface and conference report, *Linear and Multilinear Algebra*, 56 (2008), 1 - 2.