October 2023

CURRICULUM VITÆ

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RESEARCH INTERESTS

Numerical Analysis/Scientific Computing, and in particular:

- Ill-posed problems.
- Orthogonal polynomials and quadrature, applications in linear algebra, signal and image processing.
- Large-scale eigenvalue problems, applications to path following.
- Iterative methods for large linear systems of equations.
- Structured problems in linear algebra and applications.
- Matrix functions, applications to network analysis.

EDUCATION

Ph. D. (fil. dr.), Numerical Analysis/Computer Science, University of Stockholm, Sweden, 1982.

B. Sc. (fil. kand.), University of Lund, Sweden, 1974.

EMPLOYMENT

Professor, Department of Mathematical Sciences, Kent State University, Kent, OH, 2001–present.

Professor, Department of Mathematics and Computer Science, Kent State University, Kent, OH, 1991–2001.

Professor, Department of Mathematics, University of Kentucky, Lexington, KY, 1991–92.

Associate Professor, Department of Mathematics, University of Kentucky, Lexington, KY, 1988–91.

Assistant Professor, Department of Mathematics, University of Kentucky, Lexington, KY, 1983–88.

Lecturer, Department of Numerical Analysis and Computer Science, Royal Institute of Technology, Stockholm, Sweden, 1982.

Assistant, Department of Numerical Analysis and Computer Science, Royal Institute of Technology, Stockholm, Sweden, 1975–81.

AWARDS AND HONORS

Among the top 2% most cited scientists in list compiled at Stanford University, 2020.

Chercheur en Mathématique, Centre National de la Recherche Scientifique, France, fall 2012.

Chair of Excellence, University Carlos III of Madrid, Madrid, Spain, 2010-2011.

Senior Research Associateship, National Research Council, 1991.

Scholarship, Swedish Institute and Mathematisches Forschungsinstitut, ETH, Zürich, 1983-84.

Scholarship, Sweden-America Foundation and Mathematics Research Center, University of Wisconsin, Madison, WI, 1982-83.

RECENT RESEARCH GRANTS

NSF Grant DMS-1720259, 2017-2021: Collaborative Research: Matrix Functions and Networks, $ 150,000

NSF Grant DMS-1729509, 2017-2020: DMREF: Collaborative Research: Materials Engineering of Columnar and Living Liquid Crystals via Experimental Characterization, Mathematical Modelling and Simulations, $ $5 \cdot 10^5$

EDITORIAL WORK

Editor, Journal of Computational and Applied Mathematics, 1987–present.

Associate Editor, SIGNUM Newsletter, 1987–97.

Editor, Numerische Mathematik, 1991–present.

Editor, Advances in Computational Mathematics, 1992–present.

Editor-in-Chief for Electronic Transactions on Numerical Analysis, 1993–present.

Editor, SIAM Journal on Matrix Analysis and Applications, 1995–2007.

Editor, BIT, 1997–present.

Editor, Mathematics of Computation, 1999–2007.

Editor, Journal of Applied Mathematics, 2000–2004.

Editor, Journal of Scientific Computing, 2006–present.

Editor, Computational Methods and Function Theory, 2001–present.

Editor, Numerical Linear Algebra with Applications, 2002–present.

Editor, Numerical Algorithms, 2006–present.

Editor, Kragujevac Journal of Mathematics, 2006–present.

Editor, Advances in Numerical Analysis, 2008–2018.

Editor, Open Applied Mathematics Journal, 2007–present.

Editor, Publications de l'Institut Mathématique, 2011–present.

Editor, Mathematics, 2013–present.

Editor, Dolomites Res. Notes Approx., 2013–present.

Editor, Applied Numerical Mathematics, 2013–present.

Editor, Applied Numerical Mathematics, 2013–present.

Editor, Journal of Computational Mathematics, 2017–present.

Editor, Numerical Mathematics: Theory, Methods and Applications, 2021–present.

Editor, Computational Mathemtics and Computer Modeling with Applications, 2022–present.

Editor for the book series "Numerical Methods and Algorithms" published by Springer, 2008–present.

Editor for the book series "SpringerBriefs in Mathematics" published by Springer, 2014–present.

ORGANIZATION OF CONFERENCES, WORKSHOPS, AND SPECIAL SESSIONS

Conference ETNA 25: Recent Advances in Scientific Computation, May 27-29, 2019, Santa Margherita di Pula, Sardinia, Italy (with R. Ramlau and G. Rodriguez).

Summer School on Advanced Numerical Techniques for Inverse Problems with Applications in Imaging Science and Applied Geophysics, July 17-21, 2017, Sardegna Ricerche, Santa Margherita di Pula, Sardinia, Italy (with A. Concas, P. Diaz de Alba, L. Dykes, C. Fenu, and G. Rodriguez).

Conference on Numerical Linear Algebra and Applications (about 55 speakers), Oct. 24-28, 2016, Luminy, France (with K. Jbilou and H. Sadok).

Minisymposium on Matrices and Orthogonal Polynomials (16 speakers) at the 18th ILAS Meeting, June 3-7, 2013, Providence, RI (with J. Geronimo and F. Marcellán).

Conference on Structured Matrix Computations in Non Euclidean Geometries: Algorithms and Applications (about 40 speakers), Oct. 8-12, 2012, Luminy, France (with P. Benner, M. Sadkane, and A. Salam).

Special session on Approximation Methods in Numerical Linear Algebra (10 speakers) at the Third Dolomites Workshop on Constructive Approximation and Applications, Sep. 9-14, 2012, Alba di Canazei, Italy (with M. Redivo Zaglia).

Workshop on Numerical Linear Algebra (23 speakers), July 8-11, 2011, Budapest, Hungary, at the conference Foundation of Computational Mathematics (with O. Holtz).

Minisymposium on Structured Matrices (15 speakers) at the meeting of the International Linear Algebra Society, June 21–25, 2010, Pisa, Italy (with Y. Eidelman and M. Van Barel).

Conference on Inverse Problems, Computations, and Applications (about 55 speakers), May 31-June 4, 2010, Luminy, France (with K. Jbilou and H. Sadok).

Special session on Large Scale Matrix Computation (22 speakers) at the AMS Spring Southeastern Sectional Meeting, March 27-28, 2010, Lexington, KY (with Q. Ye).

Special session on Structured Matrix Computations (20 speakers), Oct. 26–29, 2009, Seaside, CA (with M. Van Barel).

Conference on Linear and Numerical Linear Algebra: Theory, Methods, and Applications, Aug. 12–14, Northern Illinois University, De Kalb, IL (with B. N. Datta et al.).

Conference on the occasion of Richard Varga's 80th birthday, Richard Varga Fest, Oct. 17–18, 2008, Kent State University, Kent, OH (with L. Dykes, P. Farrell, J. Li, A. Ruttan, and L. Smithies).

Workshop on Numerical Linear Algebra (27 speakers), June 20–22, 2008, Honk Kong, at the conference Foundation of Computational Mathematics (with O. Holtz).

Numerical Analysis in Monterey, Graggfest '06, Nov. 3–4, 2006, Naval Postgraduate School, Monterey, CA (with G. Ammar, C. Borges, and M. Van Barel).

Special session on Inverse Problems: Theory and Numerics for Novel Applications, Joint Mathematics Meetings, Jan. 13–14, 2006, San Antonio, TX (with H. Engl).

Workshop on Numerical Linear Algebra, July 7–9, 2005, Santander, Spain, at the conference Foundation of Computational Mathematics (with S. Vavasis).

Workshop on Computational Methods for Inverse Problems and Applications, Nov. 14–19, 2003, Institute for Pure and Applied Mathematics, UCLA, Los Angeles, CA (with H. Engl, D. Colton, P. Deuflhard, D. Donoho, and E. Michielssen).

Special session on Numerical Linear Algebra at the First Joint AMS-RSME International Meeting, June 18–21, 2003, Seville, Spain (with F. Marcellán).

Following the flows of Numerical Analysis: A conference on the occasion of the 10th anniversary of the Electronic Transaction on Numerical Analysis (ETNA), May 29–31, 2003, Kent State University, Kent, OH (with V. Andriyevskyy, D. Calvetti, A. Melton, A. Ruttan, and R. S. Varga).

Applied Inverse Problems: Theoretical and Computational Aspects, June 18–22, 2001, Montecatini Terme, Italy (with M. Bertero, D. Calvetti, T.F. Chan, G.H. Golub, G. Inglese, A. Murli, R.J. Plemmons, S. Seatzu, F. Sgallari, and G. Talenti).

Mathematical Journey through Analysis, Matrix Theory and Scientific Computation: A conference in Honor of Richard Varga's 70th Birthday, Mar. 25–27, 1999, Kent State University, Kent, OH (with D. Calvetti and A. Ruttan).

ODE to Linear Algebra and Rational Approximation, a Conference in Honor of William B. Gragg's 60th Birthday, Nov. 1–2, 1996, Naval Postgraduate School, Monterey, CA (with G.S. Ammar, C. Borges and D. Calvetti).

Special sessions (with 22 presentations) on Numerical Linear Algebra and Scientific Computing at AMS Meeting # 904, Nov. 3–4, 1995, Kent State University, Kent, OH (with A. Ruttan and R.S. Varga).

Numerical Linear Algebra and Scientific Computing, Mar. 13–14, 1992, Kent State University, Kent, OH (with A. Ruttan and R.S. Varga).

THESIS DIRECTION

Dan Y. Hu, Ph.D., 1992, University of Kentucky:

"Parallel Krylov subspace methods for solving Sylvester's equation."

Carl F. Jagels, Ph.D., 1992, University of Kentucky:
"Applications of Szegő polynomials in numerical analysis."

James Baglama, Ph.D., 1997, Kent State University:
"Krylov subspace methods with application to liquid crystal modeling."

Qin Zhang, Ph.D., 1998, Kent State University:
"Iterative methods for linear ill-posed problems."

James E. Blevins, M.S., 1998, Kent State University:
"Reducible linear operators that contract angles."

Bryan Lewis, Ph.D., 2000, Kent State University:
"Krylov methods for signals, systems and control."

Naman Al-Niemi, M.S., 2000, Kent State University:
"On the ordering of tridiagonal matrices in the cyclic reduction method for Poisson's equation."

Abdallah Shuibi, Ph.D., 2003, Kent State University:
"Numerical methods for large-scale ill-posed problems."

Sun-Mi Kim, Ph.D., 2004, Kent State University:
"Orthogonal polynomials, quadrature rules, and linear algebra."

Renat Islamov, M.S., 2005, Kent State University:
"Tikhonov regularization of large-scale problems."

Andriy Shyshkov, Ph.D., 2010, Kent State University:
"Numerical solution of ill-posed problems."

Arthur Neuman, M.S., 2010, Kent State University:
"Regularization methods for ill-posed problems."

Martin Fuhry, Honors thesis, 2011, Kent State University:
"A new Tikhonov regularization method."

Tristan A. Hearn, Ph.D., 2012, Kent State University:
"Numerical methods for ill-posed problems with applications."

David R. Martin, Ph.D., 2012, Kent State University:
"Quadrature approximation of matrix functions with applications."

Xuebo Yu, Ph.D., 2014, Kent State University:
"Generalized Krylov subspace methods with applications."

Maged A. Alkilayh, M.S., 2016, Kent State University:
"Cubically convergent zero-finders for the trust region problem."

Tunan Tang, Ph.D., 2016, Kent State University:
"Extensions of Gauss, block Gauss, and Szegő quadrature rules with applications."

Laura R. Dykes, Ph.D., 2016, Kent State University:
"New methods for solution of discrete ill-posed problem."

Hessah Alqahtani, Ph.D., 2017, Kent State University:

"Gauss-type quadrature rules, with applications in linear algebra."

Enyinda Onunwor, Ph.D., 2017, Kent State University:

"Lanczos and Golub-Kahan reduction methods applied to ill-posed problems."

Mykhailo Kuian, Ph.D., 2019, Kent State University:

"Optimal conditioning of Vandermonde-like matrices and of a measurement problem."

Aparnnaa, M.S., 2019, Kent State University:

"Image denoising and noise estimation by wavelet transformation."

Mona Matar, Ph.D., 2019, Kent State University:

"Node and edge importance in networks via the matrix exponential."

Yonggi Park, Ph.D., 2019, Kent State University:

"Parameter selection rules for ill-posed problems."

Mirjeta Pasha, Ph.D., 2020, Kent State University:

"Krylov subspace type methods for the computation of nonnegative or sparse solutions of ill-posed problems."

Mohammed Al Mugahwi, Ph.D., 2020, Kent State University:

"Methods for solving node centrality measure problems for large networks."

Nasim Eshghi, Ph.D., 2020, Kent State University:

"Approximation of matrix functions by quadrature rules based on the Lanczos and Arnoldi processes."

Xianglan Bai, Ph.D., 2021, Kent State University:

"Non-Krylov non-iterative subspace methods for linear discrete ill-posed problems."

Jihan Alahmadi, Ph.D., 2021, Kent State University:

"Standard and rational Gauss quadrature rules for the approximation of matrix functionals."

Ugochukwu Ugwu, Ph.D., 2021, Kent State University:

"Iterative tensor factorization based on Krylov subspace-type methods with applications to image processing."

Yunzi Zhang, Ph.D., 2021, Kent State University:

"Chained graphs and iterative methods for computing the Perron vector of adjacency matrices."

Abdulaziz Alqahtani, Ph.D., 2022, Kent State University:

"Numerical methods for the solution of linear illposed problems."

Lucas W. Onisk, Ph.D., 2022, Kent State University:

"Arnoldi-type methods for the solution of linear discrete ill-posed problems."

Maged Alkilayh, Ph.D., 2022, Kent State University:

"Iterative methods for optimization, eigenvalue and ill-posed problems."

Fei (Jerry) Chen, Ph.D., 2023, Kent State University:

"Sparse approximation, curve fitting, and mathematical methods for exploring living liquid crystals transitions."

Jiafeng Jin, work for Ph.D. in progress.

Hanan Almutairi, work for Ph.D. in progress.

LECTURE SERIES FOR GRADUATE STUDENTS AND NEW PH.D.s DELIVERED AT SUMMER SCHOOLS OR MATHEMATICS DEPARTMENTS

Lectures on "Numerical methods for ill-posed problems" at the Summer School on Applied Analysis, Chemnitz University of Technology, Faculty of Mathematics, Chemnitz, Germany, Oct. 2010.

Lectures on "Linear algebra for ill-posed problems" at the University of Insubria, Como, Italy, Nov. 2011.

Lectures on "Error bounds and estimates for matrix functions" at the International Spring School on Matrix Functions and Their Applications, Lille, France, May 2013.

Lectures on "Network analysis, orthogonal polynomials, and Gauss quadrature" at the University of Insubria, Como, Italy, Nov. 2016.

Lectures on "Numerical linear algebra for discrete ill-posed problems" at the Summer School on Advanced Numerical Techniques for Inverse Problems with Applications in Imaging Science and Applied Geophysics, Sardegna Ricerche, Santa Margherita di Pula, Italy, July 2017.

Lectures on "Numerical methods for linear discrete ill-posed problems" at the University of Uppsala, Sweden, May 2018.

Lectures on "Iterative methods for image processing" at the Summer School on Computational Methods for Inverse Problems in Imaging, Lake Como School of Advanced Studies, Como, Italy, May 2018.

Lectures on "Numerical linear algebra for ill-posed problems" at the University of Padova, Italy, June 2018.

Lectures on "Numerical linear algebra for ill-posed problems" at the University of Cagliari, Italy, June 2019.

Lectures on "Introduction to network analysis" at the University of Insubria, Como, Italy, July 2021.

Lectures at Summer School on Recent Advancements in Computational and Learning Methods for Inverse problems on "Solution methods for ill-posed problems," University of Cagliari, Italy, July 2022.

PUBLICATIONS

Books and Special Journal Volumes Edited

1. Numerical Linear Algebra, Proceedings of the SIAM Western Pennsylvania/Eastern Ohio Sectional Meeting, March 13–14, 1992 (with A. Ruttan and R.S. Varga), de Gruyter, Berlin, 1993.
2. Special issue of J. Comput. Appl. Math. dedicated to W.B. Gragg on the occasion of his 60th birthday (with G.S. Ammar and D. Calvetti), issue 1, vol. 86, 1997.
3. Mathematical Journey through Analysis, Matrix Theory and Scientific Computation, special volume of Numerical Algorithms dedicated to R.S. Varga (with D. Calvetti), vol. 25, 2000.
4. Quadrature and Orthogonal Polynomials, special volume of J. Comput. Appl. Math. (with W. Gautschi and F. Marcellán), vol. 127, 2001. Also published as the book "Numerical Analysis 2000, vol. 5, Quadrature and Orthogonal Polynomials, Elsevier, Amsterdam, 2001.
5. Applied Computational Inverse Problems, special issue of J. Comput. Appl. Math. (with F. Sgallari), issue 2, vol. 198, 2007.
6. Special volume of Electron. Trans. Numer. Anal. dedicated to G.H. Golub (with M. Gutknecht, M. Overton, D.B. Szyld, L.N. Trefethen, P. Van Dooren, and A. Wathen), vol. 28, 2007-2008.
7. Numerical Algebra and Scientific Computing, special issue of J. Comput. Appl. Math. (with Z.-Z. Bai and Z.-C. Shi), issue 1, vol. 226, 2009.
8. Matrix Analysis and Applications (M2A), special volume of Electron. Trans. Numer. Anal. (with B. Beckermann, K. Jbilou, Y. Saad, M. Sadkane, and A. Salam), vol. 33, 2008–2009.
9. Special issue of J. Comput. Appl. Math. dedicated to W.B. Gragg on the occasion of his 70th birthday (with G.S. Ammar and M. Van Barel), issue 5, vol. 233, 2010.
10. Special volume of Electron. Trans. Numer. Anal. dedicated to Richard S. Varga on the occasion of his 80th birthday (with V. Andriyevskyy, M. Eiermann, R. Freund, J. Li, V. Mehrmann, R. Nabben, and D. Szyld), vol. 36, 2009–2010.
11. Special issue of Linear Algebra and Its Applications with selected papers presented at the Northern Illinois University LA'09 Conference on Linear and Numerical Linear Algebra: Theory, Methods, and Applications, August 12-14, 2009 (with B.N. Datta, R.J. Plemmons, and Q. Ye), issue 7, vol. 434, 2011.
12. Inverse Problems: Computation and Applications, special issue of J. Comput. Appl. Math. (with A. Bouhamidi, K. Jbilou, R. Ramlau, H. Sadok, and F. Sgallari), issue 8, vol. 236, 2012.
13. Special issue of Linear Algebra and Its Applications dedicated to Heinrich Voss on the occasion of his 65th birthday (with T. Betcke, C. Mehl, V. Mehrmann, and S. M. Rump), issue 10, vol. 436, 2012.
14. Innovative Methods and Theories in Numerical Algebra, special issue of Numer. Linear Algebra Appl. (with Z.-Z. Bai, I. S. Duff, and Z.-C. Shi), issue 6, vol. 19, 2012.
15. Inverse Problems in Science and Industry, special issue of Numerical Linear Algebra and Applications dedicated to Biswa N. Datta (with E. K.-W. Chu and W.-W. Lin), issue 2, vol. 20, 2013.
16. Special issue of Applied Numerical Methods with selected papers presented at the 10th IMACS meetingi, held in Marrakech, Morocco, May 18-21, 2011 (with K. Jbilou and H. Sadok), vol.

75, 2014.

17. Special volume of Electron. Trans. Numer. Anal. with selected papers presented at the Conference on Numerical Analysis and Scientific Computing with Applications (NASCA 13), held in Calais, France, June 24-26, 2013 (with K. Jbilou and H. Sadok), vol. 43, 2014-2015.
18. Numerical Algebra and Scientific Computing, special issue of BIT (with Z.-Z. Bai), issue 2, vol. 56, 2016.
19. Recent Progress on Iterative Methods for Large Systems of Equations, special issue of Numerical Algorithms (with K. Hayami, K. Morikuni, Y. Nakatsukasa, and J.-F. Yin), issue 2, vol. 75, 2017.
20. Special volume of Electron. Trans. Numer. Anal. with selected papers presented at the Conference on Numerical Linear Algebra and Applications, held at Luminy, October 24-28, 2016 (with K. Jbilou and G. Meurant), vol. 47, 2017.
21. Novel Methods and Theories in Numerical Algebra with Interdisciplinary Applications, special issue of Numer. Linear Algebra Appl. (with Z.-Z. Bai and M. G. Neytcheva), issue 4, vol. 25, 2018.
22. Special volume of Electron. Trans. Numer. Anal. dedicated to Walter Gautschi with selected papers presented at the Conference "Approximation and Computation - Theory and Applications" held in Belgrade, November 30 - December 2, 2017 (with G. Milovanović), vol. 50, 2018.
23. Special issue of J. Comput. Appl. Math. with selected papers presented at the Conference on Numerical Analysis and Scientific Computing with Applications (NASCA 18), held in Kalamata, Greece, July 2-6, 2018 (with D. A. Bini, K. Jbilou, M. Mitrouli), vol. 373, 2020.
24. Special volume of Electron. Trans. Numer. Anal. with selected papers presented at the conference ETNA25 (with M. Donatelli, R. Ramlau, and G. Rodriguez), vol. 53, 2020.
25. Special issue for the Seventh International Conference on Numerical Algebra and Scientific Computing, Appl. Numer. Math. (with Z.-Z. Bai and Z.-Q. Wang), vol. 164, 2021.
26. Special issue on "Recent Advances in the Iterative Solution of Matrix Problems" of J. Comput. Appl. Math. (with K. Hayami, Keiichi Morikuni, and N. Zheng), vol. 430, 2023.

Numerical Methods for Ill-Posed Problems

1. An iterative method for image reconstruction from projections (with D. Calvetti, F. Sgallari and G. Spaletta), in Proceedings of the Fifth SIAM Conference on Applied Linear Algebra, ed. J.G. Lewis, SIAM, Philadelphia, 1994, pp. 92–96.
2. Iterative solution methods for ill-posed problems (with D. Calvetti and Q. Zhang), in Advanced Signal Processing Algorithms, ed. F.T. Luk, Proceedings of the Society of Photo-Optical Instrumentation Engineers (SPIE), vol. 2563, The International Society for Optical Engineering, Bellingham, WA, 1995, pp. 338–347.
3. Application of ADI iterative methods to the restoration of noisy images (with D. Calvetti), SIAM J. Matrix Anal., 17 (1996), pp. 165–186.
4. Iterative solution methods for ill-posed problems (with D. Calvetti and Q. Zhang), in 12th Annual Review on Computational and Applied Electromagnetism, ACES, 1996, pp. 638–644.

5. Iterative methods for $X - AXB = C$ (with D. Calvetti and N. Levenberg), J. Comput. Appl. Math., 86 (1997), pp. 73–101.
6. Smooth or abrupt: a comparison of regularization methods (with D. Calvetti and B. Lewis), in Advanced Signal Processing Algorithms, Architectures and Implementations VIII, ed. F.T. Luk, Proceedings of the Society of Photo-Optical Instrumentation Engineers (SPIE), vol. 3461, The International Society for Optical Engineering, Bellingham, WA, 1998, pp. 286–295.
7. Iterative solution methods for large linear discrete ill-posed problems (with D. Calvetti and Q. Zhang), Applied and Computational Control, Signals and Circuits, 1 (1999), pp. 313–367.
8. Iterative exponential filtering for large discrete ill-posed problems (with D. Calvetti and Q. Zhang), Numer. Math., 83 (1999), pp. 535–556.
9. Estimation of the L-curve via Lanczos bidiagonalization (with D. Calvetti and G.H. Golub), BIT, 39 (1999), pp. 603–619.
10. A regularizing Lanczos iteration method for underdetermined linear systems (with D. Calvetti, F. Sgallari and G. Spaletta), J. Comput. Appl. Math., 115 (2000), pp. 101–120.
11. Tikhonov regularization and the L-curve for large, discrete ill-posed problems (with D. Calvetti, S. Morigi and F. Sgallari), J. Comput. Appl. Math., 123 (2000), pp. 423–446.
12. An L-ribbon for large underdetermined linear discrete ill-posed problems (with D. Calvetti, S. Morigi and F. Sgallari), Numer. Algorithms, 25 (2000), pp. 89–107.
13. Restoration of images with spatially variant blur by the GMRES method (with D. Calvetti and B. Lewis), in Advanced Signal Processing Algorithms, Architectures, and Implementations X, ed. F.T. Luk, Proceedings of the Society of Photo-Optical Instrumentation Engineers (SPIE), vol. 4116, The International Society for Optical Engineering, Bellingham, WA, 2000, pp. 364–374.
14. An L-curve for the MINRES method (with D. Calvetti and B. Lewis), in Advanced Signal Processing Algorithms, Architectures, and Implementations X, ed. F.T. Luk, Proceedings of the Society of Photo-Optical Instrumentation Engineers (SPIE), vol. 4116, The International Society for Optical Engineering, Bellingham, WA, 2000, pp. 385–395.
15. On the choice of subspace for iterative methods for linear discrete ill-posed problems (with D. Calvetti and B. Lewis), Int. J. Appl. Math. Comput. Sci., 11 (2001), pp. 1069–1092.
16. Krylov subspace iterative methods for nonsymmetric discrete ill-posed problems in image restoration (with D. Calvetti and B. Lewis), in Advanced Signal Processing Algorithms, Architectures, and Implementations XI, ed. F.T. Luk, Proceedings of the Society of Photo-Optical Instrumentation Engineers (SPIE), vol. 4474, The International Society for Optical Engineering, Bellingham, WA, 2001, pp. 224–233.
17. GMRES, L-curves, and discrete ill-posed problems (with D. Calvetti and B. Lewis), BIT, 42 (2002), pp. 44–65.
18. On the regularizing properties of the GMRES method (with D. Calvetti and B. Lewis), Numer. Math., 91 (2002), pp. 605–625.
19. L-curve curvature bounds via Lanczos bidiagonalization (with D. Calvetti and P.C. Hansen), Electron. Trans. Numer. Anal., 14 (2002), pp. 20–35.

20. Lanczos-based exponential filtering for discrete ill-posed problems (with D. Calvetti), Numer. Algorithms, 29 (2002), pp. 45–65.
21. A hybrid GMRES and TV-norm based method for image restoration (with D. Calvetti and B. Lewis), in Advanced Signal Processing Algorithms, Architectures, and Implementations XII, ed. F.T. Luk, Proceedings of the Society of Photo-Optical Instrumentation Engineers (SPIE), vol. 4791, The International Society for Optical Engineering, Bellingham, WA, 2002, pp. 192–200.
22. Enriched Krylov subspace methods for ill-posed problems (with D. Calvetti and A. Shuibi), Linear Algebra Appl., 362 (2003), pp. 257–273.
23. Tikhonov regularization of large linear problems (with D. Calvetti), BIT, 43 (2003), pp. 263–283.
24. Parallel deconvolution methods for three dimensional image restoration (with B. Lewis), in Advanced Signal Processing Algorithms, Architectures, and Implementations XIII, ed. F.T. Luk, Proceedings of the Society of Photo-Optical Instrumentation Engineers (SPIE), vol. 5205, The International Society for Optical Engineering, Bellingham, WA, 2003, pp. 291–296.
25. L-curve and curvature bounds for Tikhonov regularization (with D. Calvetti and A. Shuibi), Numer. Algorithms, 35 (2004), pp. 301–314.
26. Tikhonov regularization with a solution constraint (with D. Calvetti), SIAM J. Sci. Comput., 26 (2004), pp. 224–239.
27. Nonnegativity and iterative methods for ill-posed problems (with D. Calvetti, G. Landi and F. Sgallari), Inverse Problems, 20 (2004), pp. 1747–1758.
28. Tikhonov regularization with nonnegativity constraint (with D. Calvetti, B. Lewis and F. Sgallari), Electron. Trans. Numer. Anal., 18 (2004), pp. 153–173.
29. Tikhonov regularization of large symmetric problems (with D. Calvetti and A. Shuibi), Numer. Linear Algebra Appl., 12 (2005), pp. 127–139.
30. Invertible smoothing preconditioners for linear discrete ill-posed problems (with D. Calvetti and A. Shuibi), Appl. Numer. Math., 54 (2005), pp. 135–149.
31. Iterative methods for ill-posed problems and semiconvergent sequences (with S. Morigi, F. Sgallari, and F. Zama), J. Comput. Appl. Math., 193 (2006), pp. 157–167.
32. An iterative Lavrentiev regularization method (with S. Morigi and F. Sgallari), BIT, 46 (2006), pp. 589–606.
33. A truncated projected SVD method for linear discrete ill-posed problems (with S. Morigi and F. Sgallari), Numer. Algorithms, 43 (2006), pp. 197–213.
34. Decomposition methods for large linear discrete ill-posed problems (with J. Baglama), J. Comput. Appl. Math., 198 (2007), pp. 332–343.
35. An iterative method for linear discrete ill-posed problems with box constraints (with S. Morigi, F. Sgallari, and F. Zama), J. Comput. Appl. Math., 198 (2007), pp. 505–520.
36. Orthogonal projection regularization operators (with S. Morigi and F. Sgallari), Numer. Algorithms, 44 (2007), pp. 99–114.
37. Greedy Tikhonov regularization for large linear ill-posed problems (with H. Sadok and A.

Shyshkov), Int. J. Comput. Math., 84 (2007), pp. 1151–1166.

38. A new L-Curve for ill-posed problems (with H. Sadok), J. Comput. Appl. Math., 219 (2008), pp. 493–508.
39. A new zero-finder for Tikhonov regularization (with A. Shyshkov), BIT, 48 (2008), pp. 627–643.
40. Cascadic multiresolution methods for image deblurring (with S. Morigi, F. Sgallari, and A. Shyshkov), SIAM J. Imaging Sci., 1 (2008), pp. 51–74.
41. Arnoldi-Tikhonov regularization methods (with B. Lewis), J. Comput. Appl. Math., 226 (2009), pp. 92–102.
42. Vector extrapolation enhanced TSVD for linear discrete ill-posed problems (with K. Jbilou and H. Sadok), Numer. Algorithms, 51 (2009), pp. 195–208.
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