

Valeria Simoncini

Curriculum Vitae

(September 9, 2009)

Address:

Dipartimento di Matematica - Università di Bologna
Piazza di Porta S. Donato, 5
40127 Bologna, Italy
Tel. 051-2094429 Fax 051-2094490
valeria@dm.unibo.it <http://www.dm.unibo.it/~simoncin>

Date of birth	Firenze, August 24, 1966	Languages	English French, German (speaking knowledge)
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Curriculum

Dottore in Matematica (nov. 1989) with *laude* at the Università degli Studi in Bologna.

Dottore di Ricerca (PhD) in *Matematica Computazionale ed Informatica Matematica* (sept. 1994) at the Dipartimento di Matematica Pura ed Applicata of the Università degli Studi in Padova. Title of Thesis: *Sulla risoluzione ed applicazione di sistemi lineari con più vettori noti*.

Researcher at Istituto di Metodologie Geofisiche Ambientali (IMGA) of CNR, Modena (feb 95- jan. 96)

Researcher at Istituto di Analisi Numerica (IAN) of CNR, Pavia (may 96- oct. 00)

Associate Professor, Università di Bologna (1/11/2000-)

Teaching activity

Courses taught every year, within the Environmental Science Program (Undergraduate and Master) at the University of Bologna: i) Calculus I (8 CFU), ii) A Basic Course in Statistics (3 CFU), iii) Applied Multivariate Statistical Analysis (4 CFU), iv) Numerical Methods for Environmental Science (4 CFU)

Courses taught periodically within the PhD Program in Mathematics: “Iterative Methods for linear systems”, “Theory of Matrices”.

Advisor of Master and PhD theses:

Niklas Fors (Master of Science Program in Engineering Physics, Uppsala University, 2007)

Marina Popolizio (Università di Bari, 2008)

Gianluca Barbella (Politecnico di Milano, 2009).

Scientific Activities and Reviews

Member of the Editorial Board for *ETNA - Electronic Transactions Numerical Analysis* (3/2009-)

Member of the Editorial Board for *SIAM J. Matrix Analysis and Appl.* (1/2005-)

Member of the Editorial Board for *Numerical Linear Algebra with Applications* (4/2000-)

Guest Editor of *Applied Numerical Mathematics* (v.49 n.1 2004) for the Special issue “2nd International Workshop on Parallel Matrix Algorithms and Applications”, Neuchatel (CH) Nov. 2002”.

Member of the Permanent Scientific Committee of the Householder Symposium (6/2008-)

Member of the SIAM Nominating Committee (2009-2010)

Review: *Numerical linear algebra for high-performance computers*, J. J. Dongarra, I. S. Duff, D. C. Sorensen and H. van der Vorst, *Math. Comp.* v.69 (2000).

Referee for international Journals (SIAM J. Sci. Comp., SIAM J. Matrix Analysis, SIAM J. Numer. Anal., BIT, Linear Algebra and Appl., Numer. Alg., Applied Num. Math., J. Comp. Applied Math., others...)

Referee for the evaluation of National and International Projects (CIVR, NSF, NWO, ...).

Reviewer for Promotion evaluations.

Supervisor of visitors at Dipartimento di Matematica

Guiding Gu, (Prof.) Shanghai University, 1 Dec. 2003 - 27 Feb. 2004

Marina Popolizio, (PhD student) Università di Bari, 1 Oct. 2005 - 20 July 2006

Niklas Fors, (Master student) Uppsala University, 27 Feb. 2007 - 8 May 2007

Organizing Activities in Conferences and Workshops

Co-organizer of Workshop “Due-giorni di Algebra Lineare Computazionale”, Pavia 3-4 march 1997

Co-organizer of Minisymposium “Numerical Linear Algebra in Applications”, ENUMATH 2001, Ischia July 2001

Member of the Program Committee for the 2nd International Workshop on “Parallel Matrix Algorithms and Applications”, Neuchatel, Nov. 2002 . Co-organizer of the minisymposium “Stopping criteria in iterative solvers for linear algebraic systems”.

Co-organizer of the Session of “Applied and Numerical Linear Algebra” of the GAMM Annual Meeting 2003, Abano Terme, (PD), March 2003.

Member of the Scientific Committee of 2003 International Conference on preconditioning techniques, “Preconditioning 2003”, 27-29 Oct 2003, Napa Valley, Napa, California.

Member of the Scientific Committee of the 5th Workshop of the ERCIM Working Group Matrix on Computations and Statistics, 27-29 Aug, 2004, Prague.

Member of the Organizing Committee of the Workshop “Structured Numerical Linear Algebra Problems: Algorithms and Applications”, 19-24 Sept 2004, Cortona.

Member of the Scientific Committee of the Workshop “Matrices in Statistics and Optimization”, 18-19 Oct 2004, Marseille (F).

Member of the Scientific Committee of the Workshop 2005 International Conference on preconditioning techniques, “Preconditioning 2005”, 19-21 May 2005, Emory University, Atlanta, Georgia.

Member of the Scientific Committee of the Workshop “2007 International Conference on Preconditioning techniques: Preconditioning 2007”, July 2007, CERFACS, Toulouse (F).

Co-organizer of the Minisymposium “Matrix Functions: Methods and Applications”, ICIAM 2007, Zurich, 16-20 July 2007.

Co-organizer of the National Meeting “Due giorni di Algebra Lineare Numerica”, Bologna, 6-7 March 2008.

Co-organizer of the Workshop + Winterschool: “PREDICTING CHANGES IN A CHANGING WORLD: Integrating ecological, analytical, economic, political and juridical aspects to forecast and manage the impacts of global changes in marine systems”, Feb.-July 2008.

Member of the Scientific Committee for the “2009 SIAM Conference on Applied Linear Algebra”, Oct. 2009, Monterey, California.

Other Scientific and Professional Activities

Contact Person for the SIAG-LA Liaison to SIAM Book program, period 2007-2009.

Ph.D. Committee Member of Michiel Hochstenbach, Mathematics Department, Utrecht University, 28 May 2003 (advisor Prof. H. van der Vorst).

External examiner of the Ph.D. “Viva-voce” of Melina Freitag, Mathematics Department, University of Bath (UK), 16 Nov. 2007 (advisor Prof. A. Spence).

Research Associate at Istituto di Matematica Applicata e Tecnologie Informatiche del CNR in Pavia (Jan. 2000-).

Member of the Committee for the selection of the short-listed Office Candidates of the SIAM Activity Group in Linear Algebra (SIAG/LA), 2006.

Panelist in the ICIAM panel discussion on “Future Directions in Numerical Analysis”, ICIAM 2007, Zurich, 16-20 July 2007.

Fellowships and Awards

CNR Fellowship (2 years) at CSRD, University of Illinois at Urbana Champaign (Illinois). May 1991.

NATO Summer School *Microscopic Simulations of Complex Hydrodynamic Phenomena*, Alghero, July 1991.

NATO Summer School *Algorithms for continuous optimization: The state of the art*, Castelveccchio Pascoli, September 1993.

CNR Fellowship (1 year). Nov. 1994.

Finalist L. Fox Prize, with the paper “Non-linear spectral perturbation: a qualitative analysis”, Dundee, June 1997.

Visits to other Scientific Institutions

Sept 1995 (2 months) CERFACS, Toulouse (F), I. Duff.

Aug 1996 (1 week) Academy of Sciences, Prague, S. Strakos.

April 1997 (1 week) Dept. Engineering and Informatics, Patras University, E. Gallopoulos.

April 1998 (2 weeks) Math. Dept., University of Linköping, Sweden, prof. L. Eldèn.

Sept–Oct 2000 (5 weeks), Math. Dept., Temple University, Philadelphia, USA, D. Szyld.

Nov. 2001 (1 week) Math. Dept., Freiberg University, Germany, M. Eiermann.

May 2002 (1 week) Oxford Computing Lab., Oxford University, UK, Dr. A. Wathen.

Sept 2002 (3 weeks) Math. Dept., Temple University, Philadelphia, USA, D. Szyld

May 2003 (1 week) Math. Dept., University of Utrecht, H. A. van der Vorst.

Nov. 2004 (1 week) Math. Institute, Technical University - Berlin, R. Nabben.

May–June 2005 (4 weeks) Math. Dept., Temple University, Philadelphia, USA, D. Szyld.

July 2005 (1 week) Math. Dept., Düsseldorf University, M. Hochbruck.

Feb. 2006 (1 week) Math. Dept, Temple University, Philadelphia, USA, D. Szyld.

Sept. 2008 - Feb. 2009 (5 months) Institut für Mathematik, TU-Berlin, V. Mehrmann.

Lectures at International Schools

3 hour lecture: *Recent developments in Krylov Subspace Methods for Scientific Computations*, at "Methods and algorithms for solving large algebraic systems on modern high performance computing systems", School CEA-EDF-INRIA, March 30 - April 3, 2009.

4 hour lecture: *Projection methods for large linear systems*, at "Summer School and Advanced Workshop on Trends and Developments in Linear Algebra", ICTP Trieste, Italy. June 22rd - July 10th 2009.

Invited Talks

Oct 1995, "Matrix polynomials, Ritz values and applications", ILLIAC *Workshop on Eigenvalues and beyond*, Toulouse, France.

May 1997, "Resolvent norm approximations and effective stability studies of large matrices", Argonne National Lab., Chicago.

June 1997, "Non-linear spectral perturbation: a qualitative analysis", Fox Prize Competition, Dundee.

April 1998, "A matrix analysis of Arnoldi and Lanczos methods", Math Dept., Linköping University, Sweden.

April 1998, "Direct/Iterative solvers and Applications: Two Test Cases", Math Dept., Linköping University, Sweden.

September 2000 "Block-diagonal and indefinite symmetric preconditioners for mixed finite element formulations", Math. Dept., Temple University, Philadelphia.

October 2000 "Efficient solution of reaction-diffusion systems for the cardiac excitation process", Dept Math. and Computer Science, Emory University, Atlanta.

October 2000 "On the numerical solution of linear systems with a quadratic parameter", Computer Science Dept., Stanford University, Stanford.

May 2001 "Efficient preconditioners for iterative linear system solvers", Seminars on *Mathematics of Computers and Decision Making*, Patras.

Nov. 2001 "Inexact Rayleigh quotient-type methods for eigenvalue computations", Freiberg University, Germany.

January 2002 "Metodi di tipo proiettivo per la risoluzione di sistemi lineari e tecniche di preconditionamento", Dipartimento di Matematica, Università di Roma "La Sapienza", Roma.

May 2002, "Block structured numerical linear algebra problems: two examples stemming from electromagnetics", Math Dept., UMIST, Manchester, UK.

May 2002, "Analysis of some structured preconditioners for saddle point problems", Oxford Computing Laboratory, Oxford University, UK.

Sept. 2002, "The Nullspace-free eigenvalue problem and the inexact Shift-and-Invert Lanczos method" Computer Science Dept., University of Maryland.

May 2003, "On the numerical solution of $(\lambda^2 A + \lambda B + C)x = b$ and application to structural dynamics", Mathematics Department, University of Utrecht.

Dec 2003, "Block Preconditioners for mixed FE formulations of the magnetostatic problem", Solution Methods for Saddle Point Systems in Computational Mechanics Workshop, Santa Fe (NM) 3-6 Dec 2003.

- April 2004, “Inexact Krylov subspace methods: Theory and Applications”, Dipartimento di Matematica, Università di Bari.
- April 2004, “Precondizionatori strutturati per problemi di punto sella”, Dipartimento di Matematica, Università di Bari.
- Nov. 2004, “Structured Preconditioners for Saddle Point Problems”, Institute für Mathematik, TU - Berlin.
- March 2005, “Recent advances in approximation using Krylov subspaces”, Dipartimento di Matematica, Università di Roma “La Sapienza”.
- March 2005, “Recent advances in approximation using Krylov subspaces”, GAMM Annual Meeting, Luxembourg.
- June 2005, “The Nullspace-free eigenvalue problem and the inexact Shift-and-invert Lanczos method”, Dipartimento di Matematica, Università di Brescia.
- July 2005, “On the Eigenvalues of a Class of Saddle Point Matrices”, Workshop on finite elements and fast iterative solvers, Manchester (UK).
- July 2005, “Recent advances in approximation using Krylov subspaces”, Math. Dept., Düsseldorf University, Düsseldorf (D).
- Sept. 2005, “Analysis of projection-type methods for approximating the matrix exponential operator”, Model order reduction, coupled problems and optimization, Lorentz Center, Leiden (NL).
- Feb. 2006, “Analysis of projection-type methods for approximating matrix functions”, Math. Dept., Temple University, Philadelphia.
- April 2006, “Recent advances in approximation using Krylov subspaces”, Math. Dept., Bath University, Bath (UK).
- May 2006, “Recent advances in approximation using Krylov subspaces”, Dipartimento di Ingegneria Strutturale, Politecnico di Milano.
- July 2006, “Precondizionatori Strutturati per Sistemi algebrici di Punto Sella”, Dipartimento di Energetica, Università degli Studi di Firenze.
- July 2006, “Krylov subspace methods: a versatile tool in Scientific Computing”, ICCAM Conference on Computational and Applied Mathematics, Leuven (B). Plenary Talk.
- July 2006, “Indefinite inner products in iterative linear system solvers”, XIII ILAS Annual Conference, Amsterdam (NL). Plenary Talk.
- July 2006, “Krylov Subspace Methods for Linear Systems and Matrix Equations”, GAMM-SIAM Conference on Applied Linear Algebra, Düsseldorf (D). Plenary Talk.
- March 2007, Workshop on “Structured Perturbations, and Distance Problems in Matrix Computations”, Math. Research and Conference Center, Bedlewo, Poland.
- May 2007, “Krylov Subspace Methods for Linear Systems and Matrix Equations”, Dipartimento di Matematica, Università di Roma “La Sapienza”.
- Oct. 2007, “Analysis of projection methods for solving large-scale Lyapunov matrix equations”, Matrix Analysis and Applications, CIRM Luminy, France.
- Feb 2008, “Approssimazione di Funzioni di Matrici di grandi dimensioni ed Applicazioni”, National Meeting of GNCS-Indam, Montecatini.
- March 2008, “Numerical approximation of Matrix Functions and Applications” Institute Dieudonné, Université de Nice Sophia Antipolis, 13 March 2008.

- May 2008, “Extended Krylov subspace method for matrix functions: new theoretical and computational results”, MIMS New Directions Workshop Functions of Matrices, University of Manchester, 15-16 Maggio 2008.
- June 2008. “Approximation of functions of large matrices: computational aspects and applications”, Householder Symposium XVII, 1-6 Giugno 2008, Zeuthen (Germany). Plenary talk.
- June 2008, “Approximation of functions of large matrices: computational aspects and applications”, Structural Dynamical systems: computational aspects (SDS2008), Capitolo (Monopoli, Bari). Plenary talk.
- July 2008, “Spectral Properties of Saddle Point Linear Systems and Relations to Iterative Solvers”, Keynote speaker, LMS Durham Symposium on Computational Linear Algebra for PDEs, Durham (UK), 14-24 July 2008. Plenary talk.
- Sept. 2008, “Cimmino’s method and the next generation of iterative solvers”, XXXIX Annual Conference of Italian Operational Research Society (AIRO), Special session to the memory of G. Cimmino, Ischia, 8-11 Settembre 2008. Invited presentation.
- April 2009, “Spectral analysis of saddle point matrices with indefinite leading blocks”, at “Advances and Perspectives on Numerical Methods for Saddle Point Problems”, Banff (Canada), 13-17 April 2009.
- Aug. 2009, “Spectral analysis of saddle point matrices with indefinite leading blocks”, at the International Conference on preconditioning techniques, ”Preconditioning 2009”, Hong Kong, 24-26 Aug 2009. Plenary talk.
- Sept. 2009, “Spectral properties of preconditioned saddle point linear systems”, 9th GAMM Workshop on Applied and Numerical Linear Algebra, Zurich, Switzerland, September 10 - 11, 2009.

Contributed talks at Conferences Over 30, not listed

Publications in Refereed Journals

1. T. F. CHAN, E. GALLOPOULOS, V. SIMONCINI, T. SZETO AND C. H. TONG, *A quasi-minimal residual variant of the Bi-cgstab algorithm for nonsymmetric systems*, SIAM J. Sc. Comp. v. 15, n. 2, 1994, pp. 338-347.
2. V. SIMONCINI AND E. GALLOPOULOS, *An iterative method for nonsymmetric systems with multiple right-hand sides*, SIAM J. Sci. Comput. 16, 1995, pp. 917-933.
3. V. SIMONCINI AND E. GALLOPOULOS, *Convergence properties of block GMRES and matrix polynomials*, Linear Algebra and Appl. v. 247, n.1-3, pp. 97-120, 1996.
4. V. SIMONCINI AND M. SADKANE, *Arnoldi-Riccati method for large eigenvalue problems*, BIT v. 36 n. 3 (1996) pp. 579-594.
5. V. SIMONCINI, *Ritz and pseudo-Ritz values using matrix polynomials*, Linear Algebra and Appl. v. 241-3, pp. 787-802, 1996.
6. V. SIMONCINI AND E. GALLOPOULOS, *A hybrid block GMRES method for nonsymmetric systems with multiple right-hand sides*, J. Comp. and Applied Math., 66 (1996) pp. 457-469.
7. V. SIMONCINI, *On the numerical solution of $AX-XB=C$* , BIT v. 36 n. 4 (1996) pp. 182-198.
8. E. KASENALLY AND V. SIMONCINI, *Analysis of a minimum perturbation algorithm for nonsymmetric linear systems*, SIAM J. Num. Anal. v. 34 n. 1 (1997), pp. 48-66.
9. V. SIMONCINI, *A stabilized QMR version of block BiCG* SIAM J. Matrix Analysis and Appl. v. 18-2 (1997), pp. 419-434.

10. V. SIMONCINI AND E. SJÖSTRÖM, *An algorithm for approximating the singular triplets of complex symmetric matrices*, Numerical Linear Algebra with Applications, v.4 n.6, (1997) pp.469-489.
11. V. SIMONCINI, *A matrix analysis of Arnoldi and Lanczos methods*, Numer. Math. v. 81 n. 1 (1998) pp. 125-141.
12. V. SIMONCINI AND E. GALLOPOULOS, *Transfer function and Resolvent norm approximations of large matrices*, ETNA, v. 7 (1998), pp. 190–201.
13. V. SIMONCINI, *A new variant of restarted GMRES*, Numerical Linear Algebra with Appl., v. 6 (1999), pp. 61-77.
14. I. PERUGIA, V. SIMONCINI AND M. ARIOLI, *Linear Algebra methods in a mixed approximation of magnetostatic problems*, SIAM J. Sci. Comput., v.21, n.3, pp.1085–1101 (1999).
15. V. SIMONCINI, *Remarks on non-linear spectral perturbation*, BIT, v. 39, n.2 (1999), pp. 350–365.
16. A. FERIANI, F. PEROTTI AND V. SIMONCINI, *Iterative system solvers for the frequency analysis of linear mechanical systems*, Computer methods in Applied Mech. and Eng., v.190, n. 13-14 (2000), pp. 1719–1739.
17. I. PERUGIA AND V. SIMONCINI, *Block-diagonal and indefinite symmetric preconditioners for mixed finite element formulations*, Numerical Linear Algebra with Appl., v. 7, n.7–8 (2000), pp. 585–616.
18. V. SIMONCINI, *On the convergence of restarted Krylov subspace methods*, SIAM J. Matrix Analysis Appl., v.22, n.2, (2000), pp. 430–452.
19. VALERIA SIMONCINI AND LARS ELDÉN, *Inexact Rayleigh quotient-type methods for eigenvalue computations*, BIT, v.42, n.1 (2002), pp. 159-182.
20. M. PENNACCHIO AND V. SIMONCINI, *Efficient algebraic solution of reaction-diffusion systems for the cardiac excitation process*, J. Comput. Applied Math., v.145 (1) (2002), pp.49-70.
21. V. SIMONCINI AND F. PEROTTI, *On the numerical solution of $(\lambda^2 A + \lambda B + C)x = b$ and application to structural dynamics*, SIAM J. Sci. Comput. v. 23 n. 6 (2002), pp. 1876–1898.
22. M. ROZLOZNIK AND V. SIMONCINI, *Krylov Subspace Methods for Saddle Point Problems with Indefinite Preconditioning*, SIAM J. Matrix Analysis and Appl., v.24 n.2 (2002) pp. 368-391.
23. V. SIMONCINI, *Algebraic formulations for the solution of the nullspace-free eigenvalue problem using the inexact Shift-and-Invert Lanczos method*, Numer. Linear Algebra w/App. v. 10, n.4 (2003), pp. 357-375.
24. V. SIMONCINI AND D. SZYLD, *Flexible Inner-Outer Krylov Subspace Methods*, SIAM J. Numerical Analysis, v.40 n. 6, (2003), pp. 2219-2239.
25. V. SIMONCINI, *Restarted Full Orthogonalization Method for shifted linear systems*, BIT Numerical Mathematics, v.43, n.2 (2003) pp. 459-466.
26. V. SIMONCINI AND D. SZYLD, *Theory of Inexact Krylov Subspace Methods and Applications to Scientific Computing*, SIAM J. Scient. Computing, v.25, n.2 (2003), pp. 454-477.
27. V. SIMONCINI AND M. PENNACCHIO, *The behavior of symmetric Krylov subspace methods for solving $Mx = (M - \gamma I)v$* , Linear Algebra and Appl., v.380 (2004), pp.53-71.
28. V. SIMONCINI, *Block triangular preconditioners for Symmetric Saddle-Point problems*, Applied Num. Math. v.49, n.1 (2004), pp. 63-80.
29. V. SIMONCINI AND M. BENZI, *Spectral Properties of the Hermitian and Skew-Hermitian Splitting Preconditioner for Saddle Point Problems*, SIAM J. Matrix Analysis and Appl., v.26, n.2 (2004), pp. 377-389.

30. V. SIMONCINI AND D. SZYLD, *On the Occurrence of Superlinear Convergence of Exact and Inexact Krylov Subspace Methods*, SIAM Review v. 47, n.2 (2005), pp. 247-272.
31. V. SIMONCINI AND DANIEL B. SZYLD, *The effect of non-optimal bases on the convergence of Krylov Subspace Methods* Numer. Math. v. 100, n.4 (2005), pp. 711-733.
32. V. SIMONCINI, *Variable accuracy of matrix-vector products in projection methods for eigencomputation*, SIAM J. Numerical Analysis v. 43, n.3 (2005), pp. 1155-1174.
33. F. BREZZI, K. LIPNIKOV AND V. SIMONCINI, *A family of mimetic finite difference methods on polygonal and polyhedral meshes*, M3AS: Mathematical Models and Methods in Applied Sciences, v.15 n.10 (2005) pp. 1533-1552.
34. GUIDING GU AND V. SIMONCINI, *Numerical solution of parameter-dependent linear systems*, J. Numer. Linear Algebra w/Appl. v. 12, n. 9 (2005), pp. 923-940.
35. L. LOPEZ AND V. SIMONCINI, *Analysis of projection methods for rational function approximation to the matrix exponential*, SIAM J. Numerical Analysis, v. 44, n. 2 (2006), pp. 613 - 635.
36. M. BENZI AND V. SIMONCINI, *On the Eigenvalues of a Class of Saddle Point Matrices*, Numerische Mathematik, v. 103, n.2 (2006), pp. 173-196.
37. L. LOPEZ AND V. SIMONCINI, *Preserving geometric properties of the exponential matrix by block Krylov subspace methods*, BIT, Numerical Mathematics, v. 46, n.4 (2006), pp. 813-830.
38. V. SIMONCINI AND D. B. SZYLD, *Recent developments in Krylov Subspace Methods for linear systems*, Numerical Linear Algebra w/Appl., v. 14, n.1 (2007), pp.1-59. (Survey)
39. V. SIMONCINI, *A new iterative method for solving large-scale Lyapunov matrix equations*, SIAM J. Scient. Computing, v.29, n.3 (2007), pp. 1268-1288.
40. FRANCO BREZZI, KONSTANTIN LIPNIKOV, MIKHAIL SHASHKOV AND V. SIMONCINI, *A new discretization methodology for diffusion problems on generalized polyhedral meshes*, Computer Methods in Applied Mechanics and Engineering, Vol. 196, Issues 37-40, 1 August 2007, pp. 3682-3692
41. A. FROMMER AND V. SIMONCINI, *Stopping criteria for rational matrix functions of Hermitian and symmetric matrices*, SIAM J. Scient. Computing, v.30, n.3 (2008), pp. 1387-1412.
42. V. SIMONCINI AND D. SZYLD, *New conditions for non-stagnation of minimal residual methods*, Numerische Mathematik, v. 109, n.3 (2008), pp. 477-487.
43. M. PENNACCHIO AND V. SIMONCINI, *Substructuring Preconditioners for Mortar Discretization of a Degenerate Evolution Problem*, Journal of Scientific Computing, v. 36, n. 3, September 2008, pp.391-419.
44. M. POPOLIZIO AND V. SIMONCINI, *Acceleration Techniques for Approximating the Matrix Exponential Operator*, SIAM J. Matrix Analysis and Appl. v.30 n.2 (2008), pp.657-683.
45. V. SIMONCINI E V. DRUSKIN, *Convergence analysis of projection methods for the numerical solution of large Lyapunov equations*, SIAM J. Numerical Analysis. Volume 47, Issue 2, pp. 828-843 (2009).
46. L. ELDÈN E V. SIMONCINI, *Solving Ill-Posed Cauchy Problems by a Krylov Subspace Method*, Inverse Problems, v.25, n.6 (June 2009).
47. MICOL PENNACCHIO AND V. SIMONCINI, *Algebraic Multigrid Preconditioners for the Bidomain Reaction-Diffusion system*, Applied Numerical Mathematics. Volume 59, Issue 12, Dec. 2009, pp. 3033-3050.
48. LEONID KNIZHNERMAN AND V. SIMONCINI, *A new investigation of the extended Krylov subspace method for matrix function evaluations*, July 2008, pp. 1-17. To appear in Numerical Linear Algebra w/Appl.

49. NICK GOULD AND V. SIMONCINI, *Spectral Analysis of saddle point matrices with indefinite leading blocks*, August 2008, pp. 1-19. Also Technical Report RAL-TR-2008-028 (2008), Rutherford Appleton Laboratory, Chilton, England. To appear in SIAM J. Matrix Analysis Appl.

Publications in Proceedings and Books - Peer Reviewed

1. A. MESSINA, P. LONDRILLO, L. MOSCARDINI AND V. SIMONCINI, *Numerical experiments on gravitating systems*, in IX Italian Conf. on General Rel. and Grav. Physics, Cianci et al. eds, pp. 338-352. World Scientific (Singapore), 1991.
2. V. SIMONCINI, *An Iterative Procedure for Computing the Null Basis*, in Iterative Methods in Linear Algebra, II, IMACS Series in Computational and Applied Mathematics, S. Margenov and P. Vassilevski, eds., vol. 3, 1996, pp. 413-423.
3. E. GALLOPOULOS AND V. SIMONCINI, "Iterative solution of multiple linear systems: Theory, practice, parallelism and applications", Advances in Parallel and Vector Processing for Structural Mechanics: Proc. Second Int'l. Conf. on Computational Structures Technology, eds. B.H.V. Topping and M. Papadrakakis (1994), pp. 47-51.
4. V. SIMONCINI, *Linear systems with a quadratic parameter and application to structural dynamics*, in Iterative methods in Scientific Computation II, IMACS Series Computational and Applied Mathematics, D. Kincaid and A. Elster eds. vol. 5, 1999, pp. 451-461.
5. A. FERIANI, F. PEROTTI AND V. SIMONCINI, *Numerical methods for the performance of direct frequency domain analysis*, in *Structural Dynamics - EURODYN '99*, Prague, June 1999, pp. 145-150, L. Fryba and J. Naprstek eds, 1999 Balkema, Rotterdam
6. F. PEROTTI AND V. SIMONCINI, *Computational aspects in direct frequency domain analysis*, "Structural Dynamics - EURODYN 2002", Proc. of 4th International Conference on Structural Dynamics, "Structural Dynamics - EURODYN 2002", Munich, 2-5 September 2002, Grundmann & Schueller (eds.) Zwets & Zeitlinger, Lisse (2002), pp. 685-690.
7. C. BEKAS, E. KOKIOPOULOU, E. GALLOPOULOS AND V. SIMONCINI, *Parallel Computation of Pseudospectra using Transfer Functions on a MATLAB-MPI Cluster Platform* D. Kranzlmüller, P. Kacsuk, J. Dongarra, J. Volkert (Eds.): "Recent Advances in Parallel Virtual Machine and Message Passing Interface" Proc. 9th European PVM/MPI Users' Group Meeting, Springer-Verlag, Lecture Notes in Computer Science, Vol. 2474, Linz, Austria, September 29-October 2, 2002.
8. F. PEROTTI AND V. SIMONCINI, *Analytical and Numerical Techniques in frequency domain response computation*, in *Recent research developments in Structural Dynamics 2002*, Chapter A "Computational methods", A. Luongo Eds., Research Signpost Pub., 2003, pp. 33-54.
9. M. PENNACCHIO AND V. SIMONCINI, *Substructuring Preconditioners for the Bidomain Extracellular Potential Problem*, Numerical Mathematics and advanced Applications. Proceedings of ENUMATH 2005, Springer-Verlag (2006), pag. 459-466.
10. A. FROMMER AND V. SIMONCINI, *Matrix Functions*, "Model Order Reduction: Theory, Research Aspects and Applications", Mathematics in Industry, Schilders, Wil H. A. and van der Vorst, Henk A. eds, Springer, Heidelberg, 2008.
11. A. FROMMER AND V. SIMONCINI, *Error bounds for Lanczos approximations of rational functions of matrices*, in "Numerical Validation", Mathematics in Industry, Lectures Notes in Computer Science, Annie Cuyt and Walter Krämer and Peter Markstein and Wolfram Luther eds, Springer, 2009, v. 5492, pp.203-216.

Other Publications

1. V. SIMONCINI AND E. GALLOPOULOS, *A memory-conserving hybrid method for solving linear systems with multiple right-hand sides*, in Proc. Copper Mountain Conf. Iterative Methods, April 1992.
2. V. SIMONCINI AND E. GALLOPOULOS, "Matrix-valued polynomials in Lanczos type methods", Proc. of Colorado Conference on iterative methods, Colorado, April 1994.
3. V. SIMONCINI, "Towards a robust short-term recurrence algorithm for multiple systems", Proc. Fifth SIAM Conf. on Applied Linear Algebra, Utah, June 1994.
4. V. SIMONCINI AND E. GALLOPOULOS, "Block iterative methods and matrix equations", Proc. Fifth SIAM Conf. on Applied Linear Algebra, Utah, June 1994.
5. G. ERBACCI, V. SIMONCINI, G. BERTERO, R. ANSALONI AND A. NAVARRA, *A spectral finite element model for shallow water equations: implementation experiences on the CRAY T3D*, Cray Usergroup Proceedings, Denver, March 1995.
6. L. ELDÉN, E. LUNDSTRÖM AND V. SIMONCINI, *Adaptive Eigenvalue Computations. A Manifold Approach*, Proceedings Householder Symposium, 1999.
7. I. PERUGIA AND V. SIMONCINI, *Preconditioners for a Mixed Finite Element Method in Magnetostatics*, Int.l Conf. on Preconditioning Techniques for large sparse matrix problems in industrial applications, Minneapolis, June 1999.
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