

Curriculum vitae

Contact information

Pavel Jiránek

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Education

10/1998 – 6/2003 M.Sc. (Ing. Degree) in Science Engineering (Electrotechnics and Informatics), Faculty of Mechatronics, Technical University of Liberec, Advisor: Jan Šembera

7/2003 – 1/2009 Ph.D. in Science Engineering (Electrotechnics and Informatics), Faculty of Mechatronics, Technical University of Liberec, Thesis: Limiting Accuracy of Iterative Methods, Advisor: Miroslav Rozložník, Defence: January 29, 2008

Employment

7/2003 – 1/2008 Technical University of Liberec, Ph.D. student

1/2004 – present Technical University of Liberec, assistant/lecturer

1/2007 – 1/2008 Institute of Computer Science, Academy of Sciences of the Czech Republic, Ph.D. student

2/2008 – present Institute of Computer Science, Academy of Sciences of the Czech Republic, postdoctoral research fellow

11/2008 – present CERFACS, Toulouse, postdoctoral research fellow

Projects

GACR Grant 201/09/P464 2009 – 2011, Development and analysis of iterative methods for solving large-scale systems of linear algebraic equations in applications

Teaching

- Elasticity, 2003 – 2005, Faculty of Mechatronics, Technical University of Liberec
- Fluid Mechanics, 2003 – 2005, Faculty of Mechatronics, Technical University of Liberec
- Introduction to Linear Algebra, 2005 – 2008, Faculty of Education, Technical University of Liberec
- Applications of Computer Modelling, 2005 – 2006, Faculty of Mechatronics, Technical University of Liberec
- Mathematics 2A (Linear Algebra), 2006 – 2007, Faculty of Education, Technical University of Liberec
- Operational Research, 2006 – 2008, Faculty of Mechatronics, Technical University of Liberec
- Applied Mathematics, 2006 – 2007, Faculty of Mechatronics, Technical University of Liberec

Collaborators

- Martin H. Gutknecht
- Miroslav Rozložník
- Zdeněk Strakoš
- David Titley-Peloquin
- Martin Vohralík

Publications

Journal articles

- P. Jiránek, M. Rozložník, Adaptive version of Simpler GMRES, *Numer. Algorithms*, 53:1 (2010), pp. 93–112, Technical Report TR/PA/08/101, CERFACS, Toulouse.
- P. Jiránek, M. Rozložník, Maximum attainable accuracy of inexact saddle point solvers, *SIAM J. Matrix Anal. Appl.*, 29:4 (2008), pp. 1297–1321.

- P. Jiránek, M. Rozložník, Limiting accuracy of segregated solution methods for nonsymmetric saddle point problems, *J. Comput. Appl. Math.*, 215:1 (2008), pp. 28–37.
- P. Jiránek, M. Rozložník, M. H. Gutknecht, How to make Simpler GMRES and GCR more stable, *SIAM J. Matrix Anal. Appl.*, 30:4 (2008), pp. 1483–1499.
- P. Jiránek, Z. Strakoš, M. Vohralík, A posteriori error estimates including algebraic error: computable upper bounds and stopping criteria for iterative solvers, *SIAM J. Sci. Comput.*, 2008, submitted for publication.

Technical reports

- P. Jiránek, D. Titley-Peloquin, Estimating the minimal backward error in LSQR, Technical report TR/PA/09/77, CERFACS, Toulouse, 2009, submitted for publication.

Publications in conference proceedings

- P. Jiránek, M. Rozložník, On a stable variant of Simpler GMRES, In *Proceedings of SNA'08*, UGN CAS, Ostrava, 2009.
- P. Jiránek, Z. Strakoš, M. Vohralík, On a posteriori error estimates in the finite volume method including the algebraic error: a diffusion model problem, In *Proceedings of SNA'08*, Technical University of Liberec, Liberec, 2008.
- P. Jiránek, M. Rozložník, On a limiting accuracy of segregated techniques for saddle point problems, In *Proceedings of SIMONA 2006*, Technical University of Liberec, Liberec, 2006.
- P. Jiránek, On a maximum attainable accuracy of some segregated techniques for saddle point problems, In *Proceedings of the XI. PhD. Conference*, Institute of Computer Science, Academy of Sciences of the Czech Republic, Matfyzpress, Prague, 2006.
- P. Jiránek, J. Maryška, J. Šembera, Model of compressible flow and transport in a time-dependent domain, In *Numerical Mathematics and Advanced Applications, Proceedings of ENUMATH 2003* (M. Feistauer et al., eds.), Springer, 2004.
- P. Jiránek, Numerical model of diffusion of species in an internal combustion engine, In *Proceedings of Student EEICT 2003*, Brno, 2003.
- P. Jiránek, J. Šembera, FVM Model of advection-diffusion mass transport with respect to numerical diffusion, In *Proceedings of SIMONA 2003*, Technical University of Liberec, Liberec, 2003.

PhD Thesis

- P. Jiránek, Limiting Accuracy of Iterative Methods, PhD Thesis, Technical University of Liberec, Liberec, 2007.

Talks and presentations

- A posteriori error estimates and stopping criteria for iterative solvers, Seminar on Numerical Analysis and Winter School SNA'10, Nové Hradky, Czech Republic, January 18–22, 2010.
- On a stable variant of Simpler GMRES and GCR, Seminar on Numerical Analysis and Winter School SNA'09, Institute of Geonics, Academy of Sciences of the Czech Republic, Ostrava, February 2–6, 2009.
- Stable variant of Simpler GMRES and GCR, Sparse Days 2009, CERFACS, Toulouse, France, June 18–19, 2009.
- A posteriori error estimates and stopping criteria for iterative solvers, Modelling 2009, Rožnov pod Radhoštěm, Czech Republic, June 22–26, 2009.
- A posteriori error estimates and stopping criteria for iterative solvers, ENUMATH 2009, Uppsala, Sweden, June 29–July 03, 2009.
- On a stable variant of Simpler GMRES and GCR, SIAM Conference on Applied Linear Algebra, Monterey Bay-Seaside, California, October 26–29, 2009.
- On a posteriori error estimates in the finite volume method including the algebraic error: a diffusion model example, Seminar on Numerical Analysis and Winter School SNA'08, Technical University of Liberec, Liberec, Czech Republic, January 28 – February 1, 2008.
- On the numerical stability of Simpler GMRES and GCR, 9th IMACS International Symposium on Iterative Methods in Scientific Computing, Lille, France, March 17–20, 2008.
- A posteriori error estimates including the algebraic error: a diffusion model example, Applied Linear Algebra – in honor of Ivo Marek, Novi Sad, Serbia, April 28–30, 2008.
- On the numerical stability of Simpler GMRES and GCR, 5th International Workshop on Parallel Matrix Algorithms and Applications PMAA'08, Neuchâtel, Switzerland, June 20–22, 2008.
- Numerical behavior of Simpler GMRES and GCR, Parallel Algorithms Group seminar, CERFACS, Toulouse, July 30 – August 4, 2008.

- Attainable accuracy of segregated methods for saddle point systems, Seminar on Numerical Analysis and Winter School SNA'07, Institute of Geonics, Academy of Sciences of the Czech Republic, Ostrava, January 22–26, 2007.
- On the limiting accuracy of segregated saddle point solvers, MAT-TRIAD'07, Bedlewo, Poland, March 22–24, 2007.
- On the stability of Simpler GMRES, CEMRACS'07, Luminy, France, June 22 – August 31, 2007.
- How to make Simpler GMRES more stable, IMA Conference on Numerical Linear Algebra and Optimization, Birmingham, UK, September 13–15, 2007.
- On a maximum attainable accuracy of some segregated techniques for saddle point problems, The XI. PhD. Conference, Institute of Computer Science, Academy of Sciences of the Czech Republic, Moníec Sedlec-Prčice, September 21, 2006.
- Attainable accuracy of segregated methods for saddle point systems, Simulation, Modelling, and Numerical Analysis SIMONA 2006, Technical University of Liberec, Liberec, September 18–20, 2006.