

LIST OF PUBLICATIONS**Maya G. Neytcheva****Published in scientific journals:**

- J1 Owe Axelsson, Maya Neytcheva, Zhao-Zheng Liang, Parallel solution methods and preconditioners for evolution equations. *Mathematical Modelling and Analysis*, 23 (2018), 287–308.
- J2 Zhao-Zheng Liang, Owe Axelsson, Maya Neytcheva, A robust structured preconditioner for time-harmonic parabolic optimal control problems, *Numerical Algorithms*, 2017, DOI <https://doi.org/10.1007/s11075-017-0451-5>.
- J3 M. Donatelli, A. Dorostkar, M. Mazza, M. Neytcheva, S. Serra-Cappizano, Function-based block multigrid strategy for a two-dimensional linear elasticity-type problem, *Computers and Mathematics with Applications*, 74 (2017), 1015-1028.
- J4 Ali Dorostkar, Maya Neytcheva, Stefano Serra-Capizzano, Spectral analysis of coupled PDEs and of their Schur complements via the notion of Generalized Locally Toeplitz sequences, *Computer Methods in Applied Mechanics and Engineering*, 309 (2016), 74-105.
- J5 Owe Axelsson, Shiraz Farouq, Maya Neytcheva, A preconditioner for optimal control problems, constrained by Stokes equation with a time-harmonic control. *Computational and Applied Mathematics*. 310 (2017), 5-18. DOI: 10.1016/j.cam.2016.05.029. 2016.
- J6 Owe Axelsson, Shiraz Farouq, Maya Neytcheva, Comparison of preconditioned Krylov subspace iteration methods for PDE-constrained optimization problems: Stokes control. *Numerical Algorithms*. 74 (2017), 19-37. DOI: 10.1007/s11075-016-0136-5. 2016.
- J7 Owe Axelsson, Shiraz Farouq, Maya Neytcheva, Comparison of preconditioned Krylov subspace iteration methods for PDE-constrained optimization problems. Poisson and convection-diffusion control. *Numerical Algorithms*. 73 (2016), 631-663. DOI: 10.1007/s11075-016-0111-1. 2016.
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- J9 Ali Dorostkar, Maya Neytcheva, Björn Lund, Numerical and computational aspects of some block-preconditioners for saddle point systems, *Parallel Computing*, 49 (2015), 164–178.
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- J 11 Xin He, Maya Neytcheva, Kees Vuik, On preconditioning of incompressible non-Newtonian flow problems, *Journal of Computational Mathematics*, 30 (2015), 33–58.
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- J 12 P. Boyanova, M. Neytcheva, Efficient numerical solution of discrete multi-component Cahn-Hilliard systems *Computers and Mathematics with Applications*, 67 (2014), 106–121. doi: 10.1016/j.camwa.2013.10.013
- J 13 Owe Axelsson, Maya Neytcheva, Bashir Ahmad, A comparison of iterative methods to solve complex valued linear algebraic systems, *Numerical Algorithms*, 66 (2014), 811–841. doi: 10.1007/s11075-013-9764-1.
- J 14 O. Axelsson, P. Boyanova, M. Kronbichler, M. Neytcheva, X. Wu. Numerical and computational efficiency of solvers for two-phase problems, *Computers and Mathematics with Applications*, 65 (2013), 301–314. doi: 10.1016/j.camwa.2012.05.020,
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- J 19 Xin He, Maya Neytcheva, and Stefano Serra Capizzano. On an augmented Lagrangian-based preconditioning of Oseen type problems *BIT Numerical Analysis*, 51 (2011), 865–888.
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- J 21 Maya Neytcheva, On element-by-element Schur complement approximations, *Linear Algebra and Its Applications*, 434 (2011), 2308–2324.

- J 22 Petia Boyanova, Svetozar Margenov, Maya Neytcheva, Robust AMLI Methods for Parabolic Crouzeix-Raviart FEM Systems, Editors: A. Havasi, I. Farago, S. Margenov, Z. Zlatev. Special Issue "Advanced Computational Algorithms", *Journal of Computational and Applied Mathematics (JCAM)*, 235 (2010), 2010, 380–390.
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- B 1 D. Lukarski, M. Neytcheva, On the impact of the heterogeneous multi- and many-core platforms on iterative solution methods and preconditioning techniques. Chapter 1, 11–32. In book: *High-Performance Computing on Complex Environments*, Editors: Emmanuel Jeannot, Julius Zilinskas. John Wiley & Sons, Inc., ISBN 978-1-118-71205-4, 2014.

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- CP 1 J. Carretero, J. Garcia Blas, M. Neytcheva International Journal of Computers & Electrical Engineering Special issue on 'Optimization of Parallel Scientific Applications with Accelerated HPC', 2015
- CP 2 O. Axelsson, R. Blaheta, M. Neytcheva, I. Pultarov, *Numerical Linear Algebra with Applications*, Special issue on Preconditioning of iterative methods - theory and applications, 22 (2015).
- CP 3 G. Kreiss, P. Ltstedt, A. Mlqvist, and M. Neytcheva. Numerical Mathematics and Advanced Applications 2009: Proceedings of ENUMATH 2009, the 8th European Conference on Numerical Mathematics and Advanced Applications, Uppsala, July 2009, Springer, 2010. ISBN 987-642-11794-7, e-ISBN 978-3-642-11795-4

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- C 1 JR Bull, A Dorostkar, S Holmgren, A Kruichinina, M Neytcheva, D. Nikitenko, N. Popova, P. Shvets, A. Teplov, V. Voevodin, V. Voevodin, Multidimensional performance and scalability analysis for diverse applications based on system monitoring data, In *Parallel Processing and Applied Mathematics*, R. Wyrzykowski, J. Dongarra, E. Deelman K. Karzewiski (Eds.), Proceedings of PPAM 2017, Springer LNCS, Vol. 10777, 417-431.
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- C 7 E. Bängtsson, M. Neytcheva. An agglomerate multilevel preconditioner for linear isostasy saddle point problems. In S. Margenov, I. Lirkov, J. Wasniewski (editors) *Proceedings of the Fifth International Conference on Large Scale Scientific Computations (LSSC'05)*, June 2005, Sozopol, Bulgaria, Springer *Lecture notes in Computer Science*, Vol. 3743, 2006, 113–120. Refereed.

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- C 13 M. Neytcheva, O. Axelsson and K. Georgiev, An application of the AMLI method for solving convection-diffusion problems with potential velocity field. In O. Axelsson and B. Polman (eds.), *Proceedings of the conference on Algebraic Multilevel Iteration Methods with Applications*, Nijmegen, June 13-15, 1996, 197–210.
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- I 3 Owe Axelsson, Maya Neytcheva and Anders Ström, An efficient preconditioning method for state box-constrained optimal control problems. TR 2017-04, March 2017, <http://www.it.uu.se/research/publications/reports/2017-004/>.
- I 4 Marco Donatelli, Ali Dorostkar, Mariarosa Mazza, Maya Neytcheva, Stefano Serra-Capizzano, A block multigrid strategy for two-dimensional coupled PDEs. TR 2016-001, Department of Information Technology, Uppsala University, (*Published.*)
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- I 7 Owe Axelsson, Shiraz Farouq, Maya Neytcheva, Comparison of preconditioned Krylov subspace iteration methods for PDE-constrained optimization problems. Poisson and convection-diffusion control. TR 2015-024, Department of Information Technology, Uppsala University, August 2015. (*Published.*)

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- I 13 Xin He, Marcus Holm, Maya Neytcheva, Efficient implementations of the inverse Sherman-Morrison algorithm. TR 2012-017, Department of Information Technology, Uppsala University, August 2012. (*Published.*)
- I 14 Owe Axelsson, Xin He, Maya Neytcheva, Numerical solution of the time-dependent Navier-Stokes equation for variable density-variable viscosity. TR 2012-019, Department of Information Technology, Uppsala University, August 2012.
- I 15 Petia Boyanova, Maya Neytcheva. Efficient preconditioners for large scale ternary Cahn-Hilliard models. TR 2012-009, Department of Information Technology, Uppsala University, April 2012. (*Published.*)
- I 16 O. Axelsson, P. Boyanova, M. Kronbichler, M. Neytcheva, X. Wu, Numerical and computational efficiency of solvers for two-phase problems TR 2012-002, Department of Information Technology, Uppsala University, January 2012. (*Published.*)
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- I33 O.Axelsson, M.Neytcheva, Some basic facts for efficient massively parallel computation. Report No. 9607, March 1996, Department of Mathematics, University of Nijmegen, The Netherlands. (*Published.*)
- I34 O.Axelsson, M.Neytcheva, The Short Length AMLI Method. I. Report 9417, April 1994, Department of Mathematics, University of Nijmegen, The Netherlands. (*Published.*)
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- PSci 1 M. Neytcheva, *Don't be phased*. In *International Innovation*, June 2012. Publisher: Research Media Ltd, www.researchmedia.eu.

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- O1 M. Neytcheva, *Iterative solution methods for nonlinear problems*, Uppsala, Compendium for a graduate course (by December 2003 contains 66 pages).
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- O3 M. Neytcheva, Arithmetic and Communication Complexity of Preconditioning Methods. Ph.D. thesis, September 1995, Nijmegen. (Contains 245 pages.)