CV of Maxim A. Olshanskii

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Education:

- Ph.D. Mathematics, Moscow State University, 1996
- M.S. Department of Mechanics and Mathematics, Moscow State University, 1993

Doctoral Dissertation (PhD thesis): Some questions of numerical simulation of unsteady incompressible Navier-Stokes flows in primitive variables, Prof. G.M.Kobelkov, advisor.

Second Doctoral Dissertation (Habilitation thesis): Robust multigrid and preconditioned iterative methods, in 2006 from the Institute of Numerical Mathematics of Russian Academy of Science

Research Interests:

My field of expertise is computational mathematics and mathematical modeling. Current interests include coupled and multi-physics problems, fluid dynamics, propagating interfaces and geometrical PDEs, finite element methods, reduced order models, cardiovascular computational mathematics, numerical modelling of biomembranes and material surfaces, numerical linear algebra.

Positions Held:

- 9/2015–present **Professor**
  Department of Mathematics
  University of Houston
  Houston, TX, USA
- 9/2012–8/2015 **Associate Professor**
  Department of Mathematics
  University of Houston
  Houston, TX, USA
- 9/2009– 9/2012 **Professor**
  Department of Mechanics and Mathematics
  Moscow M.V.Lomonosov State University
  Moscow, Russia
- 9/2001–8/2009 **Docent**
  Department of Mechanics and Mathematics
  Moscow M.V.Lomonosov State University
  Moscow, Russia
- 2/2000–12/2000 **Post-Doctoral Fellow**
  Institute for Geometry and Applied Mathematics
  RWTH-University in Aachen
  Aachen, Germany

- 1/1997–8/2001 **Research fellow**
  Department of Mechanics and Mathematics
  Moscow M.V.Lomonosov State University
  Moscow, Russia

Visiting and Part-time Positions Held:

- 9/2005-2/2006 **Visiting associate professor**
  Department of Mathematics and Computer Sciences
  Emory University
  Atlanta, USA
- 2/2004, 2/2005, 2/2008 **Guest professor**
  Institute for Geometry and Applied Mathematics
  RWTH-University in Aachen
  Aachen, Germany
- 6/2002–7/2002 **Visiting researcher**
  Institute for Geometry and Applied Mathematics
  RWTH-University in Aachen
  Aachen, Germany
- 9/2001–2/2002 **Visiting assistant professor**
  Department of Mathematics
  Vanderbilt University
  Nashville, USA
- 1993–2002 **Part-time research fellow**
  Computing Laboratory
  Institute for Social and Economic Studies of Population
  Russian Academy of Sciences
  Moscow, Russia

Grants and projects:

- National Science Foundation DMS-2309197: "Tensorial Reduced Order Models: Development, Analysis, and Applications", (2023-2026, co-PI, PI: A.Mamonov ; $268,851.00)
- National Science Foundation DMS-2011444: "Numerical analysis and methods for fluid deformable surfaces and their interaction with the bulk", (2020–2023, solo PI, $201,000.00)
- National Science Foundation DMS/NIGMS-1953535: "Phase separation based mechanism to enhance membrane fusion with cellular cytoplasm", (2020-2023, co-PI, other PIs: A.Quaini and S. Majd; $481,454.00)
- National Science Foundation DMS-1717516: "Unfitted Finite Element Methods for Partial Differential Equations on Evolving Surfaces and Coupled Surface–Bulk Problems", (2017–2020, solo PI $156,000.00)
- National Science Foundation DMS-1522252: "Collaborative Research: Variational structure preserving methods for incompressible flows: dicretizations, analysis, parallel solvers", (2015–2018, solo PI, $89,980.00)
- Army Research Office grant "Long-term Stable Conservative Multiscale Methods for Vortex Flows", (2014–2017, co-PI, PI: L.Rebholz $160,810.00)
- National Science Foundation DMS-1315993: "An Eulerian finite element method for partial differential equations posed on surfaces", (2013–2016, solo PI, $221,637.00)
- Consulting for Shell Oil Company (2015,2020-2023)

- University of Houston Small Grant Program grant for finalizing a manuscript, (2014 PI, $2500);
- Russian Foundation for Basic Research project No 12-01-00283: "Nonstandard discretizations for the incompressible Navier-Stokes equation: development, analysis and iterative methods", (2012–2013, PI)
- German Scientific Research Foundation and Russian Foundation for Basic Research project (DFG-RFBR) ("Development and analysis of an Eulerian finite element method for partial differential equations on implicitly defined surfaces "), 2011-2013 (PI, PI from the German side: A.Reusken)
- Russian Foundation for Basic Research project No 09-01-00115: "The development and analysis of iterative methods for approximate solution of Non-Newtonian fluid equations" , (2009–2011, PI)
- Russian Foundation for Basic Research project No 11-01-00971: "Discretizations on adaptive meshes and their applications in hemodynamics and hydrogeology" 2011-2013 (co-PI, PI: Yu.V.Vassilevski)
- German Scientific Research Foundation and Russian Foundation for Basic Research project (DFG-RFBR) ("Robust and efficient solution strategies for generalized incompressible Navier-Stokes equations "), 2006-2008 (PI, PI from German side: S.Turek)
- Russian Foundation for Basic Research project No 08-01-00159: "Novel computational technologies for hydrodynamic problems with free interior boundary", (2008–2010) (co-PI, PI: Yu.V.Vassilevski)
- Russian Academy of Science program "Contemporary problems of theoretical mathematics", project No. 01.2.00104588 (co-PI, PI: V.I.Lebedev)
- Dutch-Russian project "Robust Numerical Methods and Computational Technologies for Singularly Perturbed Multiscale Problems", NWO-RFBR 047.016.008 (2004-2006) (co-PI, PI: G.I.Shiskin).
- Russian Foundation for Basic Research projects, No 11-01-00767, 05-01-00846, 08-01-00415,02-01-00592,99-01-00263, 96-01-01254, (1996–2013) (co-PI, PI: G.M.Kobelkov)
- European Committee (INTAS) and Russian Foundation for Basic Research grant, No 95-00098, (1997-1999) (co-PI, PI: O.Axelson)
- Emory University Emerson Center for Scientific Computation visiting Fellowships for 2006-2007 (for 2 months) and 2010-2011 (for 3 months)
- Russian Foundation for Basic Research grant for young scientists in 2001, 2002 and 2003
- European Committee (INTAS) Fellowship for Young Scientists in 1998/99 acad. year.
- Numerous travel grants/ visiting supports were received from RFBR, SFB, universities and conferences organizers.

Honors:

- University Of Houston Award for Excellence in Research, Scholarship and Creative Activity for 2022–2023 Click
- Emory University Adjunct Professor from 2010
- Grant of the Moscow Government "Docent 2004" : "For the excellence in teaching and research" (former Soros educational program grant)
- M.I.T. Fellowship: "The Young Researcher Fellowship Award for exemplary research in computational mechanics" (2003)
- Prize of the European Academy for Russian young scientists in section "Mathematics" (8th contest, 2001)
- Selected in the distinguished "elite group" and awarded a grant for young scientists by the Russian Foundation for Basic Research in 2001

Publications

Books:

1. Yu. Vassilevski, M. Olshanskii, S. Simakov, A. Kolobov, A. Danilov, *Personalized Computational Hemodynamics: Models, Methods, and Applications for Vascular Surgery and Antitumor Therapy*, Academic Press, 2020, 280 p., ISBN: 978-0-128156-53-7.

2. S. Bordas, E. Burman, M. Larson, M. Olshanskii editors, "Geometrically Unfitted Finite Element Methods and Applications" Lecture Notes in Computational Science and Engineering series, V. 121, Springer 2018, xvi + 244, ISBN: 978-3-319-71430-1.

3. M. Olshanskii, E.E. Tyrtyshnikov, *Iterative Methods for Linear Systems: Theory and Applications*, SIAM, Philadelphia, PA 2014, xvi + 244, ISBN 978-1-611973-45-7.

4. Yu. Vassilevski, M. Olshanskii, *Short course on multigrid and domain decomposition methods*, Moscow State University: MAKS-Press, Moscow 2007, 108 p.

5. M. Olshanskii, *Lectures and exercises in multigrid methods*, Fizmatlit: Moscow 2005, 168 p.

Research papers in peer-reviewed journals:

6. M. Olshanskii, L. Rebholz Local conservation laws of continuous Galerkin method for the incompressible Navier–Stokes equations in EMAC form, *Computer Methods in Applied Mechanics and Engineering* **418** (2024), 116583.

7. M. Neilan, M. Olshanskii, An Eulerian finite element method for the linearized Navier–Stokes problem in an evolving domain, *IMA Journal of Numerical Analysis* (2024), drad105

8. A. Mamonov, M. Olshanskii, Analysis of a tensor POD-ROM for parameter dependent parabolic problems, arXiv preprint arXiv:2311.07883 (2023).

9. T. Heister, M. Olshanskii, and V. Yushutin. An adaptive stabilized trace finite element method for surface PDEs, arXiv preprint arXiv:2310.03089 (2023).

10. Y. Wang, Y. Palzhanov, D. Dang, A. Quaini, M. Olshanskii, S. Majd, On fusogenicity of positively charged phased-separated lipid vesicles: experiments and computational simulations, *Biomolecules* **13** (2023), 1473.

11. M. Olshanskii, Y. Palzhanov, A. Quaini, A scalar auxiliary variable unfitted FEM for the surface Cahn-Hilliard equation, *Journal of Scientific Computing*, **97** (2023), 57.

12. M. Olshanskii, On equilibrium states of fluid membranes, *Physics of Fluids* , **35** (2023), article #062111 ("featured paper" editors selection).

13. A. Mamonov, M. Olshanskii, Tensorial parametric model order reduction of nonlinear dynamical systems, accepted to *SIAM Journal on Scientific Computing*.

14. M. Olshanskii, A. Reusken, P. Schwering, An Eulerian finite element method for tangential Navier-Stokes equations on evolving surfaces, *Mathematics of Computation* (2023).

15. H. Liu, M. Neilan, M. Olshanskii, A CutFEM divergence–free discretization for the Stokes problem, *ESAIM: Mathematical Modelling and Numerical Analysis*, **57** (2023), 143–165.

16. M. Olshanskii, A. Reusken, A. Zhiliakov, Tangential Navier-Stokes equations on evolving surfaces: Analysis and simulations, *Mathematical Models and Methods in Applied Sciences*, **14** (2022), 2817–2852.

17. A. Mamonov, M. Olshanskii, Interpolatory tensorial reduced order models for parametric dynamical systems, *Computer Methods in Applied Mechanics and Engineering*, **397** (2022), article #115122 (30 pages).

18. Y. Wang, Y. Palzhanov, A. Quaini, M. Olshanskii, S. Majd, Lipid domain coarsening and fluidity in multicomponent lipid vesicles: A continuum based model and its experimental validation, *Biochimica et Biophysica Acta (BBA)-Biomembranes*, **1864** (2022), article #183898 (21 pages).

19. M. Olshanskii, A. Zhiliakov, Recycling augmented Lagrangian preconditioner in an incompressible fluid solver, *Numerical Linear Algebra with Applications*, **29** (2022), article #e2415 (16 pages).

20. M. Olshanskii, A. Quaini, Q. Sun, A finite element method for two-phase flow with material viscous interface, *Computational Methods in Applied Mathematics*, **22** (2022), 443–464.

21. M. Olshanskii, Y. Palzhanov, A. Quaini, A comparison of Cahn-Hilliard and Navier-Stokes-Cahn-Hilliard models on manifolds, *Vietnam Journal of Mathematics* **50** (2022),929–945.

22. A. Lozovskiy, M. Olshanskii, Yu. Vassilevski, A finite element scheme for the numerical solution of the Navier–Stokes / Biot coupled problem, **37** (2022), 159–174.

23. Y. Palzhanov, A. Zhiliakov, A. Quaini, M. Olshanskii, A decoupled, stable, and linear FEM for a phase-field model of variable density two-phase incompressible surface flow, *Computer Methods in Applied Mechanics and Engineering*, **387** (2021), article #114167 (21 pages).

24. M. Olshanskii, A. Quaini, Q. Sun, An unfitted finite element method for two-phase Stokes problems with slip between phases, *Journal of Scientific Computing*, **89**, 41 (2021) (23 pages).

25. M. Olshanskii, X. Xu, V. Yushutin, A finite element method for Allen-Cahn equation on deforming surface, *Computers & Mathematics with Applications*, **90** (2021), 148–158.

26. A. Zhiliakov, Y. Wang, A. Quaini, M. Olshanskii, S. Majd, Experimental validation of a phase-field model to predict coarsening dynamics of lipid domains in multicomponent membranes, *Biochimica et Biophysica Acta (BBA)-Biomembranes*, **1863** (2021), 183446 (10 pages).

27. M. Olshanskii, A. Reusken, A. Zhiliakov, Inf-sup stability of the trace P2-P1 Taylor–Hood elements for surface PDEs, *Mathematics of Computation*, **90** (2021), 1527—1555.

28. T. Jankuhn, M. Olshanskii, A. Reusken, A. Zhiliakov, Error analysis of higher order trace finite element methods for the surface Stokes equations, *J. Numer. Math.*, **29** (2021), 245–267.

29. M. Olshanskii, Speed-direction description of turbulent flows, *Physics of Fluids*, **32** (2020), 115128 (7 pages).

30. M. Olshanskii, L. Rebholz, Longer time accuracy for incompressible Navier-Stokes simulations with the EMAC formulation, *Computer Methods in Applied Mechanics and Engineering* **372** (2020), 113369 (17 pages).

31. E. Cáceres, J. Guzman, M. Olshanskii, New stability estimates for an unfitted finite element method for two-phase Stokes problem, *SIAM J. Numer. Anal.*, **58** (2020), 2165–2192.

32. Yushutin V., A. Quaini, M. Olshanskii,Numerical modelling of phase separation on dynamic surfaces, *Journal of Computational Physics*, **407** (2020), 109126 (27 pages).

33. Vassilevski Y., A. Danilov, A. Lozovskiy, M. Olshanskii, V. Salamatova, S Chang, Y. Han, C. Lin, A stable method for 4D CT-based CFD simulation in the right ventricle of a TGA patient, *Russ. J. Numer. Anal. and Math. Modelling*, **35** (2020), 315–324.

34. A. Chernyshenko, M. Olshanskii, An unfitted finite element method for the Darcy problem in a fracture network, *Journal of Computational and Applied Mathematics*, **366** (2020), 112424 (14 pages).

35. A. Zhiliakov, D. Svyatskiy, M. Olshanskii, E. Kikinzon, M. Shashkov, A higher order approximate static condensation method for multi-material diffusion problems, *Journal of Computational Physics*, **395** (2019), 333–350.

36. V. Yushutin,A. Quaini, S. Majd, M. Olshanskii, A computational study of lateral phase separation in biological membranes, *International Journal for Numerical Methods in Biomedical Engineering*, **35** (2019), e3181 (21 pages).

37. M. Olshanskii, V. Yushutin, A penalty finite element method for a fluid system posed on embedded surface, *Journal of Mathematical Fluid Mechanics*, **21** (2019), 14–33.

38. S. Charnyi, T. Heister, M. Olshanskii, L. Rebholz, Efficient discretizations for the EMAC formulation of the incompressible Navier-Stokes equations, *Applied Numerical Mathematics*, **141** (2019), 220–233.

39. A. Lozovskiy, M. Olshanskii, Yu. Vassilevski, Analysis and assessment of a monolithic FSI finite element method, *Computers & Fluids*, **179** (2019), 277–288.

40. I. Konshin, M. Olshanskii, Yu. Vassilevski, An algebraic solver for the Oseen problem with application to hemodynamics, chapter in *Contributions to Partial Differential Equations and Applications*, Edts: B.N. Chetverushkin et al, Springer "Computational Methods in Applied Sciences" series, V.47 (2019), 339–357.

41. C. Lehrenfeld, M. Olshanskii, An Eulerian Finite Element Method for PDEs in time-dependent domains, *ESAIM: Mathematical Modelling and Numerical Analysis*, **53** (2019), 585–614.

42. M. Olshanskii, A. Quaini , A. Reusken, V. Yushutin, A finite element method for the surface Stokes problem, *SIAM J.Sci.Comp.*, **40** (2018), A2492–A2518.

43. S. Gross, T. Jankuhn, M. Olshanskii, A. Reusken, A Trace Finite Element Method for Vector-Laplacians on Surfaces, *SIAM J. Numer. Anal.*, **56** (2018), 2406–2429.

44. Th. Jankuhn, M. Olshanskii, A. Reusken, Incompressible fluid problems on embedded surfaces: Modeling and variational formulations, *Interfaces and Free Boundaries*, **20** (2018), 353–378.

45. C. Lehrenfeld, M. Olshanskii, X. Xu, A stabilized trace finite element method for partial differential equations on evolving surfaces, *SIAM J. Numer. Anal.*, **56** (2018), 1643–1672.

46. M. Olshanskii, A. Reusken, Trace Finite Element Methods for PDEs on Surfaces, chapter in *Geometrically Unfitted Finite Element Methods and Applications*, Edts: S.P. Bordas et al, Springer "Lecture Notes in Computational Science and Engineering" series, V. 121 (2018), 211–258.

47. M. Olshanskii, L. Rebholz, A. Salgado, On well-posedness of a velocity-vorticity formulation of the Navier–Stokes equations with no-slip boundary conditions, *Discrete and Continuous Dynamical Systems, Series A*, **38** (2018), 3459–3477.

48. A. Lozovskiy, M. Olshanskii, Yu. Vassilevski, A quasi-Lagrangian finite element method for the Navier-Stokes equations in a time-dependent domain, *Computer Methods in Applied Mechanics and Engineering*, **333** (2018), 55–73.

49. K. Nikitin, M. Olshanskii, K. Terekhov, Yu. Vassilevski, A splitting method for free surface flows over partially submerged obstacles, *Rus.J.Num.Anal.Math.Model.*, **33** (2018), 95–110.

50. A. Chernyshenko, M. Olshanskii, Yu. Vassilevski, A hybrid finite volume–finite element method for bulk–surface coupled problems, *Journal of Computational Physics*, **352** (2018) 516–533.

51. J. Guzman, M. Olshanskii, Inf-sup stability of geometrically unfitted Stokes finite elements, published electronically *Mathematics of Computation*, **87** (2018), 2091–2112.

52. T. Heister, M. Olshanskii, L. Rebholz, Unconditional long-time stability of a velocity-vorticity method for the 2D Navier-Stokes equations, *Numerische Mathematik*, **135** (2017) 143–167.

53. M. Olshanskii, X. Xu, A trace finite element method for PDEs on evolving surfaces, *SIAM J.Sci.Comp.*, **39** (2017), A1301–A1319.

54. A. Danilov, A. Lozovskiy, M. Olshanskii, Yu. Vassilevski, A finite element method for the Navier-Strokes equations in moving domain with application to hemodynamics of the left ventricle, *Russ. J. Numer. Anal. Math. Modelling*, **32** (2017), 225–236.

55. S. Charnyi, T. Heister, M. Olshanskii, L. Rebholz, On conservation laws of Navier-Stokes Galerkin discretizations, *Journal of Computational Physics*, **337** (2017), 289–308.

56. K. Nikitin, M. Olshanskii, K. Terekhov, Yu. Vassilevski, R. Yanbarisov, An adaptive numerical method for free surface flows passing rigidly mounted obstacles, *Computers & Fluids*, **148** (2017), 56–68.

57. I. Konshin, M. Olshanskii , Yu. Vassilevski, LU factorizations and ILU preconditioning for stabilized discretizations of incompressible Navier-Stokes equations, *Num. Linear Algebra Appl.*, **24** (2017), e2085 (15 pages).

58. W. Cheng, M. Olshanskii, Finite stopping times for freely oscillating drop of a yield stress fluid, *Journal of Non-Newtonian Fluid Mechanics*, **239** (2017), 73–84.

59. T. Dobroserdova, M. Olshanskii, S. Simakov, Multiscale coupling of compliant and rigid walls blood flow models, *Int.J.Numer.Meth.Fluids.*, **82** (2016), 799–817.

60. S. Gross, T. Ludescher, M. Olshanskii, A. Reusken, Robust preconditioning for XFEM applied to time-dependent Stokes problems, *SIAM J.Sci.Comp.* **38** (2016), A3492–A3514.

61. M. Olshanskii, D. Safin, Numerical integration over implicitly defined domains for higher order unfitted finite element methods, *Lobachevskii Journal of Mathematics*, **37** (2016), 582–596.

62. M. Olshanskii, D. Safin, A narrow-band unfitted finite element method for elliptic PDEs posed on surfaces, *Mathematics of Computation*, **85** (2016), 1549–1570.

63. A. Lozovskiy, M. Olshanskii, V. Salamatova, Yu. Vassilevski, An unconditionally stable semi-implicit FSI finite element method, *Comput. Methods Appl. Mech. Engrg.*, **297** (2015), 437-454.

64. M. Olshanskii, T. Heister, L. Rebholz, K. Galvin,Natural vorticity boundary conditions on solid walls, *Comput. Methods Appl. Mech. Engrg.*, **297** (2015), 18–37.

65. K. Terekhov, K. Nikitin, M. Olshanskii, Yu. Vassilevski, A semi-Largangian method on dynamically adapted octree meshes, *Rus.J.Num.Anal.Math.Model.*, **30** (2015), 363–380.

66. I. Konshin, M. Olshanskii, Yu. Vassilevski, ILU preconditioners for non-symmetric saddle point matrices with application to the incompressible Navier–Stokes equations, *SIAM J.Sci.Comp.*, **37** (2015), A2171–A2197.

67. A. Chernyshenko, M. Olshanskii, An adaptive octree finite element method for PDEs posed on surfaces, *Comput. Methods Appl. Mech. Engrg.*, **291** (2015), 146–172.

68. S. Gross, M. Olshanskii, A. Reusken, A trace finite element method for a class of coupled bulk-interface transport problems, *ESAIM: Mathematical Modelling and Numerical Analysis*, **49** (2015), 1303–1330.

69. K. Nikitin, M. Olshanskii, K. Terekhov, Yu. Vassilevski, A splitting method for numerical simulation of free surface flows of incompressible fluids with surface tension, *Computational Methods in Applied Mathematics*, **15** (2015), 59–77.

70. K. Terekhov, K. Nikitin, M. Olshanskii, Yu. Vassilevski, A semi-Largangian method on dynamically adapted octree meshes, *Rus.J.Num.Anal.Math.Model.*, **30** (2015), 363–380.

71. M. Olshanskii, A. Reusken, Error analysis of a space-time finite element method for solving PDEs on evolving surfaces, *SIAM J. Numer. Anal.*, **52** (2014), 2092–2120.

72. M. Olshanskii, A. Reusken, X. Xu, An Eulerian space-time finite element method for diffusion problems on evolving surfaces, *SIAM J. Numer. Anal.*, **52** (2014), 1354–1377.

73. M. Olshanskii, A. Reusken, X. Xu, A stabilized finite element method for advection-diffusion equations on surfaces, *IMA J Num. Anal.*, **34** (2014), 732–758.

74. M. Olshanskii, A. Reusken, X. Xu, On surface meshes induced by level set functions, *Computing and Visualization in Science*, **15** (2013), 53–60.

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78. M. Olshanskii, X. Xiong, A connection between filter stabilization and eddy viscosity models, *Numerical Methods for Partial Differential Equations*, **29** (2013), 2061–2080.

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81. Demlow A., M. Olshanskii, An adaptive surface finite element method based on volume meshes, *SIAM J. Numer. Anal.*, **50** (2012), 1624–1647.

82. M. Olshanskii, A fluid solver based on vorticity – helical density equations with application to a natural convection in a cubic cavity, *Int. J. Numer. Meth. Fluids*, **69** (2012), 983–994.

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85. M. Olshanskii, L. Rebholz, Application of barycenter refined meshes in linear elasticity and incompressible fluid dynamics, *Electronic Transactions on Numerical Analysis*, **38** (2011), 258–274.

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87. M. Benzi, M. Olshanskii, Field-of-values convergence analysis of Augmented Lagrangian preconditioners for the linearized Navier-Stokes problem, *SIAM J. Numer. Anal.*, **49** (2011), 770–788.

88. H. Lee, M. Olshanskii, L. Rebholz, On error analysis for the 3D Navier-Stokes equations in Velocity-Vorticity-Helicity form, *SIAM J. Numer. Anal.*, **49** (2011), 711–732.

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90. C. Manica, M. Neda, M. Olshanskii, L. Rebholz, Enabling numerical accuracy of the Navier-Stokes-alpha through deconvolution and enhanced stability, *ESAIM: Mathematical Modelling and Numerical Analysis*, **45** (2011), 277–307.

91. M. Benzi, M. Olshanskii, Z. Wang, Modified augmented Lagrangian preconditioners for the incompressible Navier-Stokes equations, *Int. J. Numer. Meth. Fluids*, **66** (2011), 486–508.

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96. M. Olshanskii, A. Reusken, A finite element method for surface PDEs: Matrix properties, *Numerische Mathematik*, **114** (2010), 491–520.

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99. P. Grinevich, M. Olshanskii, An iterative method for the Stokes type problem with variable viscosity, *SIAM J.Sci.Comp.*, **31** (2009), 3959–3978.

100. M. Olshanskii, Analysis of semi-staggered finite-difference method with application to Bingham flows, *Comput. Methods Appl. Mech. Engrg.*, **198** (2009), 975–985.

101. M. Olshanskii, A. Reusken, J. Grande, A Finite Element method for elliptic equations on surfaces, *SIAM J. Numer. Anal.*, **47** (2009), 3339–3358.

102. W. Layton, C. Manica, M. Neda, M. Olshanskii, L. Rebholz, On the accuracy of the rotation form in simulations of the Navier-Stokes equations, *Journal of Computational Physics*, **228** (2009), 3433–3447.

103. E. Muravleva, M. Olshanskii, Two finite-difference methods for the Bingham cavity flows, *Rus. J. Num. Anal. Math. Model.*, **23** (2008), 615–634.

104. A. Sokolov, S. Turek, M. Olshanskii , Numerical study of a discrete projection method for rotating incompressible flows, *Electronic Transactions on Numerical Analysis*, **32** (2008), 49–62; Special Volume: Selected Papers from the 20th Chemnitz Finite Element Symposium.

105. A. Sokolov,M. Olshanskii, S. Turek, A discrete projection method for incompressible viscous flow with Coriolis force, *Comput. Methods Appl. Mech. Engrg.*, **197** (2008), 4512–4520.

106. M. Olshanskii, M. Benzi, An augmented Lagrangian approach to linearized problems in hydrodynamic stability, *SIAM J.Sci.Comp.*, **30** (2008), 1459–1473.

107. M. Olshanskii, Yu. Vassilevski, Pressure Schur complement preconditioners for the discrete Oseen problem, *SIAM J.Sci.Comp.*, **29** (2007), 2686–2704.

108. M. Benzi, M. Olshanskii, An augmented Lagrangian-based approach to the Oseen problem, *SIAM J.Sci.Comp.*, **28** (2006), 2095–2113.

109. M. Olshanskii, J. Peters, A. Reusken, Uniform preconditioners for a parameter dependent saddle point problem with application to generalized Stokes interface equations, *Numerische Mathematik*, **105** (2006), 159–191.

110. M. Olshanskii, A. Reusken, Analysis of a Stokes interface problem, *Numerische Mathematik*, **103** (2006), 129–149.

111. T. Gelhard, G.Lube, M. Olshanskii, J. Starcke, Stabilized finite element schemes with LBB-stable elements for incompressible flows, *J. Comput. Appl. Math.* , **177** (2005), 243–267.

112. M. Olshanskii, Analysis of a multigrid method for convection-diffusion problem with Dirichlet boundary conditions, *Journal of Computational Mathematics and Mathematical Physics*, **44** (2004), 1462–1491.

113. M. Olshanskii, A. Reusken, Convergence analysis of a multigrid solver for a finite element method applied to convection-dominated model problem, *SIAM J.Num.Anal.*, **43** (2004), 1261–1291.

114. M. Olshanskii, A. Reusken, Grad-Div stabilization for the Stokes equations, *Mathematics of Computation*, **73** (2004), 1699–1718.

115. M. Olshanskii, A low order Galerkin finite element method for the Navier-Stokes equations of steady incompressible flow: A stabilization issue and iterative methods, *Comput. Methods Appl. Mech. Engrg.*, **191** (2002), 5515–5536.

116. M. Olshanskii, A. Reusken, Navier-Stokes equations in rotation form: a robust multigrid solver for the velocity problem, *SIAM J. Sci. Comp.*, **23** (2002), 1682–1706.

117. G. Lube, M. Olshanskii, Stable finite element calculations of incompressible flows using the rotation form of convection, *IMA J. Num. Anal.*, **22** (2002), 437–461.

118. M. Olshanskii, A. Reusken, On the convergence of a multigrid method for linear reaction-diffusion problems, *Computing*, **65** (2000), 193–202.

119. E. Chizhonkov, M. Olshanskii, On the domain geometry dependence of the LBB condition. *Math. Modelling Numer. Anal.: M^2AN*, **34** (2000), 935–951.

120. M. Olshanskii, E. Chizhonkov, On the asymptotic of the constant from infsup condition in elongated domains, *Mathematical Notes*, **67** (2000), 387–396.

121. G. Kobelkov, M. Olshanskii, Effective Preconditioning of Uzawa Type Schemes for Generalized Stokes Problem, *Numerische Mathematik*, **86** (2000), 443–470.

122. M. Olshanskii, V. Staroverov, On Simulation of the Outflow Boundary Conditions in FD Calculations for Incompressible Fluid, *Int. J. Numer. Meth. Fluids*, **33** (2000), 499–534.

123. M. Olshanskii, Iterative solver for Oseen problem and numerical solution of incompressible Navier-Stokes equations, *Num. Linear Algebra Appl.*, **6** (1999), 353–378.

124. M. Olshanskii, Two-Level Method and Some A Priori Estimates in Unsteady Navier-Stokes Calculations, *J. Comput. Appl. Math.*, **104** (1999), 173–191.

125. M. Olshanskii, On the Stokes problem with model boundary conditions, *Sbornik: Mathematics*, **188** (1997), 127–144.

126. M. Olshanskii, An exact numerical method for solving the Stokes type factorized problem, *Journal of Computational Mathematics and Mathematical Physics*, **37** (1997), 198–209.

127. M. Olshanskii, The Stokes problem with a parameter, *Journal of Computational Mathematics and Mathematical Physics*, **36** (1996), 75–86.

128. M. Olshanskii, On numerical solution of non-stationary Stokes equations, *Russ. J. Numer. Anal. Math. Modelling.*, **10** (1995), 81–92.

129. M. Olshanskii, On one iterative method for numerical solution of the Stokes problem, *Vestnik MGU, Ser. 15* (1993), 72–77 (in Russian).

Research papers in refereed conference proceedings:

130. A. Chernyshenko, M. Olshanskii, Yu. Vassilevski, A Hybrid Finite Volume—Finite Element Method for Modeling Flows in Fractured Media. In International Conference on Finite Volumes for Complex Applications, 527–535 (2017), Springer, Cham.

131. T. Dobroserdova, Yu. Vassilevski, S. Simakov, M. Olshanskii, V. Salamatova, T.M. Gamilov, V. Kramarenko, Y. Ivanov, The Model of Global Blood Circulation and Applications, 6th European Conference of the International Federation for Medical and Biological Engineering IFMBE Proceedings V. 45, 2015, pp 403–406.

132. A. Danilov, K. Nikitin, M. Olshanskii, K. Terekhov, Yu. Vassilevski, A unified approach for computing tsunami, waves, floods, and landslides, Numerical Mathematics and Advanced Applications - ENUMATH 2013, LNCSE series of Springer, Vol. 103, 2014, pp 643–650.

133. J. Grande, M. Olshanskii, A. Reusken, A space-time FEM for PDEs on evolving surfaces, in proceedings of 11th World Congress on Computational Mechanics, E. Onate, J. Oliver and A. Huerta (Eds) 2014 (12 pages).

134. M. Olshanskii, A. Reusken, X. Xu, A volume mesh finite element method for PDEs on surfaces, in Proc. of European Congress on Computational Methods in Applied Sciences and Engineering, ECCOMAS 2012 (J. Eberhardsteiner et.al. (eds.)), 2012 (14 pages).

135. K. Nikitin, M. Olshanskii, K. Terekhov, and Yu. Vassilevski, Numerical modelling of viscoplastic free surface flows in complex 3D geometries, in Proc. of European Congress on Computational Methods in Applied Sciences and Engineering, ECCOMAS 2012 (J. Eberhardsteiner et.al. (eds.)), 2012 (14 pages).

136. M. Olshanskii, A. Reusken, A Stokes interface problem: stability, error estimate and a solver, in *Proc. of European Congress on Computational Methods in Applied Sciences and Engineering, ECCOMAS 2004* (Eds. P. Neittaanmäki, etc.), 2004 (16 pages).

137. M. Olshanskii, Preconditioned iterations for the linearized Navier-Stokes system in rotation form, in *Computational Fluid and Solid Mechanics 2003*, K.J. Bathe (Editor) , Elsevier, 2003, 1074–1077.

138. M. Olshanskii, A robust iterative solver in simulation of unsteady incompressible Navier-Stokes flow, *Proc. Fourth Europ. Comput. Fluid Dynamic Conf.,* V.1, (Eds. R.Papailiou, etc.), Willey, Chichester, etc., 1998, 1296–1301.

139. M. Olshanskii, On Preconditioning Techniques for Generalized Stokes Problem, *Proc. Conf. on Precond. Iter. Solution Meth. in Large Scale Probl. in Scientific Comp.,* eds. O.Axelsson, M.Neytcheva, B.Polman, Nijmegen, the Netherlands, 1997, 137–144.

Invited talks:

1. PDE Seminar at Vanderbilt University (March 2024)
2. Computational and Applied Math Seminar at Tufts University (Febr. 2024)
3. Oberwolfach meeting "Interfaces, Free Boundaries and Geometric Partial Differential Equations", (Febr. 2024)
4. Invited speaker at "Scientific Computing Around Louisiana" (LSU at Baton Rouge, Jan. 2024)
5. Plenary speaker at SIAM TX-LA Sectional Meeting (University of Louisiana at Lafayette, Nov. 2023)
6. MS "Surface geometry approximation and vector-valued PDEs" at " European Conference on Numerical Mathematics and Advanced Applications", ENUMATH-2023 (Portugal, September 2023)
7. Keynote speaker at MS "Immersed Boundary Methods for Coupled Problems" at 10th International Conference on Computational Methods for Coupled Problems in Science and Engineering (June 2023; Chania, Greece)
8. MS "'Toward robust and efficient embedded and immersed method for fluid dynamics: stable and very high order formulations" at 22nd IACM Computational Fluids Conference (April 2023; Cannes, France)

9. "Special Session on Modern Trends in Numerical PDEs" at AMS Sectional Meeting (April 2023; Cincinnati, OH)
10. Keynote speaker at AMS special session "Recent Developments in Numerical Methods for PDEs" at Joint Mathematics Meetings (January 2023; Boston, MA)
11. Seminar on Scientific Computing at Clemson University, (October 2022; Clemson, SC)
12. Invited speaker at "O.A. Ladyzhenskaya centennial conference on PDEs" (online, July 2022)
13. Seminar Numerische Mathematik of Weierstrass Institute for Applied Analysis and Stochastics, Berlin (June 2022)
14. Invited speaker at "A journey in numerical linear algebra: a workshop in honor of Michele Benzi's 60th birthday" (June 2022; University of Pisa)
15. Keynote speaker at MS "Advances in numerical methods for inhomogeneous viscous flows: non-Newtonian, viscoelastic, multiphase, eddy-viscosity and other complex models" (June 2022; Eccomas 2022, Oslo)
16. Plenary speaker at Shanks Workshop on Mathematical Aspects of Fluid Dynamics (Feb. 2022; Vanderbilt University)
17. Colloquium talk at Math. Dept of Texas A&M University (February 2022)
18. 6th Annual SIAM Central States Meeting (Oct. 2021; online)
19. SIAM Southeast meeting (Sept. 2021; Auburn University)
20. Seminar of the DFG Research-Unit 3013: Vector- and Tensor-Valued Surface PDEs (Sept. 2021; online)
21. Comput. Math. and Applications Seminar of Math. Institute, Oxford (Oct. 2020; online)
22. SIAM TX-LA meeting (Oct. 2020; online)
23. Applied mathematics seminar at Math. Dept of Univ. of Maryland (November 2019)
24. Plenary speaker and also invited MS presenter at " European Conference on Numerical Mathematics and Advanced Applications", ENUMATH-2019 (The Netherlands, October 2019)
25. "Conference on Computational Mathematics and Applications" with invited talk to MS (UNLV, October 2019)
26. Colloquium talk at Math. Dept of Univ. of Connecticut (October 2019)
27. Computational Mathematics seminar at Los Alamos National Lab (September 2019)
28. Numerical Analysis seminar at Dept. of Math., Univ. of Tennessee Knoxville (September 2019)
29. International Congress on Industrial and Applied Mathematics with invited talk to MS "Numerical Approximations of Geometric PDEs" (Valencia, Spain, July 2019)
30. Numerical Analysis seminar of Department of Mathematics and Mathematical Statistics of Umea University (Umea, May 2019)
31. Scientific Computing seminar of Department of Information Technology of Uppsala University (Uppsala, May 2019)
32. Scientific Computing seminar of Mathematical Department of Dortmund Technical University (Dortmund, April 2019)
33. Applied mathematics seminar at IGPM RWTH Aachen (Aachen, April 2019)
34. Invited talk at "Towards Computable Flows" Workshop on the occasion of the 68th birthday of Gert Lube (Göttingen, April 2019)
35. Invited presentation at "Finite Element Methods on Unfitted Meshes" MS on SIAM CSE (Spokane, WA, March 2019)
36. Invited talk at "Computational Methods for Interface Problems" workshop (University College London, London, January 2019)
37. Invited presentation at "Numerical methods and applications in Earth and life science" workshop (University of Augsburg, Germany, October 2018)
38. Invited presentation at "Multiscale methods and Large-scale Scientific Computing" conference (INM RAS, Moscow, August 2018)
39. Organizer and speaker at BIRS workshop "Numerical Analysis of Coupled and Multi-Physics problems with Dynamic Interfaces" (Oaxaca, July 2018)
40. Colloquium speaker at Dept. Mathematical Sciences, New Jersey Institute of Technology (April 2018)

41. AMS Sectional Meeting, with a talk invited to MS "Modeling, Analysis, and Simulations of PDEs with Multiple Scales, Interfaces and Coupled Phenomena" (Portland, April 2018)
42. Colloquium speaker of "students choice" at Dept. Scient. Comp., Florida State University (February 2018)
43. Speaker and MS organizer at 42nd SIAM Southeastern Atlantic Sectional Conference (March 2018)
44. 14th International Conference "Free Boundary Problems: Theory and Applications" with invited talk to MS "Numerics for FBPs and related topics" (Shanghai, July 2017)
45. Main speaker at "Santiago Numerico III: Ninth Meeting on Numerical Analysis of Partial Differential Equations" (Santiago, Chile, June 2017);
46. The Second German-Russian-USA Workshop "Numerical Methods and Mathematical Modelling in Geophysical and Biomedical Sciences" (Moscow, June 2017)
47. 11th International Conference on "Large-Scale Scientific Computations" with invited talk to MS "Advances in Heterogeneous Numerical Methods for Multi Physics Problems" (Sozopol, Bulgaria, June 2017)
48. 19h International Conference on Finite Elements in Flow Problems, with a Keynote talk at MS "Stabilized, Multiscale, and Isogeometric Methods in CFD" (Rome, April 2017)
49. AMS Sectional Meeting, with a talk invited to MS "Special Session on Recent Trends in Finite Element Methods" (Charleston, March 2017)
50. Colloquium talk at Rice University, CAAM (February 2017)
51. Oberwolfach Workshop "Emerging Developments in Interfaces and Free Boundaries", (January 2017)
52. Scientific Computing Seminar at Brown University (October 21, 2016)
53. AMS Fall Western Sectional Meeting, with invited talk to "Special Session on Above and Beyond Fluid Flow studies: In celebration of the 60th birthday of Prof. William Layton" (Denver, CO, October 2016)
54. European Congress on Computational and Applied Mathematics and Engeneering, Eccomas 2016 (Crete, June, 2016, a talk invited to a MS)
55. Workshop "Numerical methods and mathematical modelling in geophysical and biomedical sciences", with invited talk (Sion, Februry 2016)
56. Workshop "Geometrically unfitted finite element methods", (University College London, January 2015, with invited talk)
57. Oberwolfach Workshop "Geometric Partial Differential Equations: Surface and Bulk Processes", (December 2015)
58. SIAM Geoscience Conference, (June 2015 Stanford, CA, with a talk invited to MS "Mathematical and Numerical Solution of PDEs on Manifolds")
59. International Conference On Preconditioning Techniques For Scientific And Industrial Applications, (June 2015 Eindhoven, The Netherlands, a talk invited to MS "Preconditioners for coupled systems")
60. 18th Int. Conf. on Finite Elements in Flow Problems, (March 2015 Taipei, Taiwan, a talk invited to MS "Stabilized, Multiscale, and Isogeometric Methods in CFD")
61. Colloquium talk, University of Pittsburgh (January 2015)
62. Main speaker at IWH Symposium "Symposium on Simulation and Optimization of Extreme Fluids" (November 2014, Heidelberg)
63. "International workshop on Modeling and Simulation of Transport Phenomena" (Moselle Valley, Germany, July, 2014)
64. 11th. World Congress on Computational Mechanics, July 2014, Barcelona, Spain (a talk invited to MS "Advanced Discretization and Solution Methods for Coupled Multiphysics Transport Phenomena ");
65. Plenary speaker at the conference "Advanced Mathematics, Computations and Applications" June 2014, Akademgorodok, Novosibirsk, Russia
66. Seminar of Inst. of Numer. Math. of Russian Academy of Science dedicated to 80th anniversary of V.V.Voevodin and N.S.Bakhvalov
67. AMS Sectional Meeting (Lubbock, TX in April, 2014, a talk invited to Special Session "Recent Advancements in Differential Geometry and Integrable PDEs, and Their Applications to Cell Biology and Mechanical System")

68. SIAM SEAS Conference, (March 2014, Melbourne, FL, a talk invited to MS "Advanced Applications of Finite Element Techniques")
69. ICES Seminar at UT Austin (Febr. 2014)
70. Talk on SIAM Student Chapter seminar at Emory (Sept. 2013)
71. Numerical Analysis seminar at Clemson Univ. (Sept. 2013)
72. ENUMATH 2013, (August 2013, Lausanna, a talk invited to MS "Adaptive finite elements")
73. ENUMATH 2013, (August 2013, Lausanna, a talk invited to MS "Preconditioners for saddle point problems")
74. Workshop "Numerical methods for catastrophe and natural desalters prediction" (August 2013, Sion, Swiss)
75. MIT Computational Prototyping Group seminar (Febr. 2013, Boston, MA)
76. SIAM SCE 2013, (Febr. 2013, Boston, MA, talk invited to MS "Preconditioners for the Incompressible Navier-Stokes Equations")
77. Numerical Analysis seminar, University of Maryland, College Park, MD, (Feb. 2013)
78. Colloquium talk, UNLV (November 2012)
79. The Eighth International Conference on Scientific Computing and Applications, UNLV, April 2012
80. Math. Department Seminar at University of Sussex, January 2012
81. International Workshop "Transport Processes at Fluidic Interfaces - from Experimental to Mathematical Analysis", December 5-7, 2011, RWTH Aachen
82. ENUMATH 2011, (September 2011 , Leicester, talk invited to MS "Linear and Nonlinear Solvers for Fluids and Optimization")
83. ICIAM 2011, (July 2011, Vancouver, talk invited to MS "Solution Algorithms for Multiple-Component Constrained Partial Differential Equations ")
84. Plenary talk at International conference on Matrix Methods in Mathematics and Applications, Moscow, June 2011
85. Plenary talk at Conference on Simulation and Optimization, June 2011, Gyor, Hungary
86. International Conference on Applied Mathematics and Computer Science dedicated to A.A. Dorodnicyn 100-th Birthday Anniversary, Moscow, December 2010
87. Workshop "Nonstandard Discretizations for Fluid Flows", November 2010, Banff, Canada
88. Keynote speaker at Workshop on Calibration of Viscosity Models for Turbulent Flows, October 2010, Gottingen
89. Colloquium talk, University of Houston (Sept. 2010)
90. 4d International Conference Computational Methods in Applied Mathematics (June 2010, Banach Center, Poland) (with plenary talk)
91. A seminar in memory of R.P.Fedorenko (Inst. Appl. Math., Moscow, March 2010) (invited talk)
92. Colloquium talk, Dept. Mathem. Clemson Univ. (Oct. 2009)
93. Advances and Perspective on Numerical Methods for Saddle Point Problems, Banff, Canada, April 2009 (invited talk)
94. X Belorussian mathematical conference (invited talk in section "Comput. Mathem.", Nov. 2008)
95. MIDNAG meeting on Computational Methods for Non-Newtonian flows (Oct. 2008, Birmingham)
96. Workshop on Reliable Modelling and Scientific Computing (August 2008 , Juvaskyla)
97. ECCOMAS 2008 (July 2008 , Venice, talk invited to MS "Iterative Solvers for the Incompressible Navier Stokes Equations")
98. Colloquium talk, Ins. of Mathematics of Belorussian Academy of science (June 2008, Minsk)
99. Plenary talk at 2nd International Conference on matrix methods and operator equations (July 2007 , Moscow)
100. Plenary talk at 3d International Conference Computational Methods in Applied Mathematics (June 2007, Belarus)
101. 12th International Conference "Mathematical Modelling and Analysis" (June 2007, Lithuania, invited talk to MS "Advanced Numerical Methods for Singularly Perturbed and Related Problems")
102. Colloquium talk, Dept. Math. and Comp. Sciences, Emory Univ. (Oct. 2007)

103. SIAM Conference on Computational Science & Engineering (Febr. 2007 , Costa Mesa, invited talk to MS "Preconditioning of the Incompressible Navier-Stokes Equation ")
104. Colloquium talks, Inst. of Geometry and Applied Math. , RWTH-Aachen (2006, 2002 and 2000);
105. 3d Workshop on Computational Methods for Multidimensional Reactive Flows: COMREF 2005, (Heidelberg, 2005)
106. Series of invited lectures in graduate college of the University Goettingen in 2009, 2004, 2000
107. Colloquium talks, Mathematical Department of the Vanderbilt University (2003 and 2001)
108. Colloquium of Inst. of Applied and Numerical Math. of Univ. of Goettingen (2002)
109. Numerical Analysis Seminar of the University of Maryland (2001)
110. Short course "Towards robust iterative solvers for problems in fluid dynamics" in Graduate College of the University of Goettingen (1999)
111. Colloquium talk, Inst. of Applied and Numerical Math. of Univ. of Goettingen (1999)

Mentoring and teaching Experience:

Defended PhD students:
A. Sokolov in 2009 with thesis: "Analysis and Numerical Realization of Discrete Projection Methods for Rotating Incompressible Flows" (co-supervised with S.Turek);
P. Grinevich in March 2011 with thesis: "Numerical solver for the variable viscosity Stokes type problem and applications";
T. Dobroserdova in 2013 with thesis: "Numerical modeling of blood dynamics in the presence intravenous implants and pathologies";
A. Chernyshenko in 2014 with thesis: "Technology of building adaptive polygonal meshes and numerical solution of second order elliptic equations on surfaces and in the bulk domains" (co-supervised with Yu. Vassilevski);
W. Cheng in 2017 with thesis: "A motion of freely oscillating droplet of a yield stress fluid: analysis and numerical studies";
R. Stanaitute in April 2020 with thesis: "ILU and Machine Learning based preconditioning for the discretized incompressible Navier–Stokes equations"
Qi Sun in 2022 with thesis "Finite element methods and machine learning for some multi-phase problems" (co-supervised with A.Quaini);
Alexander Zhiliakov in 2022 with thesis "Trace Finite element for material surface flows".

Currently supervised PhD students: K. Williams, Y.Palzhanov (all UofH).

Kyle Williams (current PhD student) received DOE SCGSR award (2017) to pursue research on multi-scale methods based on vorticity dynamics (see www.uh.edu/nsm/news-events/stories/2017/0428-research-award.php for the mass media coverage).

Supervised postdoctoral researches:
Xianmin Xu (2011–2013) joint with Arnold Reusken,
Vladimir Yushutin (2017–2019) postdoc at UofH

I have been teaching various courses at Math. Dept. of University of Houston since 2012.
Before this I taught both graduate and undergraduate courses at Math. Dept. of Moscow State University from 1996 till 2012, and at Natural Science Dept. of MSU in 1995/96 and 1994/95.
Other miscellaneous teaching experience includes: Series of lectures on "Multigrid methods and applications" at summer school at Beijing University of Aeronautics and Astronautics (June, 2013) and Moscow-Rome summer school (June 2011); In 2011 and 2012 I gave intensive courses in Numerical Methods at Baku branch of MSU; In 2005/2006 I taught "Numerical PDEs I" graduate course at Dept. Math. and CS of Emory University, and in 2001/2002 a topical graduate course at Dept. of Math. of Vanderbilt University

Editorial service:

1. Journal of Numerical Mathematics (Editor in Chief from 2021, Managing Editor from 2014)
2. European Journal of Mathematics (from 2014)

3. Central European Journal of Mathematics (from 2006 to 2014)
4. Computational Methods in Applied Mathematics (from 2008)

University service:

1. NSM College Promotion and Tenure Committee (2016-2020)

Service for the community:

1. Co-organizer of semester-long program "Numerical PDEs: Stability, Algorithms, and Data Challenges" at ICERM, Brown (Spring 2024)
2. Co-organizer of "PDEs and Geometry: Numerical aspects" MS at ICERM, Brown (March 2024)
3. Co-organizer of "Numerical analysis of Multiphysics Problems" MS at ICERM, Brown (February 2024)
4. Co-organizer of "Immersed Boundary Methods for Coupled Problems" MS at 22nd Eccomas Coupled conference (June 2023)
5. Co-organizer of SIAM-TX-LA 2023 conference and MS "Modeling, analysis and numerical simulations involving thin structures" (October 2022)
6. Co-organizer of "Numerical models with free boundaries and interfaces" MS at WCCM XV - APCOM VIII. (July. 2022)
7. Co-organizer of "Numerical methods for problems with interfaces and surface PDEs " MS at TX-LA SIAM meeting (Nov. 2021)
8. Co-organizer of "Recent Advances in Model Order Reduction and Applications in Inverse Problems " MS at TX-LA SIAM meeting (Nov. 2021)
9. Co-organizer of "Numerical methods for Stokes and Navier-Stokes equations" MS at TX-LA SIAM meeting (Oct. 2020)
10. Co-organizer of "Numerical Analysis of Coupled and Multi-Physics Problems with Dynamic Interfaces" workshop at Banff International Research Station at Oaxaca (July-August 2018)
11. Organizer of "ROM, multiscale and conservative numerical methods for fluids" MS at SIAM SEAS (March 2018)
12. Co-organizer of " Unfitted Finite Element Methods: Analysis and Applications" minisymposium at ENUMATH 2017 conference (September 2017, University of Bergen, Norway)
13. Co-organizer of the "Finite Element Rodeo" conference (University of Houston, March 2017)
14. Organizer of "Numerical Methods for PDEs on Surfaces" minisymposium at 2017 SIAM CSE (Atlanta, March 2017)
15. Co-organizer of Franch-USA workshop on Computational and Applied mathematics honoring prof. Olivier Pironneau (Houston, February 2016)
16. Co-organizer of the workshop and round-table "Unfitted finite elements" (Aachen, 2015)
17. Minisymposium co-organizer "Numerical methods for fluid flows with free boundaries and interfaces" Enumath 2013, Lausanne (2013)
18. Co-organizer of the round-table meeting "Cardiovascular simulations: challenges and perspectives" at Dept. of Math., UH (2013)
19. Minisymposium co-organizer "Numerical methods for surface PDEs" Eccomas 2012, Vienna (2012)
20. In the programm committee of the "International conference on Matrix Methods in Mathematics and Applications" (2011, Moscow, Russia)
21. Co-organizer of the workshop: "Advances on numerical methods for multiphase and free surface flows" Moscow, June 2009
22. Minisymposium co-organizer "Advances in numerical methods for non-Newtonian flows" Enumath 2009, Uppsala (2009)
23. Minisymposium co-organizer "Fast solvers for saddle-point problems with applications in fluid dynamics " ICIAM07, Zurich (2007)
24. In the programm committee of the "2nd International Conference on matrix methods and operator equations" (2007, Moscow, Russia)

Four times I served as NSF DMS CompMath and CAREER panelist, many times as reviewer for Russian Scientific Foundation and Russian Foundation for Basic Research. Several times I served as external reviewer for various European national and EU funds.

I served as a member of various thesis committees at Dept. Mechanics and Mathematics at Moscow State University, Dept. of Math. at University of Houston, Inst. of Math. of Oxford University, Math. Dept. of Techn. Univ. of Dortmund, and Math. Dept. of Univ. Magdeburg.