Curriculum Vitae

Zhiliang Xu

Assistant Professor
Department of Applied and Computational Mathematics and Statistics
University of Notre Dame
Notre Dame, IN 465565

Email: zxu2@nd.edu
Office Phone: (574)631-3423

Professional Preparation

B.S. Beijing University of Aerospace and Astronautics, Mechanical Engineering, 1990 -1994
M.S. Beijing University of Aerospace and Astronautics, Computer Graphics, 1994 -1997
Ph.D. State University of New York at Stony Brook, Computational Applied Mathematics, 1998-2002

Professional Appointments

- 07/2010 – : Assistant Professor, Applied and Computational Mathematics and Statistics Department, University of Notre Dame
- 08/2006 – 07/2010: Assistant Professor, Mathematics Department, University of Notre Dame
- 11/2004 – 08/2006: Postdoctoral Research Associate, Computational Science Center, Brookhaven National Laboratory, **Advisor:** Professor James Glimm
- 2003 – 10/2004: Postdoctoral Research Associate, Department of Applied Mathematics and Statistics, State University of New York at Stony Brook, **Advisor:** Professor James Glimm

Publications

Refereed journal papers

(Papers prior to coming to Notre Dame)

1. E. George, J. Glimm, X.-L. Li, A. Marchese, Z.-L. Xu, "A Comparison of experimental, theoretical, and numerical simulation Rayleigh-Taylor mixing rates", Proceedings of the National Academy of Science USA, 99(5):2587-2592, March 5, 2002.
2. J. Glimm, X.-L. Li, Y.-J. Liu, Z.-L. Xu, N. Zhao, "Conservative Front Tracking with Improved Accuracy", SIAM J. of Numerical Analysis, 41(5):1926-1947, 2003.
3. E. George, J. Glimm, X.L.Li, A. Marchese, Z.-L. Xu, J.W.Grove, and D. Sharp. "Numerical methods for the determination of mixing", Laser and Particle Beams, 21(3):437-442, 2003.
4. B. Fix, J. Glimm, X.-L. Li, Y. Li, X.F. Liu, R. Samulyak, Z.-L. Xu, "A TSTT integrated FronTier code and its application in computational fluid physics", J. of Phys: Conference Series 16:471-475, 2005.
5. R. Samulyak, Y. Prykarpatskyy, T. Lu, J. Glimm, Z.-L. Xu, M.N.Kim, "Comparison of Heterogeneous and Homogenized Numerical Models of Cavitation", International Journal for Multiscale Computational Engineering, 4(3):377-390, 2006.

6. Z.-L. Xu, M. Kim, T. Lu, W. Oh, J. Glimm, R. Samulyak, X.L. Li and C. Tzanos, "Discrete Bubble Modeling of Unsteady Cavitating Flow", International Journal for Multiscale Computational Engineering, Issue5-6, Vol4, 2006.

(Papers since coming to Notre Dame)

7. R. Samulyak, J. Du, J. Glimm, Z.-L. Xu, "A Numerical Algorithm for MHD of Free Surface Flows at Low Magnetic Reynolds Numbers", Journal of Computational Physics, 226(2):1532-1549, 2007.
8. Z.-L. Xu, J. Glimm, Y.M. Zhang, and X.F. Liu, "A Multiscale Front Tracking Method for Compressible Free Surface Flows", Chemical Engineering Science, 62(13) :3538-3548, 2007.
9. T. Lu, Z.-L. Xu, R. Samulyak, J. Glimm and X.M. Ji, "Dynamic Phase Boundaries for Compressible Fluids", Siam J. on Scientific Computing, 30(3):895-915, 2008.
10. Z.-L. Xu, N. Chen, M.M. Kamocka, E.D. Rosen, and M.S. Alber, "Multiscale Model of Thrombus Development", Journal of the Royal Society Interface, 4(24):705-723, 2008.
11. Z.-L. Xu, N. Chen, M.M. Kamocka, E.D. Rosen and M. Alber, "Study of Blood Flow Effects on Growth of Thrombi Using a Multiscale Model", Soft Matter, Vol5:769-779, 2009.
12. Z.-L. Xu, Y.J. Liu, C.-W. Shu, "Hierarchical Reconstruction for Discontinuous Galerkin Methods on Unstructured Grids with WENO Type Linear Reconstruction", Journal of Computational Physics, Vol 228:2194-2212, 2009.
13. Z.-L. Xu, Y.J. Liu, C.-W. Shu, "Hierarchical Reconstruction for Spectral Volume Methods on Unstructured Grids", Journal of Computational Physics, 228(16):5787-5802, 2009.
14. Y.J. Liu, C.-W. Shu and Z.-L. Xu, "Hierarchical Reconstruction with up to Second Degree Remainder for Solving Nonlinear Conservation Laws", Nonlinearity, 22:2799-2812, 2009.
15. Z.-L. Xu, G. Lin "Spectral/hp element method with hierarchical reconstruction for solving nonlinear hyperbolic conservation laws", Acta Mathematica Scientia, 29(B):1737-1748, 2009.
16. J. Mu, X.M. Liu, M.M. Kamocka, Z.-L. Xu, M.S. Alber, E.D. Rosen, D.Z. Chen, "Segmentation, Reconstruction, and Analysis of Blood Thrombus Formation in 3D 2-Photon Microscopy Images", EURASIP JOURNAL ON ADVANCES IN SIGNAL PROCESSING, 2010:8:1-8:1, 2010.
17. M.M. Kamocka, J. Mu, X. Liu, N. Chen, A. Zollman, B. Sturonas-Brown, K. Dunn, Z.-L. Xu, D.Z. Chen, M.S. Alber, E.D. Rosen, "Two-photon intravital imaging of thrombus development", J Biomed Opt. 15(1):016020, 2010.
18. Z.-L. Xu, J. Lioi, J. Mu, M.M. Kamocka, X. Liu, D.Z. Chen, E.D. Rosen, and M.S. Alber, "A Multiscale Model of Venous Thrombus Formation with Surface-Mediated Control of Blood Coagulation Cascade", Biophysical Journal, 98(9):1723-1732, 2010.
19. C.R. Sweet, S. Chatterjee, Z.-L. Xu, K. Bisordi, E.D. Rosen, and M. Alber "Modeling Platelet-Blood Flow Interaction Using Subcellular Element Langevin Method", Journal of the Royal Society Interface, Doi:10.1098/rsif.2011.0180, 2011.
20. E. Kim, O.V. Kim, K.R. Machlus, X. Liu, T. Kupaev, J. Lioi, A.S. Wolberg, D.Z. Chen, E.D. Rosen, Z.-L. Xu and M. Alber "Correlation between fibrin network structure and mechanical properties: an experimental and computational analysis", Soft Matter, 7:4983-4992, 2011.
21. Z.-L. Xu, M. Kamocka, M. Alber and E. Rosen, "Computational Approaches to Studying Thrombus Development", Arterioscler Thromb Vasc Biol. 31:500-505, 2011
22. H. Du, Z.-L. Xu, J. Shrout, M. Alber, "Multiscale Modeling of Pseudomonas Aeruginosa Swarming", Math. Models and Methods in App. Sci. 21(Suppl.) 939-954, 2011.

23. Z.-L. Xu, Y. Liu, H. Du, G. Lin and C.-W. Shu, "Point-wise Hierarchical Reconstruction for Discontinuous Galerkin and Finite Volume Methods for Solving Conservation Laws", Journal of Computational Physics, 230(17):6843-6865, 2011.

Papers in refereed proceedings and book chapters

(Papers prior to coming to Notre Dame)

1. E. George, J. Glimm, J. W. Grove, X.-L. Li, A. Marchese, D. Sharp, and Z.-L. Xu, "Numerical Methods for Determination of Rayleigh-Taylor Mixing", Proceedings of Mix01.
2. E. George, J. Glimm, J. W. Grove, X.-L. Li, Y.-J. Liu, Z.-L. Xu and N. Zhao, "Simplification, Conservation and Adaptivity in the Front Tracking Method", the Proceedings of Ninth International Conference on Hyperbolic Problems, Hyp2002.
3. J. Glimm and J. W. Grove and X. L. Li and Yingjie Liu and Zhiliang Xu, "Unstructured grids in 3D and 4D for time-dependent interface in front tracking with improved accuracy", Proc. 8th Int. Conf. Num. Grid Generation in Comp. Field Simulations. 179-188, 2002.
4. J. Glimm, X.-L. Li, Z.-L. Xu, "Front Tracking Algorithm Using Adaptively Refined Meshes", Proceedings of the 2003 Chicago Workshop on Adaptive Mesh Refinement Methods, Adaptive Mesh Refinement - Theory and Applications, the Lecture Notes in Computational Science and Engineering, ISSN: 1439-7358.
5. E. George, J. Glimm, J. W. Grove, X. L. Li, Y. J. Liu, Z. L. Xu and N. Zhao, "Simplification, Conservation and Adaptivity in the Front Tracking Method", Hyperbolic Problems: Theory, Numerics and Applications, Proceedings of the ninth international conference on hyperbolic problems held in CalTech, Pasadena, March 25-29, 2002, Edited by T. Hou and E. Tadmor, pp. 175-184, ISBN 3-540-44333-9 Springer-Verlag, Berlin Heidelberg New York, 2003.
6. James Glimm, M.-N. Kim, X.-L. Li, R. Samulyak and Z.-L. Xu, "Jet Simulation in a Diesel Engine", Computational Fluid and Solid Mechanics: Proceedings, third MIT Conference on Computational Fluid and Solid Mechanics, Vol. 1, pp. 646, June 14-17, 2005.
7. J. Glimm, X. L. Li, Y. H. Li, and Z.-L. Xu, "An Enhanced Front Tracking Method for Computation of Discontinuous Structures in Fluid Dynamics", Proceedings of WCCM-6, Computational Mechanics, WCCM VI in conjunction with APCOM'04, Sept. 5-10, 2004, Beijing, China, Edited by Z. H. Yao, M. W. Yuan and W. X. Zhong, Tsinghua University & Springer-Vrelag, pp. 340-344, 2004.
8. J. Glimm, B. Fix, X.-L. Li, J.J. Liu, X.F. Liu, T. Lu, R. Samulyak and Z.L. Xu, "Front Tracking under TSTT", Numerical Modeling of Space Plasma Flows: ASP Conference Series, 359:15-24, 2006.

(Papers since coming to Notre Dame)

9. Z.-L. Xu, J. Lioi, J. Mu, X. Liu, D.Z. Chen, M.M. Kamocka, E.D. Rosen and M.S. Alber, "Combined Experimental and Simulation Study of Blood Clot Formation", *Proceedings of the IEEE TIC-STH-SENCS*, Sep 26-27, 2009, Toronto, Canada.
10. J. Mu, X. Liu, M.M. Kamocka, Z.-L. Xu, M.S. Alber, E.D. Rosen, and D.Z. Chen, "Segmentation, Reconstruction, and Analysis of Blood Thrombi in 2-Photon Microscopy Images," Proceedings of 22nd IEEE Symposium on Computer-Based Medical Systems (CBMS), Albuquerque, New Mexico, August 3-4, 2009.
11. Z.-L. Xu, S. Christley, J. Lioi, C. Harvey, W. Sun, E.D. Rosen and M. Alber,"Multiscale Modeling of Fibrin Accumulation on Thrombus Surface and Platelet Dynamics", Special Volume in Computational Method in Cell Biology, edited by A. Asthagiri and A. Arkin, 2011(accepted).

Papers submitted

1. Z.-L. Xu, and D. Balsara, "Divergence-Free WENO Reconstruction-Based Finite Volume Scheme for Solving Ideal MHD Equations on Triangular Meshes", submitted, 2011.
2. H. Du, Z.-L. Xu, O. Kim, W.M. Leevy, J. Shrout and M. Alber, "Bacteria create their own waves to efficiently colonize surfaces using fluid dynamics", submitted, 2011.

Research Support

Ongoing Research Support:

1. Source and Project number: NSF DMS-0800612 (Active),
   Title of Project: Integrating Multiscale Modeling and in vivo Experiments for Studying Blood Clot Development. 09/01/08-09/01/11 (this grant is extended for another year without cost), $864,000, Co-PI.

2. Source and Project Number: NIH 1 R01 GM100470-01 (Active)
   Title of Project: Study of the interplay of motility mechanisms during swarming of Myxococcus xanthus. $779,565, 09/01/11-09/01/14, Co-PI.

3. Source and Project Number: NSF DMS-1115887 (Active)
   Title of Project: High Order Model, Computation, and Stochastic Hybrid Coupling Continuum-Particle Algorithm with Application to to Micro-Propulsion. 10/01/11-09/30/14, $120,000, PI.

Pending Research Support:

1. Source and Project Number: NIH (Pending, NIH Application ID: 1R01GM095959-01A1)
   Title of Project: Combined multiscale modeling and experimental study of bacterial swarming. $1,867,500, 4 years, Co-PI.

Past Research Support:

Northwest Indiana Computational Grid (NWICG) project, $25,000, 10/01/08-09/30/09, PI

Presentations since coming to Notre Dame

(Colloquium since coming to Notre Dame)

1. **Colloquium.** "Multiscale modeling of P. aerugenosa swarming", Z.-L. Xu, Mathematics Department, Central Michigan University, Oct. 20, 2011.
2. **Colloquium.** "Conservation Constrained Runge-Kutta Discontinuous Galerkin Method with Improved CFL Condition for Conservation Laws", Z.-L. Xu, Mathematics and Statistics Department, Wichita State University, Mar. 26, 2010.
3. **Colloquium**. "Hierarchical reconstruction for discontinuous Galerkin methods for hyperbolic conservation laws and constraint DG", Z.-L. Xu, Applied Mathematics Department, IIT at Chicago, Nov. 17, 2009.
4. **Colloquium**. "Hierarchical reconstruction for spectral volume and RKDG methods", Z.-L. Xu, Department of Mathematics, UT at Arlington, May 8, 2009.

5. **Colloquium**. "Hierarchical reconstruction for spectral volume and RKDG methods for solving hyperbolic conservation laws", Z.-L. Xu, Department of Applied Mathematics, SUNY at Stony Brook, Mar 11, 2009.
6. **Colloquium**. "Hierarchical reconstruction for spectral volume and RKDG methods for solving hyperbolic conservation laws", Z.-L. Xu, Department of Aerospace Engineering, Iowa State University, Feb 24, 2009.

(Invited talk since coming to Notre Dame)

1. **Invited talk. "**A divergence-free reconstruction approach for magnetic field for solving MHD equations on unstructured meshes**",** Z.-L. Xu, 2011 International Congress on Industrial and Applied Mathematics (ICIAM 2011), Vancouver, BC, Canada, July 18 – 22, 2011.
2. **Invited talk. "**A RKDG method with conservation constraints to improve CFL conditions for solving conservation laws**",** Z.-L. Xu, 2011 International Congress on Industrial and Applied Mathematics (ICIAM 2011), Vancouver, BC, Canada, July 18 – 22, 2011.
3. **Invited talk.** "WENO divergence-free reconstruction-based finite volume scheme for solving ideal MHD equations on triangular meshes", Z.-L. Xu, Midwest Numerical Analysis Day 2011, Purdue University, May 7-8, 2011.
4. **Invited talk.** "A conservation constrained discontinuous Galerkin method with improved CFL number for conservation laws", Z.-L. Xu, 2010 SIAM Annual Meeting, Pittsburgh, 2010.
5. **Invited talk.** "Computational Study of Complex Biological Systems", Z.-L. Xu, International Conference series on Computational and Mathematical Methods in Science and Engineering, Department of Mathematics, University of Wisconsin-Madison, Madison, Wisconsin, May 24-26, 2010.
6. **Invited talk.** "Computational Study of Biological Systems Involving Fluid Flow", Z.-L. Xu, Workshop on Discrete Differential Geometry For Multiphase Problems, IUPUI, Apr. 23-24, 2010.
7. **Invited talk. "**Hierarchical reconstruction for spectral volume method and RKDG method**"**, Z.-L. Xu, Y. Liu, C.-W. Shu, 10th US National Congress on Computational Mechanics, Columbus, Ohio, July 16-19, 2009.
8. **Invited talk.** "A Multiscale Model of Thrombus Development", Xu, Z.L., Chen, N., Kamocka, M.M., Rosen, E.D., and M.S. Alber, SIAM Conference on Life Sciences, Montreal, Quebec Canada, Aug 4-7, 2008.
9. **Invited talk.** "Hierarchical Reconstruction for Discontinuous Galerkin Methods on Unstructured Grids with a Weno Type Linear Reconstruction", Z.-L. Xu, SIAM 2008 annual meeting, San Diego, CA, July 7-11, 2008.
10. **Invited talk.** "A Computational Multiscale Model of Blood Clot Development", Z.-L. Xu, N. Chen, M.M. Kamocka, E.D. Rosen and M.S. Alber, Mathematical Tools for Multi-Scale Biological Processes conference, Montana State Univ., Bozeman, June 4-6, 2008.
11. **Invited talk**. "A Computational Multiscale Model of Blood Clot Development", Z.-L. Xu, N. Chen, M.M. Kamocka, E.D. Rosen and M.S. Alber, AMS Spring Central Section Meeting, Indiana Univ., Bloomington, April 5-6, 2008.
12. **Invited talk.** "Non-Oscillatory Hierarchical Reconstruction for Discontinuous Galerkin Methods on unstructured Meshes", Z.-L. Xu, Yingjie Liu, The 9th U.S. National Congress on Computational Mechanics, San Francisco, CA, July-23-26, 2007.

13. **Invited talk.** "A N-Dimensional Conservative Front-Tracking Method", Z.-L. Xu, Yingjie Liu, Xiaolin Li, Jingjie Liu James Glimm, 2007 SIAM Conference on Computational Science and Engineering, Costa Mesa, CA, Feb 19-23, 2007.

(Contributed talk since coming to Notre Dame)

1. **Contributed talk.** "Discrete Bubble Modeling of Unsteady Cavitating Flow", Z.-L. Xu, Roman Samulyak, James Glimm and Xiaolin Li, ASME 2nd Joint U.S.-European Fluids Engineering Summer Meeting, Miami, FL, July 17-20, 2006.
2. **Poster.** M.M. Kamocka, F. Qi, Z.-L. Xu*, N. Chen, M. Alber and E.D. Rosen, "Testing the multiscale computational ToolKit for modeling thrombus development using near real-time confocal imaging of mesenteric vascular injury", Arteriosclerosis Thrombosis and Vascular Biology, 27(6):E108-E108, 2008, Annual Conference on Arteriosclerosis, Thrombosis, and Vascular Biology, Chicago, IL, APR 19-21, 2007.
3. **Poster.** M.M. Kamocka, N. Chen, Z.-L. Xu*, A.L. Zollman, M. Alber and E.D. Rosen, "2-photon intravital imaging and computational modeling of thrombus development in vivo", Arteriosclerosis Thrombosis and Vascular Biology, 28(6):E68-E68, 2008, 9th Annual Conference on Arteriosclerosis, Thrombosis and Vascular Biology**,** Atlanta, GA, APR 16-18, 2008.

Presentations prior to coming to Notre Dame

(Colloquium prior to coming to Notre Dame)

1. **Colloquium.** Department of Mathematics, University of Notre Dame, Notre Dame, IN, Jan 24, 2006.
2. **Colloquium.** Department of Mathematics, University of Alabama, Tuscaloosa, AL, Feb. 2006.

(Contributed talk prior to coming to Notre Dame)

1. **Contributed talk.** "Direct Numerical Simulations of Atomization of a High Speed Jet", Z.-L. Xu, M. Kim, W. Oh, J. Glimm and X.-L. Li, 18th Annual Conference on Liquid Atomization and Spray Systems, Irvine, CA, May, 2005.
2. **Contributed talk.** "Jet Simulation in a Diesel Engine", Z.-L. Xu, J. Glimm and X.-L. Li, APS March Meeting, Los Angeles, CA, March, 2005.
3. **Contributed talk.** "The Conservative Front Tracking in Cylindrical Geometry", Z.-L. Xu, J. Glimm and X.-L. Li, SIAM Annual Meeting, Portland, Oregon, July 12-16, 2004.
4. **Contributed talk.** "A Parallel Implementation of Adaptive Front Tracking", Z.-L. Xu, J. Glimm and X.-L. Li, SIAM Conference on Parallel Processing for Scientific Computing, San Francisco, CA, Feb.25-27, 2004.
5. **Poster presentation.** "A Parallel Implementation of Adaptive Front Tracking", Z.-L. Xu, J. Glimm and X.-L. Li, Chicago Workshop on Adaptive Mesh Refinement Methods. University of Chicago, IL, Sept. 3-5, 2003.
6. **Contributed talk.** "Conservative Front Tracking Algorithm in Two Dimensions", Z.-L. Xu, J. Glimm and X.-L. Li, 9th International Workshop on Numerical Methods for Free Boundary Problems, College Park, Maryland, January 9-12, 2002.
7. **Contributed talk.** "Conservative Front Tracking Algorithm in Two Dimensions", Z.-L. Xu, J. Glimm, X.-L. Li and Y.-J. Liu, SIAM 50, Philadelphia, July 8-12, 2002.

8. **Contributed talk.** "A New Front Tracking Method for Richmyer-Meshkov Instability", Z.-L. Xu, J. Glimm, X.-L. Li and Y.-J. Liu, International Workshop on Computational Methods for Continuum Physics and Their Applications, Nanjing, China, May 21-24, 2001.

Conferences organized

1. **Co-organizer.** "Midwest Numerical Analysis Day Conference", Applied and Computational Mathematics and Statistics Department, Notre Dame, May 12 – 13, 2012. Organizers: Mark Alber, Bei Hu, Andrew Sommese, Gretar Tryggvason, Joannes Westerink, Zhiliang Xu and Yongtao Zhang.
2. **Minisymposium organizer. "**Numerical Methods for Complex Flows**",** 2011 International Congress on Industrial and Applied Mathematics (ICIAM 2011), Vancouver, BC, Canada, July 18 – 22, 2011. Organizers: Guang Lin, Zhiliang Xu, Yingjie Liu
3. **Minisymposium organizer. "**Special Session on Mathematical Modeling and Computation with Applications in Biology**",** 2010 AMS Fall Central Section Meeting, Notre Dame, IN, November 5-7, 2010. Organizers: Mark Alber, Zhiliang Xu
4. **Minisymposium organizer.** "Advanced Computational Methods for Convection Dominated Flow Problems", 2010 SIAM Annual Meeting, Pittsburgh, 2010. Organizers: Zhiliang Xu, John W. Grove, Yingjie Liu
5. **Minisymposium organizer. "**Numerical methods for PDEs and their applications**",** 10^{th} US National Congress on Computational Mechanics, Columbus, Ohio, July 16-19, 2009. Organizers: Zhiliang Xu, Yingjie Liu

Teaching

Fall 2011, undergraduate course ACMS40390 "Numerical Analysis", University of Notre Dame
Spring 2011, undergraduate course Math20580 "Linear Algebra and Differential equations", University of Notre Dame
Spring 2011, graduate course ACMS60790 "Numerical Analysis II", University of Notre Dame
Fall 2010, undergraduate course ACSM40390 "Numerical Analysis", University of Notre Dame
Spring 2009, undergraduate course Math20580 "Linear Algebra and Differential equations", University of Notre Dame
Fall 2008, undergraduate course Math20550 "Calculus III", University of Notre Dame
Fall 2008, undergraduate course Math10550 "Calculus I", University of Notre Dame
Spring 2008, undergraduate course Math20550 "Calculus III", University of Notre Dame
Fall 2007, undergraduate course Math20550 "Calculus III", University of Notre Dame
Fall 2007, undergraduate course Math10560 "Calculus II", University of Notre Dame
Spring 2007, undergraduate course Math 20550"Calculus III", University of Notre Dame
Spring 2007, graduate course Math 60790 "Numerical Analysis II", University of Notre Dame
Fall 2006, graduate course Math60690 "Numerical Analysis I", University of Notre Dame
Fall 2001, undergraduate instructor, "Introduction to Linear Algebra", SUNY at Stony Brook
Spring 2000, teaching assistant, undergraduate course "Finite Mathematical Structures", SUNY at Stony Brook
Fall 2000, graduate instructor, "Fundamentals of Computing", SUNY at Stony Brook
Fall 1998-Spring 2000, teaching assistant, undergraduate course "Finite Mathematical Structures", SUNY at Stony Brook

Doctoral Students Advisees

Joshua Lioi (co-advised with Mark Alber)
Huijing Du (co-advised with Mark Alber)
Wenzhao Sun

Postdoctoral Research Associates Advisees

(co-advised with Mark Alber): EunJung Kim, Chris Sweet, Oleg Kim

Undergraduate REU Students Advisees

Sean Kickham (senior thesis, graduated with Honor's Math degree in Spring 2011)
Dennis J. Goebel (undergraduate research)

Service

Outside chair of Oral Candidacy Examination Committee for Volkan Kacso, Department of Physics, 06/20/2007
Outside chair of Doctoral Defense Committee for Jianli Zhao, Department of Electrical Engineering, 04/12/2007
Written Ph.D candidacy examination in Numerical Analysis, Department of Mathematics, 04/2008
Outside chair of Doctoral Defense Committee for Yue Li, Department of Aerospace and Mechanical Engineering, 06/19/2008
Written Ph.D candidacy examination in Numerical Analysis, Department of Mathematics, 12/2008
Oral Candidacy Examination Committee for Joshua Lioi, Department of Mathematics, 01/08/2009
Written Ph.D candidacy examination in Numerical Analysis, Department of Mathematics, 04/2009
Written Ph.D candidacy examination in Numerical Analysis, Department of Mathematics, 08/2009
Outside chair of Doctoral Defense for Yong Tang, Department of Electrical Engineering, 11/23/2009
Oral Candidacy Exam Committee for Huijing Du, Department of Mathematics, 01/27/2010
Written Ph.D candidacy examination in Numerical Analysis, Department of Mathematics, 04/2010
Written Ph.D candidacy examination in Numerical Analysis, Department of Mathematics, 08/2010

Doctoral Defense Committee for Jianfeng Zhu, Department of Mathematics, 04/06/2010
Doctoral Defense Committee for Richard Gejji, Department of Mathematics, 07/06/2010
Outside chair of Ph.D Candidacy Examination by Qin Yang, Department of Aerospace and Mechanical Engineering, 08/31/2010
Oral Candidacy Examination Committee for Chunlei Li, Applied and Computational Mathematics and Statistics Department, 01/21/2011
Oral Candidacy Examination Committee for Timur Kupaev, Applied and Computational Mathematics and Statistics Department, 04/29/2011
Oral Candidacy Examination Committee for John Holmes, Department of Mathematics, 05/11/2011

Professional Memberships

Member of Society for Industrial and Applied Mathematics
Member of American Physical Society
Member of the Institute for Liquid Atomization and Spray Systems

Other Professional Activities

Review Editor for Frontiers in Computational Physiology and Medicine
Referee for Applied Numerical Mathematics
Referee for ASME Journal of Fluids Engineering
Referee for SIAM Journal on Applied Mathematics
Referee for SIAM Journal on Scientific Computing
Referee for J. Comput. Phys.

Recent Collaborators

Mark Alber (University of Notre Dame)
Dinshaw Balsara (University of Notre Dame)
Joshua Shrout (University of Notre Dame)
James Glimm (SUNY at Stony Brook)
Xiaolin Li (SUNY at Stony Brook)
C.-W. Shu (Brown University)
Guang Lin (Pacific Northwest National Laboratory)
Yingjie Liu (Georgia Institute of Technology)
Elliot D. Rosen (IU School of Medicine at Indianapolis)
Roman Samulyak (Brookhaven National Laboratory)
Ning Zhao (Nanjing Univ. of Aeronautics and Astronautics)

Graduate and Postdoctoral Advisors

Ph.D. Advisor: Xiaolin Li, SUNY at Stony Brook
Postdoctoral Advisor: James Glimm, SUNY at Stony Brook