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Tianshi Lu

RGTUQPCN "KPHQTOCVKQP:

Title:	Associate Professor
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GFWECVKQP:

Rj0F0 *Applied Mathematics*, Stony Brook University, August 2005.
　　　Advisors: James Glimm, Roman Samulyak.
　　　Thesis:　 *Direct Numerical Simulation of Bubbly Flows and Interfacial Dynamics of Phase Transitions.*

O0C0 *Mathematics*, University of Wisconsin - Madison, May 2001.
O0U0 *Physics*, New York University, Jan. 1999.
D0U0 *Physics*, Fudan University, Shanghai, China, July 1997.

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2012.5 – present	Wichita State University, Dept. of Mathematics, Statistics, and Physics *Associate Professor* in mathematics.
2008.8 – 2012.5	Wichita State University, Department of Mathematics and Statistics *Assistant Professor* in mathematics.
2007.12 – 2008.8	Brookhaven National Laboratory, Computational Science Center *Assistant Computational Scientist* on computational fluid dynamics.
2005.9 – 2007.11	Brookhaven National Laboratory, Computational Science Center *Research Associate* on computational fluid dynamics.
2006.9 – 2006.12	Stony Brook University, Dept. of Applied Mathematics and Statistics *Visiting Scholar.*
2001.9 – 2005.8	Stony Brook University, Dept. of Applied Mathematics and Statistics *Research Assistant*, *Teaching Assistant*.
2000.9 – 2001.8	University of Wisconsin – Madison, Department of Mathematic *Teaching Assistant*.
1997.9 – 2000.8	New York University, Department of Physics *Teaching Assistant*.

OGODGTUJKR:

Awards and Grants:

Wichita State University NIAR Research Fund, $6K, Summer 2013.
Wichita State University ARCS Award, $4K, Summer 2012.
Wichita State University LAS Summer Support Fellowship, $4K, Summer 2011.
Kansas NSF EPSCoR First Award, $110K, July 2010 – September 2012.
Sigma Xi Excellence in Research Award

2014 Lecturing in the Math Circle for grade school students

Fall 2012 Mentoring undergraduate student James Allen in McNair Scholars Program

March 2011 Presenting energy-related research to the Kansas delegation in Washington, DC

June 2008 Educational talk on *Introduction to Advanced Computational Software (ACTS) Collection* at the New York Center for Computational Science Seminar

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ASME Journal of Fluids Engineering, Journal of Applied Physics, Applied Physics Letters, Mathematical Reviews, and *International Journal of Engineering Practical Research*

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C/C++, MATLAB, MPI parallel computation, LATEX.

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Development of the FronTier-MHD software for multiphase computational fluid dynamics and magnetohydrodynamics simulations.

Dynamic phase transition in cavitating and boiling flows, bubbly flows, free surface flows, interfacial instability, shock waves, and computational plasma physics.

Modeling and simulation of lighting arc root damage in metal and composite panels.

Efficient numerical schemes for hyperbolic systems and electromagnetic waves, front tracking, and high performance computing.

Computational quantum optics, spectral functions.

TGUGCTEJ"RCRGTU<"

1. **V0"Nw**, N. Leonenko, C. Ma. Series representations of isotropic vector random fields on balls. *Stat. Probabil. Lett.* **378**, 108583 (2020).

2. **V0"Nw**, C. Ma. Isotropic covariance matrix functions on compact two-point homogeneous spaces. *J. Theor. Probab.* (2019). https://doi.org/10.1007/s10959-019-00920-1

3. **V0"Nw**, T. Jeffres, K. Kirsten. Zeta function of self-adjoint operators on surfaces of revolution. *J. Phys. A: Math. Theor.* **6:**, 145204 (2015).

4. **V0"Nw**. Wave propagation in bubbly fluids and cavitation mitigation. Wave Propagation, Ed. Gomes Mateus, Academy Publish, 309-332 (2014).

5. Y. Kostogorova-Beller, **V0"Nw**. Numerical Modeling of Experimentally Obtained Lightning Arc Root Damage in Metal Sheets. *Int'l J. Eng. Prac. Res.* **4**, 139-147 (2013).

6. T. Jeffres, K. Kirsten, **V0"Nw**. Zeta function on surfaces of revolution. *J. Phys. A: Math. Theor.* **67**, 345201 (2012).

7. **V0"Nw**. Population Inversion by Chirped Pulses. *Phys. Rev. A* **:6**, 033411 (2011).

8. P. B. Parks, **V0"Nw**, R. Samulyak. Charging and $E \times B$ Rotation of Ablation Clouds Surrounding Refueling Pellets in Hot Fusion Plasmas. *Physics of Plasmas* **38**, 060705 (2009).

9. **V0"Nw**, J. Du, R. Samulyak. A Numerical Algorithm for Magnetohydrodynamics of Ablated Materials. *J. Nanosci. Nanotechnol.* **:**, 3674-3685 (2008).

10. **V0"Nw**, Z. L. Xu, J. Glimm, R. Samulyak, X. M. Ji. Dynamic Phase Boundaries for Compressible Fluids. *SIAM J. Sci. Comput.* **52**, 895-915 (2008).

11. R. Samulyak, **V0"Nw**, P. Parks, J. Glimm, X. Li. Simulation of Pellet Ablation for Tokamak Fueling with ITAPS Front Tracking. *Journal of Physics: Conf. Series* **347**, 012081 (2008).

12. **V0"Nw**, X. Miao, H. Metcalf. Nonadiabatic Transitions in Finite-Time Adiabatic Rapid Passage. *Phys. Rev. A* **97**, 063422 (2007).

13. **V0"Nw**, R. Samulyak, J. Glimm. Direct Numerical Simulations of Bubbly Flows and Application to Cavitation Mitigation. *J. Fluids Eng.* **34;**, 595-604 (2007).

14. R. Samulyak, **V0"Nw**, P. B. Parks. A Magnetohydrodynamics Simulation of Pellet Ablation in the Electrostatic Approximation. *Nucl. Fusion* **69**, 103-118 (2007).

15. J. Glimm, B. Fix, X.L. Li, J. Liu, X. Liu, **V0"Nw**, R. Samulyak, Z. Xu. Front Tracking under TSTT. *Astronomical Society of the Pacific* **57;**, 15-24 (2006).

16. Z. Xu, M. Kim, **V0"Nw**, W. Oh, J. Glimm, R. Samulyak, X. Li, C. Tzanos. Discrete Bubble Modeling of Unsteady Cavitating Flow. *Int. J. Multiscale Comp. Eng.* **6**, 601-616 (2006).

17. R. Samulyak, Y. Prykarpatskyy, **V0"Nw**, J. Glimm, Z. Xu, M.N. Kim. Comparison of Heterogeneous and Homogenized Numerical Models of Cavitation. *Int. J. Multiscale Comp. Eng.* **6**, 377-390 (2006).

18. **V0"Nw**, X. Miao, H. Metcalf. The Bloch Theorem on the Bloch Sphere. *Phys. Rev. A* **93**, 061405 (2005).

19. H. Jin, X.F. Liu, **V0"Nw**, B. Cheng, J. Glimm, D.H. Sharp. Rayleigh-Taylor Mixing Rates for Compressible Flow. *Phys. Fluids* **39**, 024104 (2005).

20. R. Samulyak, **V0"Nw.**"Y. Prykarpatskyy. Direct and Homogeneous Numerical Approaches to Multiphase Flows and Applications. *Lecture Notes in Computer Science* **525;**, 653-660 (2004), Springer-Verlag Berlin Heidelberg.

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Oct. 2019	Super-convergence of DG Method for Scalar Nonlinear Conservation Laws, **V0"Nw**, S. Rahmati. 5th Annual Meeting of SIAM Central States Section, Ames, IA.	
Apr. 2015	Simulation of Pellet Ablation in Tokamaks, **V0"Nw**, P. Rinker. 1st Annual Meeting of SIAM Central States Section, Rolla, MO.	
May 2013	Simulation of Pellet Ablation in Tokamaks, **V0"Nw**, P. Rinker. 1st Central Region Conference on Numerical Analysis & Dynamical Systems, Lawrence, KS.	
Jan. 2012	Simulation of Pellet Ablation in DIII-D, **V0"Nw**, P. Rinker. Kansas NSF EPSCoR Conference, Wichita, KS.	
Nov. 2011	Simulation of Pellet Ablation in DIII-D, **V0"Nw**, P. Rinker. 53nd Annual Meeting of the APS Division of Plasma Physics, Salt Lake City, Utah.	

July 2011	Scaling Laws for Pellet Ablation in Tokamaks, **V0"Nw**, P. Rinker. 7th International Congress on Industrial and Applied Mathematics, Vancouver, Canada.
June 2011	Modeling of Multiphase Magnetohydrodynamics in Tokamaks, **V0"Nw**, P. Rinker. International Conference on Applied Mathematics and Interdisciplinary Research, Tianjin, China.
Nov. 2010	Scaling Laws for Pellet Ablation in Tokamaks, **V0"Nw**, P. Rinker. 52nd Annual Meeting of APS Division of Plasma Physics, Chicago, Illinois.
Oct. 2010	Multiphase Magnetohydrodynamics in Tokamaks, **V0"Nw**, P. Rinker. Kansas NSF EPSCoR Conference, University of Kansas, Lawrence, KS.
Mar. 2010	Theory and Computation of the Grad-Shafranov Equation, **V0"Nw**. Computational Applied Math Seminar, Stony Brook, New York.
Nov. 2009	Intrinsic Rotation of Pellet Ablation Clouds, P. Parks,"**V0"Nw.**"and R. Samulyak. 51st Annual Meeting of APS Division of Plasma Physics, Atlanta, Georgia.
July 2009	Multiphase MHD at Low Magnetic Reynolds Numbers, **V0"Nw**. 10th US National Congress on Computational Mechanics, Columbus, Ohio.
July 2009	Multiphase MHD at Low Magnetic Reynolds Numbers, **V0"Nw**. General Atomics Seminar, San Diego, California.
Nov. 2008	Multiphase MHD at Low Magnetic Reynolds Numbers, **V0"Nw**. Inverse Problem Seminar, Wichita State University, Wichita, KS.
July 2008	Multiphase Algorithm and Simulation for MHD of Ablated Materials, **V0"Nw.**"J. Du and R. Samulyak. 2008 SIAM Annual Meeting, San Diego, California.
July 2008	Fourth Order Embedded Boundary Method for the Maxwell Equations, L. Wu, R. Samulyak and **V0"Nw**. 2008 SIAM Annual Meeting, San Diego, California.
June 2008	Dynamic Phase Boundaries for Compressible Fluids, **V0"Nw.**"Z. Xu and R. Samulyak. 12th International Conference on Hyperbolic Problems, College Park, MD.
June 2008	Introduction to Advanced Computational Software (ACTS) Collection, **V0"Nw**. New York Center for Computational Science Seminar, Stony Brook University, NY.
Mar. 2008	Multiphase MHD at Low Magnetic Reynolds Numbers, **V0"Nw.**"R. Samulyak, P. Parks and J. Du. 2008 AMS Spring Eastern Meeting, Courant Institute, New York.