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**EDUCATION**

<b>Ph.D., Applied Mathematics (May 2005)</b>	University of Houston
Dissertation advisors: Dr. R. Glowinski and Dr. S. Canic	
Dissertation title: “Computational Methods in Biomechanics and Physics”	
<b>M.S., Applied Mathematics (August 2001)</b>	University of Houston
<b>M.S., Mathematics (June 1999)</b>	Kazan State University, Russia
<b>B.S. (<i>summa cum laude</i>), Mathematics (June 1996)</b>	Kazan State University, Russia

**PROFESSIONAL EXPERIENCE**

**Clinical Associate Professor**, Dept. of Mathematics and Statistics, WSU (August 2014 – present)  
**Faculty Fellow**, Honors College, Washington State University (March 2016 – present)  
**Adjunct Professor**, Institute of Comp. Mathematics and IT, Kazan Federal University (Nov. 2015 – present)  
**Visiting Professor**, Summer China Program, Shanghai International Studies University (Summer 2014)  
**Assistant Professor**, Dept. of Mathematics, Washington State University (August 2007 – May 2014)  
**Postdoctoral Fellow**, Dept. of Mathematics, University of Houston (August 2005 – July 2007)  
**Research Assistant**, Dept. of Mathematics, University of Houston (June 2003 – May 2005)  
**Research Assistant**, AGL, Dept. of Geosciences, University of Houston (June 2002 – May 2003)  
**Instructor**, Dept. of Mathematics, University of Houston (August 2000 – May 2002)  
**Teaching Assistant**, Dept. of Mathematics, University of Houston (August 1999 – May 2000)  
**Research Assistant**, Dept. of Computational Mathematics and Cybernetics, Kazan State University (August 1996 – June 1999)

**RESEARCH INTERESTS**

Numerical modeling, scientific computing, mathematical biology, modeling of fluid flow

**PUBLICATIONS**

1. S. Lapin, L. Wang, J. Wu, W.J. Elliot, F.R. Fiedler  
“Accuracy of the Muskingum-Cunge method for constant-parameter diffusion-wave channel routing with lateral inflow” submitted *Journal of Hydrology*
2. L. Carichino, G. Guidoboni, A. C. V. Vercellin, G. Milano, C. A. Cutolo, C. Tinelli, A. De Silvestri, S. Lapin, J. C. Gross, B. Siesky, A. Harris  
“Computer-aided identification of novel ophthalmic artery waveform parameters in healthy subjects and glaucoma patients” accepted *Journal of Ophthalmology*
3. L. Carichino, G. Guidoboni, A. C. V. Vercellin, G. Milano, C. A. Cutolo, C. Tinelli, A. De Silvestri, S. Lapin, B. Siesky, A. Harris  
“Computer-aided ophthalmic artery waveform analysis in healthy individuals and glaucoma patients” *Investigative Ophthalmology & Visual Science*, 2016, vol.57(12)
4. A. Khapalov and S. Lapin  
“Dynamic discrete models for the granular matter formation process”  
*IMA Journal of Applied Mathematics*, 2016, doi:10.1093/imat/hxw016

5. E. Laitinen, A. Lapin and S. Lapin  
“Explicit algorithms to solve a class of state constrained parabolic optimal control problems”  
*Russian Journal of Numerical Analysis and Mathematical Modeling*, 2015, vol.30(6), pp.351-362
6. E. Laitinen, A. Lapin and S. Lapin  
“Easily implementable iterative methods for variational inequalities with nonlinear diffusion - convection operator and constraints to gradient of solution”  
*Russian Journal of Numerical Analysis and Mathematical Modeling*, 2015, vol.30(1), pp.43-54
7. N.K. Vaidya, L. Miller, M. Morgan, T. Jones, S. Lapin and E. Schwartz  
“Modelling the epidemic spread of an H1N1 influenza outbreak in a rural university town”  
*Epidemiology and Infection*, 2015, vol.143, pp.1610-1620
8. E. Schwartz, M. Morgan, and S. Lapin  
“Pandemic 2009 H1N1 influenza in two settings in a small community: the workplace and the university campus”  
*Epidemiology and Infection*, 2015, vol.143, pp. 1606-1609
9. L. Wang, J.Q. Wu, W.J. Elliot, F.R. Fiedler and S. Lapin  
“Linear diffusion-wave channel routing using a discrete Hayami convolution method”  
*Journal of Hydrology*, 2014, vol.509, pp.282-294
10. L. Miller, M. Morgan, T. Jones, S. Lapin and E. Schwartz  
“Individual-based Computational Model used to Explain 2009 H1N1 Epidemic in Rural Campus Community”  
*Journal of Biological Systems*, 2013, vol.21(4)
11. E. Laitinen, A. Lapin and S. Lapin  
“Iterative solution methods for variational inequalities with nonlinear main operator and constraints to gradient of solution”  
*Lobachevskii Journal of Mathematics*, 2012, vol.33(4), pp.341-352
12. N. Chatterjee, S. Lapin and M. Flury  
“Capillary forces between sediment particles and an air-water interface”  
*Environmental Science and Technology*, 2012, vol.46, pp. 4411-4418
13. E. Laitinen, A. Lapin and S. Lapin  
“Iterative solution methods for constrained saddle point problems with applications to free boundary and optimal control problems”  
in *Proceedings of AfriCOMP 11*, 2011
14. E. Laitinen, A. Lapin and S. Lapin  
“On the iterative solution methods for finite-dimension inclusions with applications to optimal control problems”  
*Computational Methods in Applied Mathematics*, 2010, vol.10(3), pp.283-301
15. M. Asle Zaeem, S. Lapin and K. I. Matveev  
“The effect of vibration on flow rate of non-Newtonian fluid”  
in *Proceedings of 2009 SIAM Conference Mathematics for Industry*, 2010, pp.137-142
16. L. Wang, J. Wu, S. Lapin, F. Fiedler and W. Elliot  
“Implementation of channel-routing routines in the Water Erosion Prediction Project (WEPP) model ”  
in *Proceedings of 2009 SIAM Conference Mathematics for Industry*, 2010, pp.120-128
17. G. Guidoboni, R. Glowinski, N. Cavallini, S. Canic and S. Lapin  
“Kinematically coupled time-splitting scheme for fluid-structure interaction in blood flow.”  
*Applied Mathematics Letters*, 2009, vol. 22 (5), pp.684-688
18. S. Lapin, A. Lapin, J. Periaux and P.M. Jacquart  
“A Lagrange multiplier based domain decomposition method for the solution of a wave problem with discontinuous coefficients”  
in *Partial Differential Equations: Modelling and Numerical Methods*, Springer-Verlag, 2008, pp.131-147

19. N. Barlas, K. Josic, S. Lapin and I. Timofeyev  
“Non-uniform decay of predictability and return of skill in stochastic oscillatory models.”  
*Physica D: Nonlinear Phenomena*, 2007, vol. 232 (2), pp.116-127
20. S. Canic, Z. Krajcer and S. Lapin  
“Design of optimal endoprosthesis using mathematical modeling”  
*Endovascular Today*, May 2006, pp. 48-50
21. S. Canic and S. Lapin  
“Numerical modeling of the design of bifurcated prostheses used in the treatment of Abdomial Aortic Aneurysm”  
*Scientific Notes of Kazan State University*, 2006, vol.148 (3), pp.1-15
22. S. Canic, K. Ravi-Chandar, Z. Krajcer, D. Mirkovic and S. Lapin  
“Mathematical model analysis of Wallstent® and AneuRx®: dynamic responses of bare-metal endoprosthesis compared with those of stent-graft”  
*Texas Heart Institute Journal*, 2005, vol.32, pp. 502-506
23. R. Glowinski and S. Lapin  
“Solution of a wave equation by a mixed finite element-fictitious domain method”  
*Computational Methods in Applied Mathematics*, 2004, vol. 4, pp. 431-444
24. A. Lapin and S. Lapin  
“Identification of nonlinear coefficient in a transport equation”.  
*Lobachevskii Journal of Mathematics*, 2004, vol.14, pp. 69-84
25. K. Baamann, C. Bergeron, T. Burden, S. Kadiouglu, H. Huang, S. Lapin, B.McGee, J. Restrepo, A.Taylor, and R. Westbrook.  
“In-situ thermal remediation of contaminated soil”  
*Canadian Applied Mathematics Quarterly*, 2004, vol. 12, n. 1, pp. 25-37
26. R. Glowinski, A. Lapin and S. Lapin  
“A penalty approach to the numerical simulation of the constrained wave motion”  
*Journal of Numerical Mathematics*, 2003, vol. 11, No. 4, pp. 289-300
27. R.Glowinski, S. Lapin, J.Periaux, P.M. Jacquart and H.Q. Chen  
“Domain decomposition methods for wave propagation in heterogeneous media”  
in *Numerical Mathematics and Advanced Applications: Proceedings of ENUMATH 2005*  
*Springer-Verlag*, 2006, pp. 1203-1211
28. R. Glowinski and S. Lapin  
“Iterative solution of linear variational problems in Hilbert spaces: some conjugate gradients success stories.”  
in *Conjugate gradient algorithms and finite element methods*, Springer-Verlag, 2004, pp. 223-245
29. B. Ananthasayanam, E. Chan, P. Chen, J. Gibert, P.Gremaud, S. Lapin and A. Royal  
“Effect of interstitial gas on powder flow”  
*CRSC Technical Report*, North Carolina State University, Raleigh, March 2004, pp. 55-71
30. S. Kisin, S. Lapin and H.-W. Zhou  
“Joint VSP and surface seismic tomography”  
*SEG Expanded Abstracts*, 2003, pp. 2342-2344
31. R. Glowinski, A. Lapin and S. Lapin  
“On the numerical simulation of the constrained wave motion: a penalty approach”  
in *Proceedings of The Six International Conference on Mathematical and Numerical Aspects of Wave Propagation Held at Jyvaskyla, Finland, 30 June - 4 July 2003*
32. S. Lapin, X. H. Nguyen, J. Oh, D. Vasiliu, P. Yin, N. Zhang and D. Misemer  
“Optimal design for a varying environment”  
*IMA Preprint*, July 2002, No.1866-5
33. S. Lapin  
“The fictitious domain method for the mixed finite element approximation of the wave equation”

in *Proceedings of Russian-Finnish Workshop "Numerical Methods for Continuous Casting and Related Problems"*, Kazan, Russia, 2001, pp. 72-81

34. R. Dautov, A. Egorov and S. Lapin

“Numerical modeling of the problem of artificial freezing in filtrating soil” (In Russian)  
in *Proceedings of the Conference "Function theory, its applications and related problems"*  
Kazan, Russia, 1999, pp. 79-80

### **GRANTS and AWARDS**

- **AIM SquaRE Award “Ocular Blood Flow and Its Role in Development of Glaucoma”.**  
Funded by American Institute of Mathematics, 2014 – 2017.
- **Exceptional Professor Award.** The Associated Students of Washington State University (ASWSU), 2016.
- **Thesis Advisor Award.** Washington State University Honors College, 2016.
- **Faculty Excellence Grant.** Jody Buckley Faculty Excellence Endowment Fund. \$2,500. 2013.
- “Modeling Transport and Fate of Urban Stormwater Pollutants in the Vadose Zone under GSIs”. *Co-Principal Investigator.* Chicona Endowment Grant. \$6,000. January 2012 – January 2013
- “Numerical Modeling of Wave Propagation in Heterogeneous Media”. *Principal Investigator.* WSU New Faculty Seed Grant. \$18,100. May 2009 – August 2010

### **CURRENT COLLABORATIVE PROJECTS**

- Modeling Effect of Ocular Blood Flow on Development of Glaucoma (G. Guidoboni, Department of Mathematics, IUPUI; A. Harris, Department of Ophthalmology, Indiana University )
- Mathematical Modeling of Refugee Flow (L. Schreyer, Department of Mathematics and Statistics, WSU)
- Dynamic Granular Matter Formation Process (A. Khapalov, Department of Mathematics and Statistics, WSU)

### **TEACHING EXPERIENCE**

#### **Washington State University**

Math 105 – Exploring Mathematics  
Math 171 – Calculus I  
Math 182 – Honors Calculus II  
Math 201 – Mathematics for Business and Economics  
Math 202 – Business Calculus  
Math 273 – Calculus III  
Math 283 – Honors Calculus III  
Math 220 – Linear Algebra  
Math 315 – Differential Equations  
Honors 390 – Global Issues in the Sciences  
Math 440/540 – Applied Mathematics I  
Math 441/541 – Applied Mathematics II  
Math 448/548 – Numerical Analysis  
Math 545 – Numerical Analysis of Evolution Equations  
Math 546 – Numerical Analysis of Elliptic Equations  
Math 583 – Introduction to Finite Element Method

#### **Shanghai International Studies University**

Calculus I  
Introduction to Probability and Statistics

#### **University of Houston**

Math 1310 – College Algebra  
Math 1330 – Elementary Functions

Math 1431 – Calculus I

Math 2311 – Introduction to Probability and Statistics

**Kazan State University**

Introduction to Computer Networks

**GRADUATE STUDENTS SUPERVISED**

1. Lois Kwon (MS, Spring 2009; joint with Elissa Schwartz)
2. Andrew Stevens (MS, Summer 2009)
3. Rochelle Dietz (MS, Fall 2011)
4. Lydia Miller (MS, Spring 2013)
5. Mindy Morgan (MS, Spring 2013)
6. Ala Alzaalig (MS, Summer 2013)
7. Fatima Arabi (MS, Spring 2014)
8. Tyler Campbell (MS, 2016)
9. Adam Schrum (MS, 2016)

**GRADUATE STUDENT COMMITTEE SERVICE**

- I-Ming Lee, MS committee, Department of Mathematics, 2008
- Amit Sharma, MS committee, School of Materials and Mechanical Engineering, 2009
- Marca Bruff, MS committee, Department of Mathematics, 2009
- Greg Vogel, MS committee, Department of Mathematics, 2010
- Corby Harwood, PhD committee, Department of Mathematics, 2011
- Bonni Kealy, PhD committee, Department of Mathematics, 2011
- Li Wang, PhD committee, Department of Biological Systems Engineering, 2012
- Nirmalya Chatterjee, PhD committee, Department of Crop and Soil Science, 2013
- Behrang Asgharian, PhD committee, School of Mechanical and Materials Engineering, 2013
- Jamilah Alruwaili, MS committee, Department of Mathematics, 2013
- Eric Johnson, MS committee, Department of Mathematics, 2014
- Jared Aurentz, PhD committee, Department of Mathematics, 2014
- Casey Bylund, MS committee, Department of Mathematics, 2015
- Mohammed Kaabar, MS committee, Department of Mathematics, 2016
- Konstantinos Lazaridis, MS committee, Department of Mathematics, 2016
- Shan Li, PhD committee, Department of Mathematics, expected 2018
- Johanna Hoft, PhD committee, Department of Mathematics, expected 2018

**UNDERGRADUATE STUDENTS SUPERVISED**

*Note:* \* – students supported by College of Arts and Sciences Minigrant, † – students supported by UBM program, ‡ – student supported by NASA scholarship, + – student supported by Auvil scholarship

1. Brain Stock<sup>†</sup> (Mathematical Biology, Harvey Mudd College), Summer 2008
2. Peter Klosterman<sup>†</sup> (Mathematics), Summer 2008
3. Kelli Wuerth (Biology), Summer 2008
4. Svetlana Stadnik (Physics), Spring 2009
5. James Hensley (Mathematics), Summer 2009
6. Melissa Johns<sup>†</sup> (Civil Engineering), Summer 2009 – Spring 2010
7. Kramer Wahlberg<sup>‡</sup> (Bioengineering), Summer 2009 – Spring 2010
8. Amelia Hancock<sup>‡</sup> (Mathematics), Spring 2009 – Fall 2010
9. Daniel De Pinto<sup>†</sup> (Mathematics), Spring 2009 – Spring 2011
10. Joseph Kristofzski (Mechanical Engineering), Spring 2010

11. Andrew Piazza (Mathematics; joint with Elissa Schwartz), Spring 2010 – Spring 2011
12. Drea Rae Killingsworth\* (Geology; joint with Katherine Cooper), Spring 2010 – Spring 2011
13. Abigail Moody† (MicroBiology; joint with Daniela Bermudez), Summer 2010 – Summer 2011
14. Gretchen Marx† (Zoology; joint with Daniela Bermudez), Summer 2010 – Summer 2011
15. Patrick Gavin\* (Electrical Engineering), Fall 2010 – Spring 2012
16. William Bonner (Mathematics), Summer 2011 – present
17. Raeanne Marks (Mathematics), Spring 2012 – Fall 2012
18. Mary Yovanoff (Mechanical Engineering, University of Idaho), Spring 2012 – Fall 2012
19. Mariah Eckwright† (Mathematics, University of Idaho), Summer 2012
20. Audri Sedgwick† (Biology, University of Idaho), Summer 2012
21. Lillian Wardo\* (Mathematics) Summer 2013 – Spring 2014
22. Nathaniel Blair (Mathematics), Fall 2013 – Spring 2014
23. Rebecca Mitchell+ (Microbiology), Fall 2014– Spring 2016
24. Allison Fisher (Mathematics, Gonzaga University), Spring 2015
25. Chris Marshall\* (Mathematics), Spring 2015– Spring 2016
26. Grace Jones\* (Mathematics), Spring 2016– present

### **SERVICE**

- Department of Mathematics and Statistics Undergraduate Research Coordinator, 2016 – present
- Department of Mathematics and Statistics Colloquia committee co-chair, 2015 – present
- Department of Mathematics and Statistics Undergraduate majors advising, 2013 – present
- WSU Faculty Senate Library Committee, 2016 – present
- WSU Department of Foreign Languages RUSSIAN 105 Instructor, 2014– present
- WSU Honors College thesis proposals reviewer 2012– present
- WSU Honors College thesis advisor 2011– present
- Undergraduate Math Club Advisor, 2008 – 2009, 2012
- New faculty search committee, 2013
- PhD qualifying exam committee, Fall 2010, Fall 2012
- Undergraduate recruitment committee, 2009 – 2011
- Representing Department of Mathematics in WSU Fall preview events, 2009 – 2010
- Representing the Department of Mathematics to visit and present at high schools in the State of Washington, demonstrating how mathematics can be used to solve various engineering and science problems, in *ImagineU at WSU*, an undergraduate recruitment program
- Faculty mentor for NSF – sponsored UBM program, 2008 – 2012
- Mentor WSU OISS International Scholar mentoring program, 2011– 2012
- Journal reviewer for
  - Applied Mathematics Modeling
  - Electronic Journal of Differential Equations
  - Numerical Algorithms
  - Water Resources Research
  - Korea-Australia Rheology
  - AMS Mathematical Reviews

### **CONFERENCES, PRESENTATIONS & RESEARCH VISITS**

- Invited talk at Tianjin University of Finance and Economics, China, January 20, 2017
- Invited talk at University of Houston – Downtown, November 18, 2016
- Visiting Scholar, Kazan Federal University, Russia, November 2015
- Invited talk at WSU exchange forum with Shanghai EPB and Shanghai Geodetic Institute delegation, April 10, 2015
- University of Idaho, Department of Mathematics Colloquium, August 30, 2012  
*Talk: Dynamics of oxygen-dependent mechanisms during (Riboflavin/UV-A)-induced collagen cross linking in the corneal stroma*

- WSU Puyallup Research Station Seminar, May 11, 2012  
*Talk: Mathematical Modeling in Biological and Environmental Sciences*
- WSU Academic Showcase 2012  
*Poster: Modeling of the Dynamic Granular Matter Formation Process*
- SIAM Conference on Parallel Processing for Scientific Computing, Savannah, GA, February 15 – 17, 2012  
*Talk: Parallel Computational Model of HIV Infection*
- Co-organizer of 23<sup>rd</sup> Pacific Northwest Numerical Analysis Seminar, Washington State University, Pullman, WA, October 2, 2010  
*Talk: The Effect of Vibration on Flow Rate of Non-Newtonian Fluid*
- SIAM Conference on Life Sciences, Minisymposium Organizer: Mathematical Modeling in Biological and Environmental Sciences, Pittsburgh, PA, July 12 – 15, 2010  
*Talk: Modeling Immune Dynamics of Equine Infectious Anemia Virus*
- WSU Academic Showcase 2010  
*Poster: The Effect of Vibration on a Mean Flow Rate of Non-Newtonian Fluid*  
*Poster: Simulating HIV Infection Using Matlab, C and Python*  
*Poster: An epidemic model of H1N1 in Pullman in fall 2009*
- SIAM Conference on Mathematics for Industry, San Francisco, CA, October 9 – 10, 2009  
*Talk: The Effect of Vibration on Flow Rate of Non-Newtonian Fluid*
- WSEAS International Conference on Computational and Information Science, Houston, TX, April 30 – May 2, 2009  
*Talk: The Effect of Vibration on Flow Rate of Non-Newtonian Fluid*
- MAA Pacific Northwest Section Conference, Minisymposium Organizer: Mathematical Modeling in Biological and Environmental Sciences, Ellensburg, WA, April 3 – 4, 2009  
*Talk: Mathematical Model of Strain Competition in Retroviruses*
- WSU Academic Showcase 2009  
*Poster: Modeling Immune Dynamics of Equine Infectious Anemia Virus*
- University of Idaho, Department of Mathematics Colloquium, March 27, 2008  
*Talk: Domain Decomposition Method for Wave Propagation in Heterogeneous Media*
- University of Houston Downtown Colloquium, April 4, 2007  
*Talk: Lagrange Multiplier Based Domain Decomposition Method for Wave Propagation in Heterogeneous Media*
- University of Tennessee at Chattanooga Colloquium, March 8, 2007  
*Talk: Lagrange Multiplier Based Domain Decomposition Method for Wave Propagation in Heterogeneous Media*
- SIAM Conference on Computational Science and Engineering, Minisymposium Organizer: Computational Methods for Heterogeneous Systems, Costa Mesa, CA, February 19 – 23, 2007  
*Talk: Domain Decomposition Method for Wave Propagation in Heterogeneous Media*
- Joint AMS-SMM International Meeting, Houston, May 13 – 15, 2004
- Workshop on Nonlinear Wave Equations, Fields Institute, University of Toronto, Toronto, March 15 – 19, 2004
- SIAM Gators Student Conference, University of Florida, Gainesville, March 3 – 4, 2004  
*Poster: Optimal Design of Endovascular Prostheses used in Non-surgical Treatment of Aortic Abdominal Aneurysm*
- HSEMB Annual Meeting, Houston, February 12 – 13, 2004
- RedRaider Minisymposium "Mathematical and Computational Modeling of Biological Systems", Texas Tech University, Lubbock, November 5 – 8, 2003
- IPAM Inverse Problems Workshop, UCLA, Los-Angeles, September 15 – 18, 2003
- Industrial Mathematical and Statistical Modeling Workshop for Graduate Students, North Carolina State University, Raleigh, July 21 – 29, 2003
- PIMS Industrial Problem Solving Workshop, Univ. of Calgary, Calgary, May 2003
- IMA Graduate Industrial Mathematical Modeling Camp, Banff Research Station, Banff, May 2003
- IMA Workshop for Mathematical Modeling in Industry, IMA, Minneapolis, June 2002
- LACSI Symposium, Santa Fe, New Mexico, October 15 – 18, 2001
- 12-th International Summer School, Juvaskyla, Finland, August 2001

**PROFESSIONAL AFFILIATIONS**

- Society for Industrial and Applied Mathematics (SIAM)
- Society for Mathematical Biology (SMB)

**SKILLS**

- Scientific computing
  - Programming languages: C/C++, C#, Fortran, Python
  - Packages: Matlab, Octave, Maple, Mathematica, Maxima, Comsol, R, Latex, FreeFem++
  - Platforms: Unix/Linux, Windows, MacOS
- Languages: fluent English/Russian, basic French/German