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## Education

- 2004 Ph.D. in mathematics, Indiana University.  
Advisor: Prof. Ciprian Foias.
- 1998 B.S. (with honors) in applied mathematics and physics, South Ural State University, Russia.  
Advisor: Prof. Vladimir Antonov.

## Grants, Fellowships, Awards, and Olympiads

- 2005 Rackham Research Grant,  
Department of Mathematics, University of Michigan.
- 2001 William B. Wilco Mathematics Award,  
Department of Mathematics, Indiana University.
- 2000 Joseph & Frances Morgan Swain Fellowship,  
Department of Mathematics, Indiana University.
- 1999 James P. Williams Memorial Award,  
Department of Mathematics, Indiana University.
- 9/96–6/97 Presidential Scholarship for study abroad.
- 1995 3rd place in the final round of the All-Russian Olympiad in Theoretical Mechanics,  
Perm, Russia.
- 1991 2nd degree diploma in the final round of the All-Union Mathematical Olympiad  
among school students, Smolesk, Soviet Union.
- 1991 1st place in the final round of the republic of Kazakhstan Mathematical Olympiad.

## Research interests

Nonlinear PDE, fluid dynamics, and infinite-dimensional dynamical systems.

**Publications**

1. On the regularity of weak solutions of the 3D Navier-Stokes equations in  $B_{\infty,\infty}^{-1}$  (with R. Shvydkoy), *submitted*, arXiv:arXiv:0708.3067 [math.AP].
2. On the energy equality for weak solutions of the 3D Navier-Stokes equations (with S. Friedlander and R. Shvydkoy), *submitted*, arXiv:0704.2089v1 [math.AP].
3. Energy conservation and Onsager's conjecture for the Euler equations (with P. Constantin, S. Friedlander, and R. Shvydkoy), *submitted*, arXiv:0704.0759v1 [math.AP].
4. An inviscid dyadic model of turbulence: the global attractor (with S. Friedlander and N. Pavlović), *submitted*, arXiv:math.AP/0610815.
5. Theoretical skin-friction correlation for rough-wall turbulent boundary-layer flows (with D. Ma), *submitted*, arXiv:physics/0611001.
6. Global attractors of evolutionary systems, *submitted*, arXiv:math.DS/0609357.
7. Energy dissipation in fractal-forced flow (with C. R. Doering and N. Petrov), *J. Math. Phys.* **48**, 065208 (2007).
8. An inviscid dyadic model of turbulence: the fixed point and Onsager's conjecture (with S. Friedlander and N. Pavlović), *J. Math. Phys.* **48**, 065503 (2007).
9. Blow-up in finite time for dyadic models of the Navier-Stokes equations, *Trans. Amer. Math. Soc.*, to appear, arXiv:math.AP/0601074.
10. On global attractors of the 3D Navier-Stokes equations (with C. Foias), *Journal of Differential Equations* **231** (2006), 714–754.
11. Theoretical skin-friction law in a turbulent boundary layer, *Physics Letters A* **341** (2005), 487–494.
12. On a Leray-alpha model of turbulence (with D. D. Holm, E. Olson, and E. S. Titi), *Royal Society London, Proceedings, Series A* **461** (2005), 1–21.
13. Boundary layer for the Navier-Stokes-alpha model of fluid turbulence, *Archive for Rational Mechanics and Analysis* **172** (2004), 333–362.
14. Turbulent boundary layer equations, *C. R. Acad. Sci. Paris, Ser. I* **334** (2002), 423–427.
15. On the non-homogeneous stationary Kuramoto-Sivashinsky equation (with C. Foias), *Physica D* **154** (2001), 1–14.
16. Appendix in “Evaluating the dimension of an inertial manifold for the Kuramoto-Sivashinsky equation” by M.S. Jolly, R. Rosa, and R. Temam, *Adv. Diff. Eq.* **5** (2000), 31–66.

17. On finite groups with restrictions on centralizers (with V. A. Antonov and I. A. Tyurina), (Russian) *Mat. Zametki* **71** (2002), 483–495; translation in *Math. Notes* **71** (2002), 443–454.
18. Groups with small centralizers (with V. A. Antonov and I.A. Tyurina), (Russian) *Mat. Zametki* **69** (2001), 643–655; translation in *Mathematical Notes* **69** (2001), 593–604.

**Invited talks**

- Special session on *Recent Advances in Classical and Geophysical Fluid Dynamics*, AMS Spring Central Section Meeting, Bloomington, IN, April 5–6, 2008.
- Special session on *Asymptotic Behavior of PDEs*, AIMS’ Seventh International Conference on Dynamical Systems, Differential Equations and Applications, Arlington, TX, May 18–21, 2008.
- Special session on *Nonlinear Partial Differential Equations and Applications* AMS 2007 Fall Southeastern Meeting, Murfreesboro, TN, November 3–4, 2007.
- Special session *Recent Developments in 2-D Turbulence*, AMS Western Sectional Meeting, Albuquerque, NM Oct. 13–14, 2007.
- Special session on *the Euler and Navier-Stokes Equations*, AMS Fall Central Section Meeting, DePaul University, Chicago, October 5–6, 2007.
- Analysis seminar, University of Southern California, September 20, 2007.
- Computational & Applied Mathematics Seminar, Purdue University, September 7, 2007.
- PDE/Applied Mathematics Seminar, Indiana University, Bloomington, September 3, 2007.
- Applied Mathematics and PDE seminar, University of Wisconsin, Madison, April 13, 2007.
- Special section on *Theoretical and Numerical Issues in Fluid Dynamics*, AMS Central Section Meeting, March 16–17, 2007.
- Colloquium, Texas A&M University, February 22, 2007.
- Colloquium, University of Oklahoma, February 2, 2007.
- Colloquium, Colorado State University, January 26, 2007.
- Mathematics and its Applications Seminar, University of Illinois, Chicago, November 29, 2006.
- Mathematics and its Applications Seminar, University of Illinois, Chicago, April 24, 2006.
- Minisymposium *Analysis of the Navier-Stokes Equations and Related Models*, SIAM Conference on Analysis of Partial Differential Equations, Boston, MA, July 10–12, 2006.

- Minisimposium *Lyapunov Exponents and Stability Spectrum for Infinite Dimensional Dynamical Systems*, SIAM Conference on Applications of Dynamical Systems, Snowbird, UT, May 22–26, 2005.
- Special section on *Recent Advances in Mathematical and Numerical Studies of Fluid Dynamics*, Fifth International Conference on Dynamical Systems and Differential Equations, Pomona, CA, June 16–19, 2004.
- *Geometrical mechanics and turbulence modeling: Reduced Dimensional Modeling Workshop*, Center for Nonlinear Studies, Los Alamos National Laboratory, Santa Fe, NM, December 5–7, 2003.
- Minisimposium *Asymptotic Analysis of Certain Geophysical and Hydrodynamic Flows*, SIAM Conference on Applications of Dynamical Systems, Snowbird, UT, May 27–31, 2003.
- *Geometrical mechanics and turbulence modeling: Reduced Dimensional Modeling Workshop*, Center for Nonlinear Studies, Los Alamos National Laboratory, Santa Fe, NM, November 7–9, 2002.
- Special section on *Mathematical fluid dynamics*, Fourth International Conference on Dynamical Systems and Differential Equations, University of North Carolina, Wilmington, May 24–27, 2002.
- Computational and Applied Mathematics seminar, University of California, Irvine, January 11, 2002.
- Special section on *Recent developments in analysis and numerics of fluid problems*, Joint Mathematics Meeting, San Diego, January 6–9, 2002.
- *Geometrical mechanics and turbulence modeling: Reduced Dimensional Modeling Workshop*, Center for Nonlinear Studies, Los Alamos National Laboratory, Santa Fe, NM, November 8–9, 2001.
- Partial Differential Equations in Fluid Dynamics seminar, Texas A&M University, April 24, 2001.
- Third International Conference on Dynamical Systems and Differential Equations, Kennesaw State University, May 21, 2000.

