

Luan Thach Hoang

Department of Mathematics and Statistics
Texas Tech University
1108 Memorial Circle
Lubbock, TX 79409-1042
Phone: (806) 834-3060. Fax: (806) 742-1112
Email address: luan.hoang@ttu.edu
Webpage: <https://www.math.ttu.edu/~lhoang/>

Education

- 2005 *Ph.D. in Mathematics*
Texas A&M University, College Station, Texas
- 2000 *M.A. in Mathematics*
Arizona State University, Tempe, Arizona
- 1997 *B.S. in Mathematics*
National University, Hochiminh City, Vietnam
- 1997 *B.S. in Information Technology*
National University, Hochiminh City, Vietnam

Employment

- 9.2014 – present Texas Tech University, Lubbock, Texas
Associate professor
- 9.2008 – 8.2014 Texas Tech University, Lubbock, Texas
Assistant professor
- 9.2005 – 5.2008 University of Minnesota, Minneapolis, Minnesota
Dunham Jackson assistant professor
- 6.2004 – 12.2004 Texas A&M University, College Station, Texas
Teaching assistant
- 9.2000 – 8.2002 Indiana University, Bloomington, Indiana
Associate instructor
- 9.1998 – 8.2000 Arizona State University, Tempe, Arizona
Teaching assistant, research assistant
- 9.1997 – 8.1998 National University, Hochiminh City, Vietnam
Instructor

Research Interest

Partial differential equations, fluid dynamics, porous media equations, dynamical systems.

Publications

40. Luan Hoang, *The Navier–Stokes equations with body forces decaying coherently in time*, 1–36, submitted. Preprint
DOI: 10.48550/arXiv.2204.05247
39. Emine Celik, Luan Hoang, Thinh Kieu, *Studying a doubly nonlinear model of slightly compressible Forchheimer flows in rotating porous media*, 1–35, submitted. Preprint
DOI: 10.48550/arXiv.2106.11925

38. Luan Hoang, *Asymptotic expansions about infinity for solutions of nonlinear differential equations with coherently decaying forcing functions*, Annali della Scuola Normale Superiore di Pisa, Classe di Scienze, (2022), 1–48, accepted. Preprint
DOI: 10.48550/arXiv.2108.03724
37. Dat Cao, Luan Hoang, Thinh Kieu, *Infinite series asymptotic expansions for decaying solutions of dissipative differential equations with non-smooth nonlinearity*, Qualitative Theory of Dynamical Systems, Volume 20, Issue 3 (2021), 62, 38 pp.
DOI: 10.1007/s12346-021-00502-9
36. Emine Celik, Luan Hoang, Thinh Kieu, *Slightly compressible Forchheimer flows in rotating porous media*, Journal of Mathematical Physics, Volume 62 (2021), Issue 7, 073101, 39 pp.
DOI: 10.1063/5.0047754
35. Dat Cao, Luan Hoang, *Asymptotic expansions with exponential, power, and logarithmic functions for non-autonomous nonlinear differential equations*, Journal of Evolution Equations, Volume 21, Issue 2, 1179–1225, 2021.
DOI: 10.1007/s00028-020-00622-w
34. Luan Hoang, *Asymptotic expansions for the Lagrangian trajectories from solutions of the Navier–Stokes equations*, Communications in Mathematical Physics, Volume 383, Issue 2, 981–995 (2021).
DOI: 10.1007/s00220-020-03863-5
33. Luan Hoang, Edriss Titi, *Asymptotic expansions in time for rotating incompressible viscous fluids*, Annales de l’Institut Henri Poincaré. Analyse Non Linéaire, Volume 38, Issue 1, January–February 2021, 109–137.
DOI: 10.1016/j.anihpc.2020.06.005
32. Dat Cao, Luan Hoang, *Asymptotic expansions in a general system of decaying functions for solutions of the Navier–Stokes equations*, Annali di Matematica Pura ed Applicata, Vol. 199, No. 3 (2020), 1023–1072.
DOI: 10.1007/s10231-019-00911-3
31. Dat Cao, Luan Hoang, *Long-time asymptotic expansions for Navier–Stokes equations with power-decaying forces*, Proceedings of the Royal Society of Edinburgh: Section A Mathematics, Vol. 150, No. 2 (2020), 569–606.
DOI: 10.1017/prm.2018.154
30. Luan Hoang, Thinh Kieu, *Global estimates for generalized Forchheimer flows of slightly compressible fluids*, Journal d’Analyse Mathématique, March 2019, Volume 137, Issue 1, 1–55.
DOI: 10.1007/s11854-018-0064-5
29. Emine Celik, Luan Hoang, Thinh Kieu, *Doubly nonlinear parabolic equations for a general class of Forchheimer gas flows in porous media*, Nonlinearity, Vol. 31, No. 8 (2018) 3617–3650.
DOI: 10.1088/1361-6544/aabf05
28. Ciprian Foias, Luan Hoang, Jean-Claude Saut, *Navier and Stokes meet Poincaré and Dulac*, J. Appl. Anal. Comput., Volume 8, Number 3, (June 2018) 727–763. (survey)
DOI: 10.11948/2018.727
27. Luan Hoang, Vincent Martinez, *Asymptotic expansion for solutions of the Navier–Stokes equations with non-potential body forces*, J. Math. Anal. Appl., Volume 462, Issue 1, (1 June 2018) 84–113.
DOI: 10.1016/j.jmaa.2018.01.065
26. Emine Celik, Luan Hoang, Thinh Kieu, *Generalized Forchheimer flows of isentropic gases*, J. Math. Fluid Mech., (March 2018) Volume 20, Issue 1, 83–115.
DOI: 10.1007/s00021-016-0313-2

25. Luan Hoang, Eric Olson, James Robinson, *Continuity of pullback and uniform attractors*, J. Differential Equations, Volume 264, Issue 6, (15 March 2018) 4067–4093.
DOI: 10.1016/j.jde.2017.12.002
24. Luan Hoang, Thinh Kieu, *Interior estimates for generalized Forchheimer flows of slightly compressible fluids*, Advanced Nonlinear Studies, 17(4), (October 2017) 739–767.
DOI: 10.1515/ans-2016-6027
23. Luan Hoang, Vincent Martinez, *Asymptotic expansion in Gevrey spaces for solutions of Navier-Stokes equations*, Asymptotic Analysis, (2017), vol. 104, no. 3–4, 167–190.
DOI: 10.3233/ASY-171429
22. Emine Celik, Luan Hoang, Akif Ibragimov, Thinh Kieu, *Fluid flows of mixed regimes in porous media*, J. Math. Phys., Volume 58 (2017), No. 2, 023102, 30 pp.
DOI: 10.1063/1.4976195
21. Emine Celik, Luan Hoang, *Maximum estimates for generalized Forchheimer flows in heterogeneous porous media*, J. Differential Equations, Volume 262, Issue 3 (5 February 2017), 2158–2195.
DOI: 10.1016/j.jde.2016.10.043
20. Luan Hoang, Truyen Nguyen, Tuoc Phan, *Local gradient estimates for degenerate elliptic equations*, Advanced Nonlinear Studies, Volume 16, Issue 3 (Aug 2016), 479–489.
DOI: 10.1515/ans-2015-5038
19. Emine Celik, Luan Hoang, *Generalized Forchheimer flows in heterogeneous porous media*, Nonlinearity, Volume 29, Number 3 (March 2016), 1124–1155.
DOI: 10.1088/0951-7715/29/3/1124
18. Luan Hoang, Akif Ibragimov, Thinh Kieu, Zeev Sobol, *Stability of solutions to generalized Forchheimer equations of any degree*, Journal of Mathematical Sciences (via journal “Problems in Mathematical Analysis”), Volume 210, Number 4 (2015), 476–544.
DOI: 10.1007/s10958-015-2576-1
17. Luan Hoang, Eric Olson, James Robinson, *On the continuity of global attractors*, Proc. Amer. Math. Soc., Volume 143, Number 10 (2015), 4389–4395.
DOI: 10.1090/proc/12598
16. Luan Hoang, Truyen Nguyen, Tuoc Phan, *Gradient estimates and global existence of smooth solutions to a cross-diffusion system*, SIAM Journal on Mathematical Analysis, SIAM Journal on Mathematical Analysis, Volume 47, Issue 3 (2015), 2122–2177.
DOI: 10.1137/140981447
15. Luan Hoang, Akif Ibragimov, Thinh Kieu, *A family of steady two-phase generalized Forchheimer flows and their linear stability analysis*, J. Math. Phys. 55, Issue 12 (2014), 123101, 32 pp.
DOI: 10.1063/1.4903002
14. Luan Hoang, Thinh Kieu, Tuoc Phan, *Properties of generalized Forchheimer flows in porous media*, “Problems of Mathematical Analysis”, volume 76 (July-August 2014), and in “Journal of Mathematical Sciences”, Vol. 202 No. 2 (October 2014), 259–332.
DOI: 10.1007/s10958-014-2045-2
13. Luan Hoang, *Incompressible fluids in thin domains with Navier friction boundary conditions (II)*, Journal of Mathematical Fluid Mechanics, Volume 15, Issue 2, (June 2013) 361–395.
DOI: 10.1007/s00021-012-0123-0
12. Luan Hoang, Akif Ibragimov, Thinh Kieu, *One-dimensional two-phase generalized Forchheimer flows of incompressible fluids*, J. Math. Anal. Appl., Volume 401, Issue 2, (May 2013) 921–938.
DOI: 10.1016/j.jmaa.2012.12.055

11. Luan Hoang, Akif Ibragimov, *Qualitative study of generalized Forchheimer flows with the flux boundary condition*, Advances in Differential Equations, Volume 17, Numbers 5-6, (May/June 2012) 511–556.
<https://projecteuclid.org/euclid.ade/1355703078>
10. Ciprian Foias, Luan Hoang, Jean-Claude Saut, *Asymptotic integration of Navier-Stokes equations with potential forces. II. An explicit Poincaré-Dulac normal form*, Journal of Functional Analysis, Vol. 260, Issue 10 (2011), 3007–3035.
 DOI: 10.1016/j.jfa.2011.02.005
9. Luan Hoang, Akif Ibragimov, *Structural stability of generalized Forchheimer equations for compressible fluids in porous media*, Nonlinearity, Volume 24, Number 1 (January 2011) 1–41.
 DOI: 10.1088/0951-7715/24/1/001
8. Luan Hoang, George R Sell, *Navier–Stokes equations with Navier boundary conditions for an oceanic model*, Journal of Dynamics and Differential Equations, Volume 22, Number 3 (September 2010), 563–616.
 DOI: 10.1007/s10884-010-9189-7
7. Luan Hoang, *Incompressible fluids with Navier friction boundary conditions in thin domains (I)*, Journal of Mathematical Fluid Mechanics, Volume 12, Number 3 (August 2010), 435–472.
 DOI: 10.1007/s00021-009-0297-2
6. Eugenio Aulisa, Lidia Bloshanskaya, Luan Hoang, Akif Ibragimov, *Analysis of generalized Forchheimer equations of compressible fluids in porous media*, Journal of Mathematical Physics 50, Issue 10, (2009), 103102, 44 pp.
 DOI: 10.1063/1.3204977
5. Ciprian Foias, Luan Hoang, Basil Nicolaenko, *On the helicity in 3D Navier–Stokes equations II: The statistical case*, Communications in Mathematical Physics, Volume 290, Issue 2 (2009), 679–717.
 DOI: 10.1007/s00220-009-0827-z
4. Ciprian Foias, Luan Hoang, Eric Olson, Mohammed Ziane, *The normal form of the Navier–Stokes equations in suitable normed spaces*, Annales de l’Institut Henri Poincaré - Analyse Non Linéaire, Volume 26, Issue 5 (September-October 2009), 1635–1673.
 DOI: 10.1016/j.anihpc.2008.09.003
3. Luan Hoang, *A basic inequality for the Stokes operator related to the Navier boundary condition*, Journal of Differential Equations, Volume 245, Issue 9 (November 2008), 2585–2594.
 DOI: 10.1016/j.jde.2008.01.024
2. Ciprian Foias, Luan Hoang, Basil Nicolaenko, *On the helicity in 3D Navier–Stokes equations I: The non-statistical case*, Proceedings of the London Mathematical Society, Volume 94 Part 1 (January 2007) 53–90.
 DOI: 10.1112/plms/pdl003
1. Ciprian Foias, Luan Hoang, Eric Olson, Mohammed Ziane, *On the solutions to the normal form of the Navier–Stokes equations*, Indiana University Mathematics Journal, Vol. 55, No 2 (2006) 631–686.
 DOI: 10.1112/plms/pdl003

Funding

- 2014–2017 Title: *Nonlinear Couplings for Flows in Fractured Porous Media: Analysis and Numerical Algorithms*
 Agency: NSF - Applied Mathematics
 Amount: \$290,001.00
 Role: Co-principal investigator
 Status: **Funded, DMS 1412796**

- 2009–2012 Title: *Analysis of non-linear flows in heterogeneous porous media and applications*
Agency: NSF - Applied Mathematics
Amount: \$221,626
Role: Co-principal investigator
Status: **Funded, DMS 0908177**
- 2009 Title: *Mini-Symposium on Nonlinear Analysis, PDE, and Applications*
Agency: NSF - Applied Mathematics
Amount: \$15,000
Role: Principal investigator
Status: **Funded, DMS 0931596**

Conferences

- 2.2022 Workshop “Quasi-linear PDEs in Fluid II”
Virtual, jointly organized by Japan, Korea, U.S., February 20 – 21, 2022
INVITED TALK: *Open problems in asymptotic expansions for viscous incompressible fluids*
- 9.2021 The 44th SIAM Southeastern Atlantic Section Conference
Auburn University, Auburn, Alabama, September 18-19, 2021
INVITED TALK: *Infinite series asymptotic expansions for solutions of dissipative nonlinear differential equations*
- 7.2021 Saigon Summer Meeting 2021
Online, July 24-25, 2021
INVITED TALK: *Large time asymptotic behaviors of fluids in the Eulerian and Lagrangian formulations*
- 1.2021 2021 Joint AMS-MAA Mathematics Meeting
January 6-9, 2021
INVITED TALK: *Asymptotic expansions for decaying solutions of dissipative differential equations*
- 9.2020 AMS 2020 Fall Central Sectional Meeting
September 12-13, 2020.
INVITED TALK: *Asymptotic expansions for the Lagrangian trajectories from solutions of the Navier-Stokes equations*
- 10.2019 AMS 2019 Fall Eastern Sectional Meeting
Binghamton University, Binghamton, New York, October 12-13, 2019
INVITED TALK: *Asymptotic expansions for rotating incompressible viscous fluids*
- 10.2018 The 4th Annual Meeting of SIAM Central States Section
Norman, Oklahoma, October 5-7, 2018
INVITED TALK: *Developments in asymptotic expansions for solutions of Navier-Stokes equations*
- 1.2017 2017 Joint Mathematics Meeting
Atlanta, Georgia, January 4-7, 2017
INVITED TALK: *Asymptotic expansion for solutions of Navier-Stokes equations with a non-potential body force*
- 7.2016 The 11th AIMS Conference on Dynamical Systems, Differential Equations and Applications
Orlando, Florida, July 1-5, 2016
INVITED TALK: *Global existence of smooth solutions to the SKT system in high dimensional spaces*

- 5.2016 International Conference on Evolution Equations in conjunction with the 31st annual Shanks Lecture
Vanderbilt University, Nashville, TN, May 16-20, 2016
INVITED TALK: *Asymptotic expansion for solutions of Navier-Stokes equations with a non-potential body force*
- 5.2016 46th Annual John H. Barrett Memorial Lectures
University of Tennessee, Knoxville, TN, May 16-18, 2016
INVITED TALK: *Regular solutions of the SKT system in any dimensions*
- 3.2016 The 40th SIAM Southeastern Atlantic Section Conference (SIAM-SEAS). Applied Mathematics
University of Georgia, Athens, Georgia, March 12-13, 2016
INVITED TALK: *Asymptotic expansion for solutions of Navier-Stokes equations*
- 1.2016 2016 Joint Mathematics Meeting
Seattle, Washington, January 6-9, 2016
INVITED TALK: *On non-Darcy fluid flows in porous media*
- 12.2015 SIAM Conference on Analysis of Partial Differential Equations
Scottsdale, Arizona, December 7-10, 2015
TALK: *Continuity of attractors for dynamical systems*
- 4.2015 AMS 2015 Spring Western Sectional Meeting
Las Vegas, NV, April 18-19, 2015
INVITED TALK: *On the normal form of Navier-Stokes equations in Gevrey spaces*
- 7.2014 The 10th AIMS Conference on Dynamical Systems, Differential Equations and Applications
Madrid, Spain, July 7-11, 2014
INVITED TALK: *Estimates in $W^{1,\infty}$ for generalized Forchheimer equations in porous media*
- 6,7.2014 Advances in Mathematical Fluid Mechanics, Stochastic and Deterministic Methods
Lisbon, Portugal, June 30-July 5, 2014
INVITED TALK: *On two-phase Forchheimer flows of incompressible fluids*
- 4.2014 AMS 2014 Spring Central Sectional Meeting
Texas Tech University, Lubbock, TX, April 11-13, 2014
INVITED TALK: *Derivative estimates for generalized Forchheimer flows*
- 12.2013 SIAM conference on Analysis of Partial Differential Equations
Lake Buena Vista, Florida, December 7-10, 2013
INVITED TALK: *On dynamics of fluid flows in porous media*
- 10.2012 AMS 2012 Fall Western Section Meeting
University of Arizona, Tucson, AZ, October 27-28, 2012
INVITED TALK: *The Stokes operator for an interface boundary value problem in two-layer domains*
- 10.2012 AMS 2012 Central Fall Section Meeting
University of Akron, Akron, OH, October 20-21, 2012
INVITED TALK: *Generalized Forchheimer equations for slightly compressible fluids*

- 7.2012 The 9th AIMS Conference on Dynamical Systems, Differential Equations and Applications
Orlando, Florida, July 1-5, 2012
INVITED TALK: *A Poincaré–Dulac normal form for Navier–Stokes equations*
- 11.2011 SIAM Conference on Analysis of Partial Differential Equations
San Diego, CA, November 14-17, 2011
INVITED TALK: *Navier–Stokes equations in thin two-layer domains with non-flat boundaries*
INVITED TALK: *Analysis of non-Darcy compressible flows in porous media*
- 3.2011 34th Annual Texas Differential Equations Conference
University of Texas-Pan American, Edinburg, TX, March 26-27, 2011
INVITED TALK: *Dynamics and Stabilities of Generalized Forchheimer Flows in Porous Media*
- 4.2010 AMS 2010 Fall Western Section Meeting
Los Angeles, CA, October 9-10, 2010
INVITED TALK: *Structural stability of nonlinear flows in porous media*
- 4.2009 AMS 2009 Spring Western Section Meeting
San Francisco, CA, April 25-26, 2009
INVITED TALK: *Generalized Forchheimer equations in porous media*
- 5.2008 The 7th AIMS International Conference on Dynamical Systems and Differential Equations
Arlington, TX, May 18-21, 2008
INVITED TALK: *Problems in oceanic dynamics and climate modeling*
- 12.2007 SIAM Conference on Analysis of Partial Differential Equations
Mesa, AZ, December 10-12, 2007
INVITED TALK: *Incompressible fluids in thin domains with Navier friction boundary conditions*
- 11.2007 Nonlinear Dynamics and PDE Mini-Conference
Arizona State University, Tempe, AZ, November 19-20, 2007
INVITED TALK: *Navier–Stokes equations: the normalization map, statistical solutions and fluid dynamics*
- 11.2007 AMS 2007 Fall Southeastern Meeting
Murfreesboro, TN, November 3-4, 2007
INVITED TALK: *Global strong solutions of equations in geophysical fluid dynamics*
- 5.2007 The 3rd Symposium on Analysis & PDEs
Purdue University, West Lafayette, IN, May 27-30, 2007
CONTRIBUTED TALK: *Regularity of the Stokes operator in thin domains*
- 5.2007 US–Chile Workshop on New Developments in Partial Differential Equations I
Carnegie Mellon University, Pittsburgh, PA, May 21-24, 2007
CONTRIBUTED TALK: *Navier–Stokes equations with Navier boundary conditions in nearly flat domains*
- 3.2007 AMS 2007 Spring Central Section Meeting
Oxford, OH, March 16-17, 2007
INVITED TALK: *Statistical solutions to the Navier–Stokes equations and long time behaviors of fluid flows*

- 3.2007 AMS 2007 Spring Southeastern Section Meeting
Davidson, NC, March 3-4, 2007
INVITED TALK: *Studying the normal form of the Navier–Stokes equations in suitable Banach spaces*
- 3.2005 AMS 2005 Spring Southeastern Sectional Meeting
Bowling Green, KY, March 18-19
INVITED TALK: *On the solutions to the normal form of the Navier–Stokes Equations*
- 12.2004 SIAM Conference on Analysis of Partial Differential Equations
Houston, TX, December 6-8, 2004
INVITED TALKS: *On the convergence of the asymptotic expansions of the regular solutions to the 3D-periodic Navier–Stokes equations and applications to asymptotic behavior of helicity. Parts I and II.*
- 4.2004 AMS 2004 Spring Western Section Meeting
Los Angeles, CA, April 3-4
INVITED TALK: *On the helicity in 3D Navier–Stokes equations*

Seminars and Colloquia

- 3.2022 Analysis Seminar
Department of Mathematics and Statistics, Texas Tech University
INVITED TALK: *A doubly nonlinear model of slightly compressible Forchheimer flows in rotating porous media*
- 10.2021 Analysis Seminar
Department of Mathematics and Statistics, Texas Tech University
INVITED TALK: *Asymptotic expansions about infinity for solutions of nonlinear differential equations with coherently decaying forcing functions*
- 9.2021 PDE Seminar
Department of Mathematics
University of Tennessee, Knoxville
INVITED TALK: *Asymptotic analysis for viscous, incompressible fluids*
- 2.2021 Analysis Seminar
Department of Mathematics and Statistics, Texas Tech University
INVITED TALK: *Infinite series asymptotic expansions for dissipative differential equations with non-smooth nonlinearity*
- 1.2021 Nonlinear PDEs Seminar,
Department of Mathematics, Texas A&M University
INVITED TALK: *The Navier-Stokes equations: asymptotic expansions for solutions and their associated Lagrangian trajectories*
- 10.2020 Applied Mathematics Seminar
Department of Mathematics and Statistics, Hunter College
INVITED TALK: *Long-time asymptotic expansions for viscous incompressible fluid flows*
- 9.2020 Analysis Seminar
Department of Mathematics and Statistics, Texas Tech University
INVITED TALK: *Asymptotic analysis of the Lagrangian trajectories from solutions of the Navier-Stokes equations*

- 3.2020 Analysis Seminar
 Department of Mathematics and Statistics, Texas Tech University
 INVITED TALK: *Asymptotic expansions for solutions of the Navier–Stokes–Boussinesq equations. Parts I & II*
- 9&10.2019 Analysis Seminar
 Department of Mathematics and Statistics, Texas Tech University
 INVITED TALK: *Slightly Compressible Forchheimer Flows in Rotating Porous Media. Parts I & II*
- 4.2019 Analysis Seminar
 Department of Mathematics and Statistics, Texas Tech University
 INVITED TALK: *Asymptotic expansions for decaying solutions of ODEs. Parts I & II*
- 11.2018 Analysis Seminar
 Department of Mathematics and Statistics, Texas Tech University
 INVITED TALK: *Asymptotic expansions in time for solutions of Navier–Stokes equations of rotating fluids*
- 9.2018 Colloquium
 Department of Mathematics and Statistics, Texas Tech University
 TALK: *Analysis of Navier–Stokes systems and Forchheimer flows*
- 3.2018 Analysis Seminar
 Department of Mathematics and Statistics, Texas Tech University
 INVITED TALK: *Asymptotic expansions in Gevrey spaces for solutions of Navier–Stokes equations in periodic domains*
- 2.2018 Analysis Seminar
 Department of Mathematics and Statistics, Texas Tech University
 INVITED TALK: *Gevrey classes and the Navier–Stokes equations. Part II*
- 12.2017 Differential Equations Seminar
 Department of Mathematics and Statistics, University of Maryland Baltimore County
 INVITED TALK: *Studying nonlinear fluid flows in heterogeneous porous media*
- 11.2017 Analysis Seminar
 Department of Mathematics and Statistics, Texas Tech University
 INVITED TALK: *Gevrey classes and the Navier–Stokes equations*
- 11.2017 Joint PDEs and Mathematical Physics Seminar,
 Department of Mathematics, Texas A&M University
 INVITED TALK: *Large-time asymptotic expansions for solutions of Navier–Stokes equations*
- 11.2017 Colloquium
 Department of Mathematics, University of North Georgia
 INVITED TALK: *Asymptotic expansions in large time for solutions of non-autonomous differential equations*
- 10.2017 Differential Equations and Applied Math Seminar,
 Department of Mathematics, University of Louisville
 INVITED TALK: *Foias–Saut expansions for solutions of nonlinear differential equations*

- 9.2017 Seminar
 Institute for Scientific Computing and Applied Mathematics, Indiana University
 INVITED TALK: *Asymptotic expansions of Foias-Saut type for Navier-Stokes equations with decaying non-potential forces*
- 9.2017 Differential Equations Seminar
 Department of Mathematics, University of Tennessee
 INVITED TALK: *Foias-Saut asymptotic expansions for solutions of Navier-Stokes equations with time-dependent forces*
- 3.2017 Analysis Seminars
 Department of Mathematics and Statistics, Texas Tech University
 INVITED TALK: *Models and analysis of fluid flows in heterogeneous porous media* (2 lectures)
- 12.2016 Colloquium
 Department of Mathematics and Statistics, University of Maryland, Baltimore County
 INVITED TALK: *On the theory of asymptotic expansions and normal form for Navier-Stokes equations*
- 2.2016 Applied Mathematics Seminars
 Department of Mathematics and Statistics, Texas Tech University
 TALK: *Continuity of global, pullback and uniform attractors*
- 9.2015 Applied Mathematics Seminars
 Department of Mathematics and Statistics, Texas Tech University
 TALK: *Global estimates for generalized Forchheimer flows of slightly compressible fluids* (2 lectures)
- 9.2014 Applied Mathematics Seminars
 Department of Mathematics and Statistics, Texas Tech University
 TALK: *Analysis of single and multi phase flows in porous media* (3 lectures)
- 6.2014 Analysis & PDEs Seminar
 Warwick Mathematics Institute, University of Warwick
 TALK: *Single and multi phase Forchheimer flows in porous media*
- 4.2014 Bio-Math Seminars
 Department of Mathematics and Statistics, Texas Tech University
 TALK: *Global solutions of the Shigesada-Kawasaki-Teramoto system*
- 10.2013 Colloquium
 Department of Mathematics and Statistics, Texas Tech University
 TALK: *Non-linear Problems in Fluid Dynamics*
- 9.2013 Applied Mathematics Seminars
 Department of Mathematics and Statistics, Texas Tech University
 TALK: *L-infinity estimates for generalized Forchheimer flows*
- 3.2013 Applied Mathematics Seminars
 Department of Mathematics and Statistics, Texas Tech University
 TALK: *Generalized Forchheimer equations for porous media: Part V*
- 4.2012 Applied Mathematics Seminars
 Department of Mathematics and Statistics, Texas Tech University
 TALK: *An interface boundary value problem for incompressible fluids in two-layer domains* (2 lectures)

- 10.2011 Colloquium
Department of Mathematics, University of Tennessee, Knoxville
TALK: *Navier–Stokes equations and geophysical fluid dynamics*
- 8&9.2011 Applied Mathematics Seminars
Department of Mathematics and Statistics, Texas Tech University
TALK: *Forchheimer equations in porous media - Part IV* (2 lectures)
- 4.2011 CAMP/Nonlinear PDEs Seminar
Department of Mathematics, University of Chicago
INVITED TALK: *An explicit Poincaré–Dulac normal form for Navier–Stokes equations*
- 2.2011 Applied Mathematics Seminars
Department of Mathematics and Statistics, Texas Tech University
TALK: *An explicit Poincaré–Dulac normal form for Navier–Stokes equations*
- 9.2010 PDE/Applied Math Seminar
Department of Mathematics, Indiana University
INVITED TALK: *An explicit Poincaré–Dulac normal form for Navier–Stokes equations*
- 9.2010 Applied Mathematics Seminars
Department of Mathematics and Statistics, Texas Tech University
TALK: *Forchheimer equations in porous media - Part III* (2 lectures)
- 9.2009 Applied Mathematics Seminars
Department of Mathematics and Statistics, Texas Tech University
TALK: *Forchheimer equations in porous media - Part II*
- 3.2009 Applied Mathematics Seminars
Department of Mathematics and Statistics, Texas Tech University
TALK: *Forchheimer equations in porous media - Part I*
- 9.2008 Applied Mathematics Seminars
Department of Mathematics and Statistics, Texas Tech University
TALK: *Navier–Stokes equations in thin domains with Navier friction boundary conditions, Parts I and II*
- 10.2007 Institute Seminar
Department of mathematics, Indiana University
INVITED TALK: *Global strong solutions of equations in geophysical fluid dynamics*
- 4.2007 PDE and Dynamical Systems Seminars
School of Mathematics, University of Minnesota
TALK: *Navier–Stokes equations with Navier boundary conditions in nearly flat domains*
- 4.2007 PDE Seminar
School of Mathematics, University of Minnesota
TALK: *The normal form of the Navier–Stokes equations in suitable normed spaces*
- 12.2006 PDE and Dynamical Systems Seminars
School of Mathematics, University of Minnesota
TALK: *On the Stokes and Laplacian operators in Navier–Stokes equations*

- 11.2005 Colloquium
Department of Mathematics, University of Nevada
INVITED TALK: *Asymptotic behavior of statistical solutions to the Navier–Stokes equations*
- 10.2005 PDE Seminar
School of Mathematics, University of Minnesota
TALK: *Normalization maps and statistical solutions in Navier–Stokes equations*
- 10.2005 Dynamical Systems Seminar
School of Mathematics, University of Minnesota
TALK: *A normal form for the Navier–Stokes equations*
- 4.2005 PDE and Dynamical System Seminars
School of Mathematics, University of Minnesota
INVITED TALK: *Asymptotic analysis of the helicity in 3D periodic Navier–Stokes equations*
- 1.2005 Applied Mathematics Seminar
Department of Mathematics, Texas A&M University
TALK: *On the solutions to the normal form of the Navier–Stokes Equations*
- 3.2004 Applied Mathematics Seminar
Department of Mathematics, Texas A&M University
TALK: *On the helicity in 3D Navier–Stokes equations*

Organizing Work

- 7.2016 Co-organizer of special session (SS108) *New Developments in Porous Media*
The 11th AIMS Conference on Dynamical Systems, Differential Equations and Applications
Orlando, Florida, July 1-5, 2016
- 12.2015 Co-organizer of Mini-symposium *Dynamics of Partial Differential Equations*
SIAM Conference on Analysis of Partial Differential Equations
Scottsdale, Arizona, December 7-10, 2015
- 4.2014 Co-organizer of Special Session: *Navier-Stokes Equations and Fluid Dynamics*
AMS 2014 Spring Central Sectional Meeting
Texas Tech University, Lubbock, TX, April 11-13, 2014
- 12.2013 Co-organizer of Mini-Symposium: *Elliptic and Parabolic Equations with Nonstandard Nonlinearity*
SIAM conference on Analysis of Partial Differential Equations
Lake Buena Vista, Florida, December 7-10, 2013
- 10.2013 Co-organizer of *The 13th Red Raider Mini-Symposium*, Department of Mathematics and Statistics, Texas Tech University, October 25-26, 2013
- 6.2013 Co-organizer of Mini-Symposium: *Dynamics of Non-linear Flows in Porous Media: Analysis and Applications*
SIAM Conference on Mathematical and Computational Issues in the Geosciences
University of Padova, Italy, June 17-20, 2013

- 11.2011 Co-organizer of Mini-Symposium: *Partial Differential Equations for Non-linear Processes in Porous Media*
SIAM Conference on Analysis of Partial Differential Equations
San Diego, CA, 11.November 14-17, 2011
- 10.2009 Co-organizer of *The 9th Red Raider Mini-Symposium*, Department of Mathematics and Statistics, Texas Tech University, October 29-31, 2009

Conferences and Workshops Attended

- 10.2009 AMS 2009 Fall Central Section Meeting
Waco, TX, October 16-18, 2009
- 7.2009 Summer Program: Nonlinear Conservation Laws and Applications
Institute for Mathematics and Applications
Minneapolis, MN, July 13-31, 2009

Editorialship

- 5.2022 – present Member of the editorial board of Sakarya University Journal of Science (SAUJS)

Teaching Experience

- Texas Tech University, Lubbock, Texas
 - Spring 2022* MATH3350-012. Higher Mathematics for Engineers and Scientists I
 - Spring 2022* MATH3350-111. Higher Mathematics for Engineers and Scientists I
 - Fall 2021* MATH2450-011. Calculus III with Applications
 - Fall 2021* MATH2450-013. Calculus III with Applications
 - Spring 2021* MATH2450-002. Calculus III with Applications
 - Spring 2021* MATH2450-D01. Calculus III with Applications
 - Fall 2020* MATH3351-001. Higher Mathematics for Engineers and Scientists II
 - Fall 2020* MATH2450-011. Calculus III with Applications
 - Spring 2020* MATH3350-022. Higher Mathematics for Engineers and Scientists I
 - Spring 2020* MATH3350-021. Higher Mathematics for Engineers and Scientists I
 - Fall 2019* MATH4351-001. Advanced Calculus II
 - Fall 2019* MATH2450-022. Calculus III With Applications
 - Spring 2019* MATH5332-001. Partial Differential Equations I.
 - Spring 2019* MATH4354-002. Differential equations II
 - Fall 2018* MATH3354-002. Differential equations I
 - Fall 2018* MATH3351-002. Higher Mathematics for Engineers and Scientists II
 - Spring 2018* MATH3354-001. Differential equations I
 - Spring 2018* MATH4354-002. Differential equations II
 - Spring 2017* MATH3350-013. Higher Mathematics for Engineers and Scientists I
 - Spring 2017* MATH3351-001. Higher Mathematics for Engineers and Scientists II
 - Summer II 2016* MATH3350-202. Higher Mathematics for Engineers and Scientists I
 - Spring 2016* MATH3351-002. Higher Mathematics for Engineers and Scientists II
 - Spring 2016* MATH5332-001. Partial Differential Equations I
 - Fall 2015* MATH3351-004. Higher Mathematics for Engineers and Scientists II
 - Fall 2015* MATH3350-016. Higher Mathematics for Engineers and Scientists I
 - Spring 2015* MATH5332-001. Partial Differential Equations I
 - Spring 2015* MATH4351-001. Advanced Calculus II
 - Fall 2014* MATH4350-002. Advanced Calculus I
 - Fall 2014* MATH1320-030. College Algebra
 - Spring 2014* MATH3310-002. Introduction to Mathematical Reasoning and Proof
 - Spring 2014* MATH2360-008. Linear Algebra
 - Fall 2013* MATH2360-001. Linear Algebra
 - Fall 2013* MATH1451-H01. Calculus I With Applications-Honors

<i>Spring 2013</i>	MATH 5099-011. Partial Differential Equations III
<i>Spring 2013</i>	MATH4354. Differential Equations II
<i>Fall 2012</i>	MATH5333. Partial Differential Equations II
<i>Fall 2012</i>	MATH2450. Calculus III with Applications
<i>Spring 2012</i>	MATH5332. Partial Differential Equations I
<i>Spring 2012</i>	MATH3351. Higher Mathematics for Engineers and Scientists II
<i>Fall 2011</i>	MATH3350-010. Higher Mathematics for Engineers and Scientists I
<i>Fall 2011</i>	MATH3350-012. Higher Mathematics for Engineers and Scientists I
<i>Spring 2011</i>	MATH5341. Functional Analysis II. Section 001
<i>Spring 2011</i>	MATH5332. Partial Differential Equations
<i>Fall 2010</i>	MATH5340. Functional Analysis I
<i>Fall 2010</i>	MATH2360. Linear Algebra
<i>Spring 2010</i>	MATH4354. Differential Equations II
<i>Spring 2010</i>	MATH1352. Calculus II
<i>Fall 2009</i>	MATH3354. Differential Equations I
<i>Fall 2009</i>	MATH1351. Calculus I
<i>Spring 2009</i>	MATH3350. Higher Mathematics for Engineers and Scientists I
<i>Fall 2008</i>	MATH3350. Higher Mathematics for Engineers and Scientists I

- University of Minnesota, Minneapolis, Minnesota

<i>Spring 2008</i>	MATH 1142 Short Calculus
<i>Spring 2008</i>	MATH 1155 Intensive PreCalculus
<i>Fall 2007</i>	MATH 5535 Dynamical Systems and Chaos
<i>Spring 2007</i>	MATH 1031 College Algebra and Probability
<i>Fall 2006</i>	MATH 4606 Advanced Calculus
<i>Spring 2006</i>	MATH 1151 Pre-Calculus II
<i>Fall 2005</i>	MATH 2263 Multivariable Calculus

Students Advised

- 6.2021 – present Rahnuma Islam. (co-chair of Ph.D. Dissertation Committee)
- 6.2021 – present Isankaupul Garlihevage. (co-chair of Ph.D. Dissertation Committee)
- 8.2016 Emine Celik, Ph.D.
- 8.2014 Thinh Kieu, Ph.D. (co-advised)

Postdoctorates hosted

- 1.2019 – 8.2019 Dr. Phuong Nguyen
- 8.2016 – 8.2019 Dr. Dat Cao

Defense Committee Member

- 2020 Rahnuma Islam, Master's Thesis Committee Member
- 2019 Thakshila Gunasingha, Master's Thesis Committee Member
- 2014 Anna Krylova, Master's Thesis Committee Member
- 2010 – 2013 Lidia Bloshanskaya, Ph.D. Dissertation Committee Member
- 2012 Pooya Aavani, Master's Thesis Committee Member
- 5.2011 Jedidiah Gohlke, Master's Thesis Committee Member
- 11.2010 Lidia Bloshanskaya, Master's Thesis Committee Member

Service

- University
 - 2010 – present Member of Graduate Faculty, Graduate School
 - Fall 2013, 2018 Faculty representative at the Graduation Commencement
 - 6.14.2013 Dean's representative, Ph.D.'s defense, David Kimberly, Environmental Toxicology
 - 3.25.2013 Dean's representative, Ph.D.'s defense, Taskin Karim, Chemical Engineering
 - 3.22.2013 Dean's representative, Ph.D.'s defense, Vance Ginn, Economics
 - 6.24.2011 Dean's representative, Ph.D.'s defense, Guangqiu Qin, Environmental Toxicology
 - 6.1.2011 Dean's representative, Ph.D.'s defense, Patrick Mclaurin, Chemistry
- Department
 - 10.2019 – 5.2022 Co-advisor of students' Actuarial Science Group
 - 9.2020 – 5.2021 Co-organizer of Pure Mathematics Colloquium: Current Advances in Mathematics
 - 9.2018 – 12.2020 State Employee Charitable Campaign (SECC) coordinator for Department of Mathematics and Statistics
 - 1.2017 – 5.2021 Co-organizer of Analysis Seminars (except on-leave Fall 2017)
 - 2011 – present Member of Examination Committee for Preliminary Examination in PDEs
 - 2009 – present Occasional teaching evaluations for (graduate) teaching assistants
 - 8.2008 – 5.2016 Co-organizer of Applied Mathematics Seminars
 - 4.2015 Peer teaching evaluation for a fellow faculty
 - Fall 2014-Spring 2015 Member of Hiring Subcommittee: Complex Analysis
 - 9.2012 – 9.2013 Member of Graduate Committee
 - Spring 2013 Member of Travel Policy Committee
 - 12.2009 Substituting member in the Committee, Master's thesis defense, James Woodley, Mathematics
- Professional

Referee Asymptotic Analysis
 Canadian Journal of Mathematics
 Discrete and Continuous Dynamical Systems
 Electronic Journal of Differential Equations
 Hacetatepe Journal of Mathematics and Statistics
 Journal of Applied Analysis and Computation
 Journal of Differential Equations
 Journal of Dynamics and Differential Equations
 Journal of Mathematical Analysis and Applications
 Journal of Mathematical Physics
 Multiscale Modeling and Simulation (SIAM Interdisciplinary Journal)
 Nonlinear Analysis Series A: Theory, Methods and Applications
 Numerical Methods for Partial Differential Equations

Awards

- 2005 *L. F. Guseman Award*, Texas A&M University
- 2002 – 2005 *Departmental Graduate Fellowship*, Texas A&M University
- 2002 *AUF Fellowship*, Texas A&M University
- 2001 *James P. Williams Memorial Award*, Indiana University
- 2001 *Eberhard E. Hopf Fellowship*, Indiana University
- 1997 *Outstanding Student Award*, National University, Hochiminh City

References

1. **Animikh Biswas**
Professor & Chair
Department of Mathematics & Statistics, University of Maryland, Baltimore County
1000 Hilltop circle, Baltimore, MD 21250, USA
Phone: (410) 455-3029
Email address: *abiswas@umbc.edu*
Webpage: <https://userpages.umbc.edu/~abiswas/>
2. **Peter Constantin**
John von Neumann Professor & Director PACM
Department of Mathematics, Princeton University
Fine Hall, Washington Road, Princeton, NJ 08544-1000, USA
Phone: (609) 258-3080
Email address: *const@math.princeton.edu*
Webpage: <https://web.math.princeton.edu/~const/>
3. **Akif Ibragimov (teaching reference)**
Professor
Department of Mathematics and Statistics, Texas Tech University
1108 Memorial Circle, Lubbock, TX 79409-1042, USA
Email address: *akif.ibragimov@ttu.edu*
Webpage: <http://www.math.ttu.edu/~aibragui/>
4. **Michael S. Jolly**
Professor
Department of Mathematics, Indiana University
Bloomington, IN 47405, USA
Phone: (812) 855-8865

Email address: msjolly@indiana.edu
Webpage: <https://msjolly.pages.iu.edu/>

5. **Igor Kukavica**

Professor

Department of Mathematics, University of Southern California
3620 S. Vermont Ave., KAP 104
Los Angeles, CA 90089-2532, USA
Phone: (213) 740-3781
Email address: kukavica@usc.edu
Webpage: <https://dornsife.usc.edu/igor-kukavica/>

6. **Vladimir Sverak**

Distinguished McKnight University Professor

School of Mathematics, University of Minnesota
127 Vincent Hall, 206 Church St. SE, Minneapolis, MN 55455
Phone: (612) 625-1899
Email address: sverak@umn.edu
Webpage: <https://www-users.cse.umn.edu/~sverak/>

Other information

- Citizenship U. S. A.
- Languages English, Vietnamese