

Luan Thach Hoang

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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

Research Interest

Partial differential equations and fluid dynamics

Publications

1. *Dynamics and stabilities of generalized Forchheimer flows with the flux boundary condition*, (with Akif Ibragimov), 2011, submitted.
2. *Asymptotic integration of Navier-Stokes equations with potential forces. II. An explicit Poincare-Dulac normal form*, (with Ciprian Foias, Jean-Claude Saut), *Journal of Functional Analysis*, Vol. 260, Issue 10 (2011), 3007–3035.
3. *Structural stability of generalized Forchheimer equations for compressible fluids in porous media*, (with Akif Ibragimov), *Nonlinearity*, Volume 24, Number 1 (January 2011) 1–41.
4. *Navier–Stokes equations with Navier boundary conditions for an oceanic model*, (with George R Sell), *Journal of Dynamics and Differential Equations*, Volume 22, Number 3 (September 2010), 563–616.
5. *Incompressible fluids with Navier friction boundary conditions in thin domains (I)*, *Journal of Mathematical Fluid Mechanics*, Volume 12, Number 3 (August 2010), 435–472.
6. *Analysis of generalized Forchheimer equations of compressible fluids in porous media*, (with Eugenio Aulisa, Lidia Bloshanskaya, Akif Ibragimov), *Journal of Mathematical Physics* 50 (2009), 103102:1–44.
7. *On the helicity in 3D Navier–Stokes equations II: The statistical case*, (with Ciprian Foias, Basil Nicolaenko), *Communications in Mathematical Physics*, Volume 290, Issue 2 (2009), 679–717.
8. *The normal form of the Navier–Stokes equations in suitable normed spaces*, (with Ciprian Foias, Eric Olson, Mohammed Ziane), *Annales de L’Institut Henri Poincaré - Analyse Non Linéaire*, Volume 26, Issue 5 (September–October 2009), 1635–1673.
9. *A basic inequality for the Stokes operator related to the Navier boundary condition*, *J. of Diff. Equations*, Volume 245, Issue 9 (November 2008), 2585–2594.

10. *On the solutions to the normal form of the Navier–Stokes equations*, (with Ciprian Foias, Eric Olson, Mohammed Ziane), Indiana University Mathematics Journal, Vol. 55, No 2 (2006) 631–686.
11. *On the helicity in 3D Navier–Stokes equations I: The non-statistical case*, (with Ciprian Foias, Basil Nicolaenko), Proceedings of the London Mathematical Society, Volume 94 Part 1 (January 2007) 53–90.

Funding

- 2009 Title: *Analysis of non-linear flows in heterogeneous porous media and applications*
 Agency: NSF - Applied Mathematics
 Amount: \$ 359,861
 Role: Co-principal investigator
 Project director: Akif Ibragimov
 Status: **Funded, DMS 0908177**
- 2009 Title: *Mini-Symposium on Nonlinear Analysis, PDE, and Applications*
 Agency: NSF - Applied Mathematics
 Amount: \$ 15,000.00
 Role: Principal investigator
 Status: **Funded, DMS 0931596**

Employment

- 8.2008 – present Texas Tech University, Lubbock, Texas
 Assistant professor
- 9.2005 – 5.2008 University of Minnesota, Twin Cities, 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

Service

- Fall 2008 – Spring 2011 Co-Organizer of Applied Mathematics Seminars, Department of Mathematics and Statistics
- Oct. 2009 Co-Organizer of Red Raider Mini-Symposium, Department of Mathematics and Statistics
- Referee Journal of Dynamics and Differential Equations
 Journal of Differential Equations
 Electronic Journal of Differential Equations
 Nonlinear Analysis Series A: Theory, Methods and Applications

Students Advised

- 2010-present Lidia Bloschanskaya, Dissertation Committee Member
- 2010-present Pinnawala Gunatilake, Dissertation Committee Member

- 2010-present Dacko Manga, preliminary assigned graduate advisor
- 11.2010 Lidia Bloshanskaya, Master's Thesis Committee Member

Conferences

- 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*
- 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, Colloquia

- 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
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
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*

Conferences/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

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
- 1993 *Consolation Prize*, Competition in Mathematics for highschool students, Hochiminh City

- 1992 *First prize*, Competition in Mathematics for Eleventh grade students, Hochiminh City
- 1990 *First prize*, Competition in Mathematics for Ninth grade students, Phu Nhuan District, Hochiminh City
- 1988 *Consolation prize*, Competition in Mathematics for the Youth, Hochiminh City