

Thinh T. Kieu

Curriculum Vitae

Department of Mathematics
University of North Georgia
Gainesville Campus
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Education

- 2014 **Ph. D. in Mathematics**, Texas Tech University, U.S.A.
- 2004 **M. A. in Mathematics**, National University, Hochiminh City, Vietnam.
- 1997 **B. S. in Mathematics**, National University, Hochiminh City, Vietnam.

Research Interest

- Partial differential equations, fluid dynamics.
- Numerical methods for partial differential equations, finite element method, Bernstein-based finite element method operators.

Programing language and Skills

Languages Pascal, Visual Delphi, Python, Java, Visual Basic, C, C++, Parallel programing.
Packages Maple, Matlab, Mathematica, Geometry Sketchpad, Sundance, Fenics.
Operating system Linux, OS X(Mac OS), Microsoft Window.
Tools MS office, LaTeX.

Honors and Awards

- 2015 *Presidential Innovation Awards* (with Dr. Minsu Kim), University of North Georgia.
UNG Student Technology Innovation Grant (with Dr. Minsu Kim).
- 2014 *Helen DeVitt Jones Excellence in Graduate Teaching Award*, Texas Tech University.
John. T White Scholarship Award, Texas Tech University.
- 2013 *Math STAT School Award*, Texas Tech University.
Fuller Math Scholarship Award, Texas Tech University.
Pres Doc Ex TA Fall 13 (Teaching Award), Texas Tech University.
- 2012 *Ronald M. Anderson Award*, Texas Tech University.
Pres Doc Ex TA Fall 12 (Teaching Award), Texas Tech University.
- 2011 *Fuller Math Scholarship*, Texas Tech University.
Golden Key International Honor Society, Texas Tech University.
- 2010 *Anderson Math Grad School Award*, Texas Tech University.
- 2004 *Outstanding graduate student Award*, National University, Hochiminh City.
- 2003–2008 *Advanced teacher Award*, Nguyen Thi Minh Khai high school, Hochiminh City.
- 2002 *Outstanding teacher Award*, Nguyen Thi Minh Khai high school, Hochiminh City.
- 1997–2002 *Advanced teacher Award*, Nguyen Thi Minh Khai high school, Hochiminh City.

Publications

16. Emine Celik, Akif Ibragimov, Luan Hoang, **Thinh Kieu**. *Fluid flows of mixed regimes in porous media*, 33pp, submitted for publication.
Preprint, <http://arxiv.org/abs/1603.09398>.
15. Emine Celik, Luan Hoang, **Thinh Kieu**. *Doubly nonlinear parabolic equations for a general class of Forchheimer gas flows in porous media*, 31pp, submitted for publication.
Preprint, <http://arxiv.org/abs/1601.00703>.
14. **Thinh Kieu**. *Numerical analysis for generalized Forchheimer flows of slightly compressible fluids in porous media*, 27pp, submitted for publication.
Preprint, <http://arxiv.org/abs/1512.03951>.
13. **Thinh Kieu**. *Galerkin finite element method for generalized Forchheimer equation of slightly compressible fluids in porous media*, 23pp, submitted for publication.
Preprint, <http://arxiv.org/abs/1508.00294>.
12. Emine Celik, Luan Hoang, **Thinh Kieu**. *Generalized Forchheimer flows of isentropic gases*, 37pp, submitted for publication .
Preprint <http://arxiv.org/abs/1504.00742>.
11. Luan Hoang, **Thinh Kieu**. *Global estimates for generalized Forchheimer flows of slightly compressible fluids*, 41pp, 2015, Journal d'Analyse Mathematique, accepted.
Preprint, <http://arxiv.org/abs/1502.04732>.
10. Akif Ibragimov, **Thinh Kieu**. *The expanded mixed finite element method for generalized Forchheimer incompressible flows in porous media*, 30 pp, submitted for publication .
Preprint, <http://arxiv.org/submit/1076725>.
9. **Thinh Kieu**. *Analysis of expanded mixed finite element methods for the generalized Forchheimer equations*, Vol 32, Issue 1, 60-85, 2015, Numerical methods for PDEs journal, accepted.
Preprint, <http://arxiv.org/submit/1076723>.
8. Luan Hoang, **Thinh Kieu**. *Interior estimates for generalized Forchheimer flows of slightly compressible fluids*, 30 pp, submitted for publication.
Preprint, <http://arxiv.org/abs/1404.6517>.
7. Robert C. Kirby, **Thinh Kieu**. *Galerkin finite element methods for nonlinear Klein-Gordon equations*, 13 pp, submitted for publication.
Preprint, https://bearspace.baylor.edu/Robert_Kirby/www/papers/kg-mcom.pdf
6. Luan Hoang, Akif Ibragimov, **Thinh Kieu**, Zeev Sobol. *Stability of solutions to generalized Forchheimer equations of any degree*, Volume 210, Number 4 (2015), 476-544, Journal of Mathematical Sciences (via journal Problems in Mathematical Analysis).
Preprint, <http://www.ima.umn.edu/preprints/apr2012/apr2012.html>.
5. Luan Hoang, Akif Ibragimov, **Thinh Kieu**. *A family of steady two-phase generalized Forchheimer flows and their linear stability analysis*, J. Math. Phys. 55, 123101:32pp (2014). DOI: 10.1063/1.4903002.
<http://scitation.aip.org/content/aip/journal/jmp/55/12/10.1063/1.4903002>.
4. Robert C. Kirby, **Thinh Kieu**. *Symplectic-mixed finite element approximation of linear wave equations*, Numer. Math. , (2014)
http://link.springer.com/article/10.1007/s00211-014-0667-4?sa_campaign=email/event/articleAuthor/online
3. Luan Hoang, **Thinh Kieu**, Tuoc Phan. *Properties of generalized Forchheimer flows in porous media*, J. Math. Sciences, vol. 202 No. 2, (2014), 259–332.
<http://link.springer.com/article/10.1007/s10958-014-2045-2>

2. Luan Hoang, Akif Ibragimov, **Thinh Kieu**. *One-dimensional two-phase Forchheimer flows for incompressible fluids*, J. Math. Anal. Appl., Volume 401, Issue 2 (2013), 921–938.
1. Robert C. Kirby, **Thinh Kieu**. *Fast simplicial quadrature-based finite element operators using Bernstein polynomials*, Numerische Mathematik, Volume 121, Issue 2 (2012), 261–279.

--- *Work in progress*

- *Generalized Forchheimer flows in geophysical fluid dynamics*, (with Emine Celik, Luan Hoang,) 37pp, manuscript.
- *General fluid flows in porous media*, (with Emine Celik, Akif Ibragimov, Luan Hoang,) 28pp, manuscript.
- *Long time stability of Galerkin method for generalized Forchheimer flows*, 35pp.
- *Statistical study of Forchheimer flows*, (with Luan Hoang) in preparation.
- *Expanded mixed FEM of mixed regimes in porous media*, in preparation.
- *Mixed finite element method for global tide models*, (with Robert C. Kirby), in preparation.
- *Galerkin finite element method for nonlinear hyperbolic equations*, (with Robert C. Kirby), 30 pages.
- *Fault tolerant*, (with Victoria E. Howle), in preparation.
- *Galerkin finite element method for nonlinear hyperbolic equations*, (with Robert C. Kirby), in preparation.
- *Two-phase general Forchheimer flows of mixed compressible fluids*, (with Emine Celik, Akif Ibragimov, Luan Hoang) in preparation.

--- *Employment*

- 8.2014–Present University of North Georgia
Assistant Professor.
- 9.2012–7.2014 Texas Tech University
Teaching Assistant.
- 9.2009–8.2012 Texas Tech University
Research Assistant.
- 8.2007–3.2008 Asia Pacific College, Hochiminh City, Vietnam
Instructor.
- 6.2007–9.2007 College of Finance and Customs, Hochiminh City, Vietnam
Instructor.
- 9.1997–3.2008 Nguyen Thi Minh Khai high school, Hochiminh City, Vietnam
Teacher.
- 9.1997–9.1999 Institute of applied mechanics and informatics, Hochiminh City, Vietnam
Researcher.

--- *Teaching Experience*

- University of North Georgia
 - Summer 2016 MATH 2460 Calculus II
MATH 1113 Pre-calculus.
 - Spring 2016 MATH 3000 Differential equations.
MATH 1450 Calculus I.
MATH 1113 Pre-calculus.
 - Fall 2015 MATH 3000 Differential equations.
MATH 1450 Calculus I.
MATH 1113 Pre-calculus.
 - Summer 2015 MATH 1450 Calculus I.
MATH 0099 Intermediate Algebra.
 - Spring 2015 MATH 2460 Calculus II.

- MATH 1113 Pre-Calculus .
 MATH 1111 College Algebra.
 Fall 2014 MATH 1113 Precalculus.
 MATH 0099 Intermediate Algebra.
- Texas Tech University
 - Summer 2014 MATH 3350-101 Higher Mathematics for Engineers and Scientists I.
 MATH 3360-201 Foundations of Algebra I (grading).
 - Spring 2014 MATH 3350-016 Higher Mathematics for Engineers and Scientists I.
 MATH 3350-020 Higher Mathematics for Engineers and Scientists I.
 - Fall 2013 MATH 3350-009 Higher Mathematics for Engineers and Scientists I.
 - Summer 2013 MATH 1321-101 Trigonometry.
 - Spring 2013 MATH 2450-016 Calculus III with Applications.
 - Fall 2012 MATH 1452-012 Calculus II with Applications.
 - Texas Tech University
 - Summer 2013 Teacher training Groundwork Program at the Teaching, Learning, and Professional Development Center.
 - Summer 2009 ITA Summer Workshop.
 - College of Finance and Customs, Hochiminh City, Vietnam
 - Summer 2007 Calculus III.
 - University of pedagogy, Hochiminh City, Vietnam
 - Summer 2007 Precalculus.
 - Asia Pacific College, Hochiminh City, Vietnam
 - 2007-2008 Mathematics Teacher.
 - Ministry of Education and Training, Hanoi, Vietnam
 - Summer 2005 Innovating Methods in Teaching Mathematics Workshop.
 - Nguyen Thi Minh Khai high school, Hochiminh City, Vietnam
 - 1997-2008 Mathematics Teacher.

Research Experience

- 2014–Present Department of Mathematics, University of North Georgia, USA
 2009–2014 Department of Mathematics and Statistics, Texas Tech University, USA
 Research Assistant.
 2004–2007 Department of Mathematics and Computer Science, National University, Hochiminh City, Vietnam
 Research Assistant.
 1997–1998 Institute of Applied Mechanics, Hochiminh, Vietnam
 Research Assistant.

Dissertation, Theses

- Title: *Stability of solutions to generalized Forchheimer equation and finite element approximation of wave equations*. Ph. D. dissertation, Mathematics, 2014.
- Advisors: Prof. Luan Hoang and Prof. Robert C. Kirby.
- Title: *On the solution of the initial-boundary value problem in theory on Sandwich plates*. M. A. thesis, Mathematics, 2004.
- Advisors: Prof. Nguyen Thanh Long and Prof. Trinh Anh Ngoc.
- Title: *A differential equation of the transverse motion of an isotropic Sandwich plate and finite element method*. B. S.thesis, Mathematics, 1997.

Advisor: Prof. Trinh Anh Ngoc.

Conferences

- 08.2016 Annual Teaching and Learning Conference
Elon University, NC, August 11, 2016.
- 07.2016 11th AIMS Conference on Dynamical Systems, Differential Equations and Applications
Orlando, FL, July 1-5, 2016.
Talk: *Expanded mixed FEM for generalized Forchheimer Flows in porous media.*
- 03.2016 SIAM SEAS 2016 Conference
University of Georgia, Athens, GA, March 12-13, 2016
Co-Organizer of special session: *PDEs for Fluid Mechanics with Applications in Medical Biology.*
- 03.2016 AMS 2016 at Spring Southeastern Sectional Meeting
University of Georgia, Athens, GA, March 5-6, 2016
Talk: *Global estimates for generalized Forchheimer flows of slightly compressible fluids in porous media.*
- 10.2015 Kennesaw State University's Center for Excellence in Teaching and Learning, October 2-3, 2015.
- 05.2015 SIAM Conference on Application of Dynamical Systems
Snowbird Ski and Summer Resort, Snowbird, Utah, USA, May 17-21, 2015
Talk: *Expanded mixed finite element method for generalized Forchheimer flows.*
- 04.2015 AMS 2015 Spring Western Sectional Meeting
University of Nevada, Las Vegas, Las Vegas, NV, April 18-19, 2015
Talk: *Mixed FEM for generalized Forchheimer equations.*
- 03.2015 Teaching and Learning
Georgia South University, March 25-27, 2015
- 03.2015 SIAM Southeastern Atlantic Section Conference (SIAM-SEAS 2015)
University of Alabama at Birmingham, March 20-22, 2015
Talk: *Two-phase generalized Forchheimer flows in porous media.*
- 02.2015 Research on Teaching and Learning Summit
Kennesaw State University's Center for Excellence in Teaching and Learning, February 20-21, 2015.
- 11.2014 AMS 2014 Fall Southeastern Section Meeting
University of North Carolina at Greensboro, Greensboro, NC, November 8-9
Talk: *Interior estimates for generalized Forchheimer flows for slightly compressible fluids in porous media.*
- 4.2014 AMS 2014 Spring Central Sectional Meeting
Texas Tech University, Lubbock, TX, April 11-13
Talk: *$W^{1,\infty}$ -estimates for generalized Forchheimer flows.*
- 12.2013 SIAM conference on Analysis of Partial Differential Equations
Lake Buena Vista, Florida, December 7-10
Talk: *Symmetric steady states and linearization for two-phase generalized Forchheimer flows.*
- 11.2013 AMS 2013 Western Fall Sectional Meeting
University of California Riverside, Riverside, CA November 2-3
Talk: *Stability of solution to generalized Forchheimer equations of any degree.*
- 10.2013 AMS 2013 Fall Southeastern Sectional Meeting
University of Louisville, Louisville, KY October 5-6
Talk: *Properties of generalized Forchheimer flows in porous media.*

- 9.2013 Southeastern-Atlantic Regional Conference on Differential Equations
The University of Tennessee September 21-22
Contributed talk: *Generalized Forchheimer equations in L^α for porous media.*
- 1.2013 AMS 2013 Joint Mathematics Meetings
San Diego Convention Center and San Diego Marriott Hotel and Marina, San Diego, CA,
January 9-12
Contributed talk: *Galerkin finite element method for semilinear hyperbolic equations.*
- 10.2012 AMS Fall Western Section Meeting
University of Arizona, Tucson, AZ, October 27-28
Talk: *The one-dimensional two-phase Forchheimer flows for incompressible fluids.*
- 10.2012 AMS Central Fall Section Meeting
University of Akron, Akron, OH, October 20-21
Talk: *Stability of solutions to generalized Forchheimer equations of any degree.*
- 7.2012 The 9th AIMS Conference on Dynamical Systems, Differential Equations and Applications
Orlando, Florida, July 1-5
Talk: *Equilibria and linearization of one dimensional Forchheimer equation for incompressible two-phase flows.*
- 5.2012 Recent developments in discontinuous Galerkin Finite Element Methods for partial differential equations the 2012 John H. Barrett Lectures
Department of Mathematics The University of Tennessee , Knoxville, TN, May 9-11.
- 3.2012 Finite Element RODEO Conference
Rice University, Houston, TX, March 2-3
Talk: *Mixed finite element approximation of linear wave equation.*
- 11.2011 SIAM Conference on Analysis of Partial Differential Equations (PD11)
San Diego Marriott Mission Valley, San Diego, CA, November 14-17.
- 10.2009 AMS Western Sections
Baylor University, Waco, Texas, October 25-26.
- 8.2005 Minisymposium *PDE Problems in Mechanics and Fluid Dynamics*
National University, Hochiminh City, Vietnam.

Seminars

- Feb. 1, 2016 Mathematics Seminar
Department of Mathematics, University of North Georgia
Talk: *Structural stability to Non-Darcy flows for slightly compressible fluid in porous media*
- Oct. 21, 2015 Mathematics Seminar
Department of Mathematics, University of North Georgia
Talk: *Teaching Mathematics using Maple (part I)*
- Oct. 12, 2015 Mathematics Seminar
Department of Mathematics, University of North Georgia
Talk: *L^p -estimate for general Forchheimer flows in porous media (part I)*
- Feb. 16, 2015 Mathematics Seminar
Department of Mathematics, University of North Georgia
Talk: *WeBWork*
- Jan. 26, 2015 Mathematics Seminar
Department of Mathematics, University of North Georgia
Talk: *Steady state for two-phase generalized Forchheimer flows and linear stability analysis in 1D*

- Sep.15, 2014 Mathematics Seminar
Department of Mathematics, University of North Georgia
Talk: *Mixed finite element methods for wave equations*
- Nov.22, 2013 Applied Mathematics Seminar
Department of Mathematics, College of William and Mary
Talk: *Finite element approximation of hyperbolic equations and generalized Forchheimer equations in porous media*
- Sep.11, 2013 Applied Mathematics Seminar
Department of Mathematics and Statistics, Texas Tech University
Talk: *Structural stability of generalized Forchheimer flows in porous media.*
- Mar.27, 2013 Applied Mathematics Seminar
Department of Mathematics and Statistics, Texas Tech University
Talk: *Structural stability of generalized Forchheimer flows in L^α -norm.*
- Nov.01, 2012 Applied Mathematics Seminar
Department of Mathematics, Baylor University
Talk: *Numerical analysis of hyperbolic equations.*
- Oct.03, 2012 Applied Mathematics Seminar
Department of Mathematics and Statistics, Texas Tech University
Talk: *One-dimensional two-phase generalized Forchheimer flows for incompressible fluids.*
- Mar.21, 2012 Applied Mathematics Seminar
Department of Mathematics and Statistics, Texas Tech University
Talk: *Simplectic mixed finite element for acoustic linear wave equation using Raviart-Thomas element.*

Symposia

- 10.2013 Mini-Symposium: Aspects of Fluid Dynamics
Department of Mathematics and Statistics Texas Tech University, October 25-26.
- 11.2011 Symposium on High Level Mathematical Software for PDE's FEniCS'11
Department of Mathematics and Statistics Texas Tech University, November 3-5.
- 10.2010 Symposium on Mathematical Modeling in Population Biology and Epidemiology
Department of Mathematics and Statistics Texas Tech University, October 28-30.
- 10.2009 Symposium on Nonlinear Analysis PDEs and Applications
Department of Mathematics and Statistics Texas Tech University, October 29-31.

Services

- University
 - Spring 2016 Hiring committee.
 - 3.2016 Danna Deering and Vinh Bui presented "*Deliver package model*" and Pedro Lozada, Victor Raykov present "*Projectile of a cannonball*" at UNG's Annual Research Conference (ARC), Mar 25, 2016
 - 2.2016 Danna Deering and Vinh Bui presented "*Relief package*" at University of Souther Georgia, Feb 13, 2016
 - 11.2015 Richard Fields and Vinh Bui presented "*Escape velocity*" at Georgia Undergraduate Research Conference 2015, Nov 6-7, 2015
 - 10.2015 Representative in the Open House.
 - 9.2015- Present Advisor for Alpha, Beta, Kappa Organization, UNG-Gainesville.

- 12.2014 Commencement Ceremony at Gainesville campus.
- 10.2014 Representative in the Open House.
- Department
 - 4.2016 Problem writing committee member in Mathematics Tournament, UNG-Gainesville.
 - 4.2015 Students Vinh, Victor Raykov, Pedro Lozada, Danna present posters "*Relief package with air resistant, Cannonball without air resistance, Predator and Prey Model, Cannonball with air resistant*" at Math Tournament at Math Club, UNG-Gainesville
 - Spring 2016 Advisor research students: Vinh Bui, Danna Deering, Victor Raykov, Pedro Lozada Fernandez.
 - Fall 2015 Advisor research students: Richard Fields, Victor Raykov, Vinh Bui.
 - 11.2015 Organize for students Richard Fields, Vinh Bui present their research titled "*Escape velocity of rocket*" at Math Club, UNG-Gainesville
 - 3.2015 Grading committee member in Mathematics Tournament, UNG-Gainesville.
 - 2014-Present Host WeBWork server.
 - 11.2014 Problem writing committee member in Mathematics Tournament, UNG-Gainesville.
- Advisement
 - 2016 50 Advisees, Math major
 - Fall 2015 15 Advisees, Math major
- Professional
 - Fall 2015 Review paper "*A block-centered finite differential method for slightly compressible Darcy-Forchheimer flow in porous media*" for Journal of scientific computing
 - Spring 2015 Review paper "*The local superconvergence of the quadratic triangular element for the Poisson problem in polygonal domain.*" for Zmath
- Others
 - 12.2015 Voluntary advisor for Students Orientation Math major at UNG-Gainesville.
 - 9.2015 Voluntary tutor at the Military Service Center center(CALM) at UNG-Gainesville.
 - 9.2015 Voluntary advisor at Major Fair. at UNG-Gainesville.
- Community services
 - 1993–2008 Service in the choral society at Carmelo Catholic church, Sai Gon Diocese
Hochiminh City, Vietnam.
 - 1993–2006 A volunteer in sanatorium and orphanage
Hochiminh City, Vietnam.