Thuyen Dang

full name in Vietnamese:

Đặng Triển Thuyên

University of Chicago
Department of Statistics and the College
Committee on Computational and Applied Mathematics
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Research Interests

Analysis of partial differential equations • Calculus of variations • Homogenization • Regularity • Mathematics of materials science • Topological insulators • Spectral theory.

Appointment

William H. Kruskal Instructor   University of Chicago, USA.   2022—
Department of Statistics & Committee on Computational and Applied Mathematics.
Mentor: Guillaume Bal.

Education

Ph.D in Mathematics   University of Houston, USA.   2018—2022
Thesis: *Homogenization of coupled problems of a fluid flow with magnetic particles.*
Advisors: Yuliya Gorb & Silvia Jiménez Bolaños.

M.Sc in Mathematics   Université Sorbonne Paris Nord, France.   2015—2016
Thesis: *Statistics of visiting times on lattice sites of a random walk.*
Advisor: Denis S. Grebenkov. Rank: Très Bien.

B.Sc in Mathematics   University of Science, VNU-HCM, Vietnam.   2011—2015
Thesis: *On the Palais-Smale condition.*
Advisor: Duong Minh Duc. Rank: High Distinction.

Publications

In Preparation

[7]   T. Dang and T. Nguyen Duc. "Resolvent Estimate for Dirac Operator with a Discontinuous Potential."

Preprint

[6]   G. Bal and T. Dang. *Topological Anderson Insulator by Mathematical Homogenization.* preprint.

[5]   T. Dang, Y. Gorb, and S. Jiménez Bolaños. *Explicit Corrector in Homogenization of Monotone Operators and Its Application to Nonlinear Dielectric Elastomer Composites.* preprint.

[4]   T. Dang, Y. Gorb, and S. Jiménez Bolaños. *Homogenization of High-Contrast Dielectric Elastomer Composites.* preprint.

Journal Articles

[3]   T. Dang, Y. Gorb, and S. Jiménez Bolaños. "Homogenization of a Nonlinear Strongly Coupled Model of Magnetorheological Fluids." *SIAM J. Math. Anal.* 55.1 (2023), pp. 102–132. ISSN: 0036-1410. DOI: 10.1137/22M1476939.

[2]   T. Dang, Y. Gorb, and S. Jiménez Bolaños. "Homogenization of Nondilute Suspension of Viscous Fluid with Magnetic Particles." *SIAM J. Appl. Math.* 81.6 (2021), pp. 2547–2568. ISSN: 0036-1399. DOI: 10.1137/21M1413833.

Book Chapters

[1]   T. Dang, Y. Gorb, and S. Jiménez Bolaños. "Global Gradient Estimate for a Divergence Problem and Its Application to the Homogenization of a Magnetic Suspension." *Research in Mathematics of Materials Science.* Ed. by M. I. Español, M. Lewicka, L. Scardia, and A. Schlömerkemper. Cham: Springer International Publishing, 2022, pp. 133–157. ISBN: 978-3-031-04496-0. DOI: 10.1007/978-3-031-04496-0_6.

Talks & Presentations

14.   *Topological Anderson insulator by mathematical homogenization (seminar talk)*, Analysis and Applied Mathematics Seminar, University of Illinois at Chicago.   November 27, 2023

13.   *Homogenization of nonlinear deformable dielectrics (invited talk)*, MAA MathFest 2023, Tampa, Florida.   Aug 2—5, 2023

12.   *Homogenization of some coupled models arising from mixtures of magnetic particles with a matrix material (invited talk)*, 2023 Joint Mathematics Meetings, Boston, Massachusetts.
          January 4—7, 2023

11.   *Homogenization of a non-linear strongly coupled model of magnetorheological fluids (poster, online)*, Trends in Calculus of Variations and PDEs, University of Sussex, United Kingdom and Ghent Analysis & PDE Centre, Ghent University, Belgium.   May 10—20, 2022

10.   *An invitation to mathematical homogenization*, Graduate Student Paper Presentation 2022, University of Houston, USA.   April 29, 2022

9. *A tour of periodic homogenization and its applications (colloquium)*, Colgate University, New York. April 7, 2022

8. *A simplified model for magnetorheological fluid and its corresponding effective system (invited talk)*, 4th Annual Meeting of the SIAM Texas-Louisiana Section, SIAM Texas-Louisiana Section and the University of Texas Rio Grande Valley, South Padre Island, Texas.
November 5—7, 2021

7. *A simplified model for magnetorheological fluid and its corresponding effective system (seminar talk, online)*, Oberseminar Mathematik in den Naturwissenschaften, Julius - Maximilians - Universität Würzburg, Germany. October 21, 2021

6. *Global gradient estimate and application to homogenization of a magnetic suspension (poster, online)*, V Workshop on Fluids and PDE, UNICAMP Universidade Estadual de Campinas, Brazil. September 20—October 1, 2021

5. *Global gradient estimate and application to homogenization of a magnetic suspension (poster, online)*, The 30th Jyväskylä Summer School, University of Jyväskylä, Finland.
August 9—20, 2021

4. *Homogenization of non-dilute suspension of a viscous fluid with magnetic particles (special session: Diverse Aspects of Elliptic PDEs and Related Problems, online)*, Mathematical Congress of the Americas 2021, Universidad de Buenos Aires and Universidad de Buenos Aires-Conicet, Argentina. July 12—23, 2021

3. *Homogenization of non-dilute suspension of a viscous fluid with magnetic particles (minisymposium: Mathematical modeling and analysis of problems in materials science and fluid dynamics, online)*, SIAM Conference on Mathematical Aspects of Materials Science, Basque Center for Applied Mathematics, Bilbao, Spain. May 17—28, 2021

2. *An effective model for magnetorheological fluids via homogenization (online)*, Graduate Student Paper Presentation 2021, University of Houston, USA. April 23, 2021

1. *Homogenization of one-way coupled Stokes flow with paramagnetic inclusions (contributed talk, online)*, Texas Analysis and Mathematical Physics Symposium 2020/21, University of Texas at Austin, USA. April 9—11, 2021

Conferences, Workshops & Visits

22. *MAA MathFest 2023*, Tampa, Florida. Aug 2—5, 2023

21. *2023 Joint Mathematics Meetings*, Boston, Massachusetts. January 4—7, 2023

20. *Trends in Calculus of Variations and PDEs (online)*, University of Sussex, United Kingdom and Ghent Analysis & PDE Centre, Ghent University, Belgium. May 10—20, 2022

19. *SIAM 2022 Conference on Analysis of Partial Differential Equations (online)*, Virtual Conference, Originally scheduled in Berlin, Germany. March 14—18, 2022

18. *4th Annual Meeting of the SIAM Texas-Louisiana Section*, SIAM Texas-Louisiana Section and the University of Texas Rio Grande Valley, South Padre Island, Texas. November 5—7, 2021

17. 25th Internet Seminar *Spectral theory for Operators and Semigroups*, Salerno, Italy.
October 2021—June 2022

16. *V Workshop on Fluids and PDE (online)*, UNICAMP Universidade Estadual de Campinas, Brazil. September 20—October 1, 2021

15. *Young women in Partial Differential Equations and applications (online)*, Institute for Applied Mathematics, University of Bonn, Germany. September 20—22, 2021

14. *The 30th Jyväskylä Summer School (online)*, University of Jyväskylä, Finland.
August 9—20, 2021

13. *Mathematical Congress of the Americas 2021 (online)*, Universidad de Buenos Aires and Universidad de Buenos Aires-Conicet, Argentina. July 12—23, 2021

12. *Hausdorff School on: Trending Tools for the Solvability of Nonlocal Elliptic and Parabolic Equations (online)*, Hausdorff Center for Mathematics, University of Bonn, Germany.
June 28—July 2, 2021

11. *SIAM Conference on Mathematical Aspects of Materials Science (online)*, Basque Center for Applied Mathematics, Bilbao, Spain. May 17—28, 2021

10. *Texas Analysis and Mathematical Physics Symposium 2020-21 (online)*, University of Texas at Austin, USA. April 9—11, 2021

9. *ONEPAS Thematic Series - The mathematics of thin structures (7 sessions)*, Online North East PDE and Analysis Seminar, Carnegie Mellon University, USA. April 1—May 13, 2021

8. *Nonlinear Meeting 2021* (online), Differential Equations Group Of North-East, Italy.
March 22—23, 2021

7. *Winter School on Analysis and Applied Mathematics (online)*, University of Münster, Germany. February 22—26, 2021

6. *Mathematical and Computational Materials Science Workshop (online)*, The Institute for Mathematical and Statistical Innovation, University of Chicago, USA. February 15—19, 2021

5. 23rd Internet Seminar *Evolutionary Equations*, Hamburg University of Technology, Germany. October 2019—February 2020

4. *Houston Summer School on Dynamical Systems 2019*, University of Houston, Texas, USA.
May 30—June 6, 2019

3. *Houston Summer School on Dynamical Systems 2018*, University of Houston, Texas, USA.
May 16—24, 2018

2. Mathematical Conference *Summer Meeting 2016*, University of Sciences, VNU-HCM, Vietnam. July 23—24, 2016

1. *Master Internship*, Laboratoire de Physique de la Matière Condensée, École Polytechnique, France. May 1—July 1, 2016

Teaching

At University of Chicago, Illinois, USA

Instructor. *Duties included preparing and teaching course materials, preparing and grading homework/exams, and holding office hours.*

Stat 25100	Introduction to Mathematical Probability	Autumn 2023
Math 21100	Basic Numerical Analysis	Spring 2023
Stat 25100	Introduction to Mathematical Probability	Autumn 2022

At University of Houston, Texas, USA

Teaching Assistant. *Duties included leading recitation sections, grading exams and homework, holding office hours and tutoring undergraduate students at university academic support centers MUSL and CASA.*

Math 5332	Differential Equations	Spring 2020
Math 3363	Introduction to Partial Differential Equations (2 classes)	
Math 3321	Engineering Mathematics	
Math 4335	Partial Differential Equations I	Fall 2019
Math 3364	Introduction to Complex Analysis	
Math 1431	Calculus I	Summer 2019
Math 1330	Pre-Calculus	
Math 1310	College Algebra	
Math 3304	Elements of Mathematical Analysis	Spring 2019
Math 1431	Calculus I	
Math 3305	Formal and Informal Geometry	Fall 2018
Math 3331	Ordinary Differential Equations	Spring 2018

At University of Science, VNU-HCM, Vietnam

Teaching Assistant *&* Instructor. *Duties included teaching course materials, leading recitation sections, preparing and grading exams, and holding office hours.*

TTH024	Analysis III	Fall 2017

MTH253	Calculus III for Advanced Program in Computer Science	Summer 2017
TTH104	Functional Analysis	Spring 2017
TTH022	Analysis I – Calculus	Fall 2015
TTH021	Analysis I – Basic Analysis	

Service

Mentoring

Haoshu Wang   University of Chicago
Undergraduate Research: Homogenization of elliptic equations with complex potentials.

Others

2. Minisymposium *Mathematical Modeling of Microstructural Materials*, SIAM Conference on Mathematical Aspects of Materials Science, Pittsburgh, Pennsylvania.   May 19—23, 2024

1. Lucheon/Discussion *Experience as a Graduate Student*, Colgate University.   April 7, 2022

Honors & Awards

9. Winner of Graduate Student Paper Presentation, University of Houston, USA   2022

8. M.Sc degree with Honors (Très Bien), Université Sorbonne Paris Nord, France.   2016

7. B.Sc degree with Honors (Rank 2/300), University of Science, VNU-HCM, Vietnam.   2015

6. VIASM Fellowships for Excellent Students in Mathematics, Vietnam Institute for Advanced Study in Mathematics.   2012—2015

5. Scholarships for Excellent Students, University of Science, VNU-HCM, Vietnam.   2011—2015

4. Odon Vallet Scholarship.   2011

3. Third Prize, Vietnamese Mathematical Olympiad.   2011

2. Silver Medal in Mathematics, Traditional Olympiad of Southern Vietnam - Grade 11, Vietnam.   2010

1. Silver Medal in Mathematics, Traditional Olympiad of Southern Vietnam - Grade 10, Vietnam.   2009

Technical Skills

Software   LaTeX, Emacs, Git, Matlab/Octave, Inkscape.

Programming language Python, Julia, R, C.

Languages

Vietnamese	Native	**English**	Fluent
French	Beginner		

Last updated: November 30, 2023.