

Hung Cong Tran

Curriculum vitae

Employment history

- 2019–Present **Post-doctoral faculty**, *The University of Oklahoma*.
2016–2019 **Assistant Professor (Limited Term)**, *The University of Georgia*.
Spring 2016 **Mathematics Lecturer**, *University of Wisconsin*, Milwaukee.
2010–2015 **Graduate Teaching Assistant**, *University of Wisconsin*, Milwaukee.

Education

- 2010–2015 **Ph.D. in Mathematics (Dec. 2015)**, *University of Wisconsin*, Milwaukee.
2005–2009 **B.S. in Mathematics-Computer Science Education**, *Da Nang University of Education*, Viet Nam, Graduated with High Honors.

Research Interests

My primary research areas are in geometric group theory and low-dimensional topology. In particular, I am interested in quasi-isometry classification, commensurability classification, and geometric relationship between a group and its subgroups. Most of my research focuses on $CAT(0)$ spaces, relatively hyperbolic groups, right-angled Artin groups, right-angled Coxeter groups, and groups acting on manifolds.

Teaching Experience

- 2019–Present **Post-doctoral faculty**, *The University of Oklahoma*.
MATH-3333: Linear Algebra (Spring 2021 (online))
MATH-3113: Introduction to Ordinary Differential Equations (Spring 2020, Summer 2020 (online), Fall 2020 (online))
MATH-2433: Calculus and Analytic Geometry III (Fall 2019)
2016–2019 **Assistant Professor (Limited Term)**, *The University of Georgia*.
MATH-1113: Precalculus (Fall 2016, Spring 2018)
MATH-2250: Calculus I for Science and Engineering (Fall 2017, Fall 2018)
MATH-2270: Calculus III for Science and Engineering (Spring 2017)
MATH-2500: Accelerated Calculus III for Engineering Students (Spring 2019)
Spring 2016 **Mathematics lecturer**, *University of Wisconsin*, Milwaukee.
MATH-211: Survey in Calculus and Analytic Geometry (Spring 2016 (online))

2010–2015 **Graduate Teaching Assistant**, *University of Wisconsin, Milwaukee*.
 MATH-105 (Sole Instructor): Intermediate Algebra (Fall 2011, Spring 2012, Spring 2013, Fall 2014)
 MATH-211 (Sole Instructor): Survey in Calculus and Analytic Geometry (Fall 2015 (online class))
 MATH-232 (Sole Instructor): Calculus and Analytic Geometry 2 (Summer 2011, Fall 2013)
 MATH-233 (Sole Instructor): Calculus and Analytic Geometry 3 (Fall 2012)
 MATH-234 (Sole Instructor): Linear Algebra and Differential Equations (Summer 2012, Summer 2013)
 MATH-105 (Teaching Assistant): Intermediate Algebra (Fall 2010)
 MATH-211 (Teaching Assistant): Survey in Calculus and Analytic Geometry (Spring 2011)

Publications

- Accepted papers
- Divergence of finitely presented groups, (with Noel Brady). To appear in *Groups, Geometry, and Dynamics*.
 - Quasiconvexity in 3-manifold groups, (with Hoang Thanh Nguyen and Wenyan Yang). To appear in *Mathematische Annalen*.
 - On the coarse geometry of certain right-angled Coxeter groups, (with Hoang Thanh Nguyen). *Algebraic and Geometric Topology*, 19(6):3075–3118, 2019.
 - The relative hyperbolicity and manifold structure of certain right-angled Coxeter groups, (with Matthew Haulmark and Hoang Thanh Nguyen). *Internat. J. Algebra Comput.*, 30(3):501–537, 2020.
 - On strongly quasiconvex subgroups. *Geometry and Topology*, 23(3):1173–1235, 2019.
 - Surface group amalgams that (don't) act on 3-manifolds, (with Christopher Hruska and Emily Stark). *American Journal of Mathematics*, 142(3):885–921, 2020.
 - Divergence spectra and Morse boundaries of relatively hyperbolic groups. *Geometriae Dedicata*, 194:99–129, 2018.
 - On distortion of normal subgroups. To appear in *Geometriae Dedicata*.
 - Geometric embedding properties of Bestvina-Brady subgroups. *Algebraic and Geometric Topology*, 17(4):2499–2510, 2017.
 - Divergence of Morse geodesics. *Geometriae Dedicata*, 180:385–397, 2016.
 - Relative divergence of finitely generated groups. *Algebraic and Geometric Topology*, 15(3):1717–1769, 2015.
 - Relations between various boundaries of relatively hyperbolic groups. *Internat. J. Algebra Comput.*, 23(7):1551–1572, 2013.

- Preprints
- Superexponential Dehn functions inside $CAT(0)$ groups, (with Noel Brady). *Submitted*, arXiv:2102.13572.
 - Divergence of finitely presented subgroups of $CAT(0)$ groups, (with Noel Brady). *Submitted*, arXiv:2012.15803.
 - Coarse Alexander duality for pairs and applications, (with Christopher Hruska and Emily Stark). *Submitted*, arXiv:2011.00059.
 - The local-to-global property for Morse quasi-geodesics, (with Jacob Russell and Davide Spriano). *Submitted*, arXiv:1908.11292.
 - Convexity in hierarchically hyperbolic spaces, (with Jacob Russell and Davide Spriano). *Submitted*, arXiv:1809.09303.
 - Malnormality and join-free subgroups in right-angled Coxeter groups. *Submitted*, arXiv:1703.09032.

Invited Talks

- "Divergence of finitely presented groups" Geometric Group Theory in East Asia via Zoom, December 2020.
- "Divergence of finitely presented groups" CUNY Geometry and Topology Seminar via Zoom, September 2020.
- "Strong quasiconvexity and almost malnormality" Seminar in Korea Institute for Advanced Study, January 2020.
- "Strong quasiconvexity and almost malnormality" Fall 2019 Redbud conference, Oklahoma State University, Stillwater, Oklahoma, November 2019.
- "The local-to-global property for Morse quasi-geodesics" Seminar in Louisiana State University, Baton Rouge, Louisiana, October 2019.
- "Quasiconvex subgroups" Seminar in The University of Texas at Dallas, Dallas, TX, October 2019.
- "The local-to-global property for Morse quasi-geodesics" Seminar in Korea Institute for Advanced Study, July 2019.
- "Quasiconvex subgroups" Seminar in Korea Institute for Advanced Study, July 2019.
- "On the relative hyperbolicity and manifold structure of certain right-angled Coxeter groups" Seminar in University at Buffalo, Buffalo, NY, May 2019.
- "On the coarse geometry of certain right-angled Coxeter groups" 53rd Spring Topology and Dynamical Systems Conference, University of Alabama at Birmingham, Birmingham, Alabama, March 2019.
- "On the coarse geometry of certain right-angled Coxeter groups" Seminar in Columbia University, New York City, NY, September 2018.
- "On strongly quasiconvex subgroups" Seminar in Cornell University, Ithaca, NY, May 2018.
- "On strongly quasiconvex subgroups" AMS Spring Southeastern Sectional Meeting, Vanderbilt University, Nashville, TN, April 2018.

- "On strongly quasiconvex subgroups" 52nd Spring Topology and Dynamical Systems Conference, Auburn University, March 2018.
- "On the coarse geometry of right-angled Coxeter groups" Colloquium in Bowling Green State University, Bowling Green, OH, February 2018.
- "On strongly quasiconvex subgroups" Seminar in Vanderbilt University, Nashville, TN, December 2017.
- "On boundaries of relatively hyperbolic right-angled Coxeter groups" Seminar in Georgia Tech, Atlanta, GA, September 2017.
- "Geometric embedding properties of Bestvina-Brady subgroups" 51th Spring Topology and Dynamics Conference 2017, New Jersey City University, March 08–11, 2017.
- "Geometric embedding properties of Bestvina-Brady subgroups" Seminar in Columbia University, New York City, NY, September 2016.
- "Relative divergence, subgroup distortion, and geodesic divergence" Seminar in Tufts University, Medford, MA, September 2015.
- "Relative divergence, subgroup distortion, and geodesic divergence" Seminar in University of Wisconsin-Madison, WI, September 2015.
- "Divergence of Morse geodesics" 49th Spring Topology and Dynamics Conference 2015, Bowling Green State University, May 14–16, 2015.
- "Relative divergence of finitely generated groups" Topological Methods in Group Theory, Ohio State University, Columbus, OH, June 2014.
- "Relative divergence of finitely generated groups" Workshop in Geometric Topology, University of Wisconsin-Milwaukee, WI, June 2014.
- "Relations between various boundaries of relatively hyperbolic groups" Workshop in Geometric Topology, Calvin College, Grand Rapids, MI, June 2013.

Prizes and Scholarships

- The University of Sydney Mathematical Research Institute (SMRI) International Visitor Program (2020). Award amount up to \$8500.
- AMS-Simons Travel Grant (Travel funding for early-career mathematician for research-related travel) (2019). Award amount up to \$4000.
- Research Membership for Geometric Group Theory program from Mathematical Sciences Research Institute, Berkeley, CA, USA (2016).
- Graduate Teaching Assistantship at University of Wisconsin at Milwaukee (2010-2014).
- Chancellor's Fellowship Award at University of Wisconsin at Milwaukee (2010-2014).
- Graduate Research Assistantship at University of Wisconsin at Milwaukee (Spring 2014).

- Morris and Miriam Marden Awards in Mathematics given by University of Wisconsin at Milwaukee (2013, 2015) (The Graduate Award is given for a mathematical paper of high quality with respect to both exposition and mathematical content.)
- Mark Lawrence Teply Award given by University of Wisconsin at Milwaukee (2015). (The Graduate Award is given for students who show remarkable potential in their research fields.)
- First prize in Analysis and Third prize in Algebra, National Mathematics Olympic of Vietnam for University Students (2007).
- Bronze Medal, Mathematics Olympic of South Vietnam for High School Students (2004).

Professional activities

- Referee for the Journal of the London Mathematical Society, Groups Geometry and Dynamics, and Algebraic and Geometric Topology.
- Review for Mathematical Reviews.
- Organizer for Fall 2020 Redbud Topology Conference.
- Organizer for the Geometry and Topology Seminar in University of Oklahoma.
- Help organize the University of Oklahoma's annual Math Day in 2019 (A day of math-themed competitions and events for high school students in the Oklahoma and Texas areas).

Additional Skills

Languages Vietnamese (native), English (fluent), French (reading knowledge).

References

Benson Farb, Ph.D

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