

Minh-Tâm Quang Trinh

aegikmq.github.io | minh-tam.trinh@yale.edu

Citizenship

American

Employment

Gibbs Assistant Professor. [Yale University](#) 2024–25

CLE Moore Instructor. [Massachusetts Institute of Technology](#) 2020–24

NSF Mathematical Sciences Postdoctoral Research Fellow (2020–2023)

— *Sponsoring Scientist:* Zhiwei Yun

Education

PhD in Mathematics. [University of Chicago](#) 2014–20

— *Primary Advisor:* Bao-Châu Ngô

— *Secondary Advisor:* Victor Ginzburg

William Rainey Harper Dissertation Fellow

AB in Mathematics. [Princeton University](#) 2010–14

Preprints and Publications

- (11) Braids, Springer Actions, and Nonabelian Hodge Theory. In preparation.
- (10) Relative Norms and Parking Functions from Partial Flags. In preparation.
 - + N. Williams
- (9) Level-Rank Dualities from Φ -Harish-Chandra Series and Affine Springer Fibers (2023). 49 pp. [arXiv:2311.17106](#)
 - + T. Xue
- (8) The Hilb-vs-Quot Conjecture (2023). 52 pp. [arXiv:2310.19633](#)
 - + O. Kivinen
- (7) Simple Braids Tend Toward Positive Entropy (2023). 10 pp. [arXiv:2312.00753](#)
 - + L. Robitaille
- (6) Unipotent Elements and Twisting in Link Homology (2022). 18 pp. [arXiv:2210.09051](#)
- (5) Rational Noncrossing Coxeter–Catalan Combinatorics (2022). 42 pp. [arXiv:2208.00121](#)
 - + P. Galashin, T. Lam, N. Williams
- (4) From the Hecke Category to the Unipotent Locus (2021). 88 pp. [arXiv:2106.07444](#)
- (3) Algebraic Braids and Geometric Representation Theory. PhD thesis. University of Chicago (2020). Available from ProQuest.
- (2) Extremal Primes for Elliptic Curves. *J. Num. Theory*, **164** (2016), 282–298.
 - + K. James, B. Tran, P. Wertheimer, D. Zantout
- (1) Zeros of Dirichlet L -Functions over Function Fields. *Comm. Num. Theory Phys.*, **8**(3) (2014), 511–539.
 - + J. Andrade, S. J. Miller, K. Pratt
- (0) Special Sets of Primes in Function Fields. *Integers*, **14** (2014), A18.
 - + J. Andrade, S. J. Miller, K. Pratt

Expository Publications

- (1) The Hodge Theory of Soergel Bimodules. Chapter 18 in *Introduction to Soergel Bimodules*. Ed. B. Elias, S. Makisumi, U. Thiel, G. Williamson. RSME Springer Series, **5** (2020), 347–367.
+ L. Taylor

Invited Talks

- [AMS Spring Central Sectional Meeting](#). 20-minute talk. 4/21/24.
- [University at Buffalo Algebra Seminar](#). 3/4/24.
- [Institute for Advanced Study in Mathematics \(IASM\) Online Geometry and Physics Seminar](#). Zhejiang University. 1/23/24.
- [International Centre for Mathematical Sciences \(ICMS\) UK–Vietnam Mathematics Joint Meeting](#). Edinburgh. 12/5/23.
- [MIT Lie Groups Seminar](#). 11/1/23.
- [AMS Fall Eastern Sectional Meeting](#). 1-hour talk. SUNY-Buffalo. 9/10/23.
- [Yale Geometry, Symmetry, and Physics Seminar](#). 4/24/23.
- [MIT–Harvard–MSR Combinatorics Seminar](#). 2/15/23.
- [Northeastern Geometry, Physics, and Representation Theory Seminar](#). 10/6/22.
- [ICERM Workshop on Braids in Symplectic and Algebraic Geometry](#). 10-minute talk. 3/23/22.
- [Oxford Algebra Seminar](#). 11/30/21.
- [UMass-Amherst Representation Theory Seminar](#). 10/25/21.
- [Cluster Algebra Seminar](#). [AIM Link Homology](#) research community. 10/7/21.
- [Categorical Braid Group Actions and Categorical Representation Theory](#). UMass-Amherst FRG Conference. 6/17/21.
- [MIT Lie Groups Seminar](#). 3/3/21.
- [Chinese University of Hong Kong Representation and Number Theory Seminar](#). 1/15/21.
- [Harvard/MIT Algebraic Geometry Seminar](#). 9/29/20.
- [MIT Lie Groups Seminar](#). 12/4/19.
- [MIT Geometric Representation Theory Seminar](#). 12/4/19.
- [Caltech Algebra and Geometry Seminar](#). 11/11/19.
- [AMS Fall Western Sectional Meeting](#). 20-minute talk. UC-Riverside. 11/9/19.
- [UPenn Math-Physics Joint Seminar](#). 10/22/19.
- [Hilbert Schemes, Categorification, and Combinatorics](#). 30-minute talk. UC-Davis FRG Conference. 6/19/19.
- [Perimeter Institute Mathematical Physics Seminar](#). 5/21/19.
- [Johns Hopkins Number Theory Seminar](#). 4/29/19.
- [UC-Davis Algebraic Geometry Seminar](#). 11/14/18.

Expository Invited Talks

- [Abelianization of Affine Springer Fibers](#). Algebraic Geometry Seminar. AIM Link Homology research community. 10/1/21.
- [The Hecke Algebra and Constructible Sheaves](#). Geometric Categorification Seminar. AIM Link Homology research community. 7/5/21.

- What Gauss Knew about Knots and Braids. [MIT Independent Activities Period \(IAP\) Mathematics Lecture Series \(18.095\)](#). 1/20/21.
- Homogeneous Vector Bundles over Abelian Varieties. [Graduate Summer School on the Geometry and Modular Representation Theory of Algebraic Groups](#). Simons Center for Geometry and Physics. 8/20/19.
- Flat Connections and Higgs Bundles in Characteristic p . [Interactions between Representation Theory and Algebraic Geometry](#). University of Chicago. 8/21/17.

Teaching

Course Instructor. Yale 2024

- MATH 665: Topics in Quantum Algebra

Course Instructor. MIT 2022–23

- 18.781: Theory of Numbers (2023)
- 18.708: Topics in Algebra (2022, 4 lectures)
- 18.704: Seminar in Algebra (2022)

Course Administrator. MIT 2022

- 18.01: Calculus

Recitation Instructor. MIT 2021–24

- 18.02/18.02A: Calculus (2024, double recitation)
- 18.02A: Calculus (2023, double)
- 18.01A: Calculus (2023, double)
- 18.01A: Calculus (2021)
- 18.02A: Calculus (2021)

Graduate Instructor. University of Chicago 2017–20

- MATH 152/44: Calculus II (2020)
- MATH 153/44: Calculus III (2020)
- MATH 132/58: Elementary Functions and Calculus II (2018)
- MATH 131/58: Elementary Functions and Calculus I (2018)
- MATH 195/51: Mathematical Methods for the Social Sciences (2017)

Teaching Assistant. University of Chicago 2015–16

- MATH 242: Algebraic Number Theory (2016)
- MATH 159/53: Introduction to Proof in Linear Algebra and Analysis (2016)
- MATH 175: Elementary Number Theory (2015)

Service

Referee. 2020–

- *Adv. Math.*, *Geom. Topol.*, *Transform. Groups*, *Proc. Amer. Math. Soc.*, *Bull. Inst. Math. Acad. Sin. (N.S.)*

Research Advisor. [PROMYS](#) 2023

Mentor. [MIT SPUR](#) 2023

Mentor. [MIT PRIMES](#) 2021–23

- Michael Yang (2023)
2024 Regeneron STS Scholar
- Luke Robitaille (2021)
2022 Regeneron STS Winner, Tenth Place
2022 Davidson Fellow

Mentor. MIT UROP 2022–23

Advisor. MIT PRIMES 2021–23

- Ethan Liu (*Mentor:* Merrick Cai, 2023)
- Joshua Guo (*Mentor:* Kevin Chang, 2021)
2022 Regeneron STS Scholar
- Ilaria Seidel (*Mentor:* Jeffery Yu, 2021)

Mentor. UChicago Directed Reading Program 2015–20

QED Day Judge. Math Circles of Chicago 2019

Mentor. UChicago REU 2016–19

- Karhan Kayan (2019)
- Gwyn Moreland (2016)
- James Stevens (2016)

QED Day Senior Judge. Math Circles of Chicago 2016

Advising Chair. Princeton Math Club 2013

Director. Princeton University Math Competition 2011–12

Conferences & Workshops

- Summer School and Workshop on Relative Langlands Duality. UMinnesota-Twin Cities. 6/3–6/8/24.
- AMS Special Session on Algebraic Methods in Graph Theory and Applications. Spring Central Sectional Meeting. UW-Milwaukee. 4/20–4/21/24.
- AMS Special Session on Geometry, Physics and Representation Theory. Fall Eastern Sectional Meeting. SUNY-Buffalo. 9/9–9/10/23.
- AIM Workshop on Algebra, Geometry, and Combinatorics of Link Homology. 7/31–8/4/23.
- MIT Summer School in Geometric Representation Theory: Coulomb Branches and Knot Homology. 6/19–6/23/23.
- ICERM Workshop on Braids in Symplectic and Algebraic Geometry. 3/21–3/25/22.
- Link Homology. Online research community, sponsored by the American Institute of Mathematics (AIM). 2021.
- Categorical Braid Group Actions and Categorical Representation Theory. Focused Research Group (FRG) on Algebra and Geometry behind Link Homology, sponsored by the NSF. UMass-Amherst. 6/14–6/18/21.
- AMS Special Session on Geometric Methods in Representation Theory. Fall Western Sectional Meeting. UC-Riverside. 11/9–11/10/19.
- Graduate Summer School on the Geometry and Modular Representation Theory of Algebraic Groups. Simons Center for Geometry and Physics. 8/19–8/23/19.

- Hilbert Schemes, Categorification, and Combinatorics. FRG on Algebra and Geometry behind Link Homology. UC-Davis. 6/19–6/23/19.
- [Categorified Hecke Algebras, Link Homology, and Hilbert Schemes](#). AIM. 10/1–10/5/18.
- [Deligne–Lusztig Theory](#). WARTHOG. University of Oregon. 8/13–8/17/18.
- Interactions between Representation Theory and Algebraic Geometry. University of Chicago. 8/21–8/25/17.
- [Soergel Bimodules](#). MSRI Summer Graduate School. 6/26–7/7/17.

Honors

- **2020 Mathematical Sciences Postdoctoral Research Fellowship (MSPRF)** from the National Science Foundation.
- **2019 William Rainey Harper Dissertation Fellowship** from the University of Chicago.
- Amick Memorial Fellowship from the University of Chicago.
- 2014 Graduate Research Fellowship (GRFP) from the National Science Foundation.
- Phi Beta Kappa at Princeton University.
- Magna cum laude at Princeton University.
- 2011 Shapiro Prize for Academic Excellence from Princeton University.
- Nominee for 2011 Quin Morton '36 Writing Seminar Essay Prize at Princeton University.