Yunqing Tang

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Academic positions:

- University of California, Berkeley, Jul. 2022 – present. Assistant Professor.
- Princeton University, Jul. 2021 – Jun. 2022. Assistant Professor.
- CNRS (the National Center of Scientific Research) and Université Paris-Saclay (Paris-Sud), France, Feb. 2020 – Jun. 2021. Chargée de recherche (junior researcher).
- Princeton University, Jul. 2017 – Jan. 2020. Instructor.
- Institute for Advanced Study, Sep. 2016 – Jun. 2017. Member.

Research interests:

Arithmetic Geometry and Number Theory.

Education:

- Harvard University, 2011 – 2016.
  Ph.D. in Mathematics (May 2016); thesis advisor: Mark Kisin.
- Peking University, 2007 – 2011.
  B.S. with honors in Mathematics.

Grants and awards:

- Principal Investigator, NSF Grant DMS-2231958, 2022 – 2025.
- Principal Investigator, NSF Grant DMS-1801237, 2018 – 2022.
- AIM SQuaREs grant,
  for collaboration with Wanlin Li, Elena Mantovan, and Rachel Pries.
- Research in Paris at IHP,
  for collaboration with Victoria Cantoral-Farfán during June 3rd – 23rd, 2019.
- AWM Dissertation Prize
  awarded for outstanding Ph.D dissertations by female students in the US, 2016.
- New World Mathematics Award, Gold Medal for Ph.D thesis
  awarded for outstanding Chinese mathematics students worldwide, 2016.
- Merit Research Fellowship
  Graduate School of Arts and Sciences, Harvard University, 2015 – 2016.

Research articles:

- The unbounded denominators conjecture, with Frank Calegari and Vesselin Dimitrov, *submitted*, available at arXiv:2109.09040.

- Picard ranks of K3 surfaces over function fields and the Hecke orbit conjecture, with Davesh Maulik and Ananth Shankar, *Inventiones Mathematicae*, 228 (2022), no. 3, 1075–1143.
- Exceptional jumps of Picard ranks of reductions of K3 surfaces over number fields, with Ananth Shankar, Arul Shankar, and Salim Tayou, *submitted*, available at arXiv:1909.07473.
- Reductions of abelian surfaces over global function fields, with Davesh Maulik and Ananth Shankar, *Compositio Mathematica*, 158 (2022), no. 4, 893–950.
- Newton polygon stratification of the Torelli locus in PEL-type Shimura varieties, with Wanlin Li, Elena Mantovan, and Rachel Pries, *International Mathematics Research Notices*, 2022, no. 9, 6464-6511.
- Exceptional splitting of reductions of abelian surfaces, with Ananth Shankar, *Duke Mathematical Journal*, 169 (2020), no. 3, 397–434.
- Newton polygons arising from special families of cyclic covers of the projective line, with Wanlin Li, Elena Mantovan, and Rachel Pries, *Research in Number Theory*, 5 (2019), no. 1, 5:12.
- Newton polygons of cyclic covers of the projective line branched at three points, with Wanlin Li, Elena Mantovan, and Rachel Pries, *Research Directions in Number Theory: Women in Numbers IV*, 2019, pp. 115-132.
- Effective bounds for Brauer groups of Kummer surfaces over number fields, with Victoria Cantoral-Farfán, Sho Tanimoto, and Erik Visse, *Journal of the London Mathematical Society*, Volume 97, Issue 3 (2018), pp. 353–376.
- Cycles in de Rham cohomology of abelian varieties over number fields, *Compositio Mathematica*, 154 (2018), no. 4, pp. 850–882.
- Algebraic solutions of differential equations over the projective line minus three points, *International Journal of Number Theory*, Volume No.14, Issue No. 05 (2018), pp. 1427–1457.

Seminar and conference talks (on my research):

- University of Nottingham Number Theory Seminar, Jun. 2022.
- Newton Institute workshop "Arithmetic geometry, cycles, Hodge theory, regulators, periods and heights", Jun. 2022.
- Conference of the Connecticut Summer School in Number Theory, Jun. 2022.
- Number Theory Web Seminar, May 2022.
- Simons symposium on "Periods and L-values of Motives", May 2022.
- University of Virginia Number Theory Seminar, Apr. 2022.
- Harvard University Number Theory Seminar, Mar. 2022
- Arizona State University Number Theory Seminar, Mar. 2022.
- University of Minnesota, Twin Cities, Mathematics Colloquium, Mar. 2022.
- Boston University Number Theory Seminar, Feb. 2022.

- Columbia-CUNY-NYU Joint Number Theory Seminar, Feb. 2022.
- Ohio State University Number Theory Seminar, Jan. 2022.
- IAS Arithmetic Groups Seminar, Dec. 2021.
- Fudan University Number Theory Seminar, Nov. 2021.
- University of Wisconsin–Madison Number Theory Seminar, Nov. 2021.
- University of Georgia Number Theory Seminar, Nov. 2021.
- Berkeley-Caltech-Stanford Number Theory Seminar, Nov. 2021.
- IAS/Princeton University Number Theory Seminar, Nov. 2021.
- UC Santa Cruz Algebra and Number Theory Seminar, Oct. 2021.
- Tsinghua University Number Theory Seminar, Oct. 2021.
- Columbia University Automorphic Forms and Arithmetic Seminar, Oct. 2021.
- University of Chicago Number Theory Seminar, Oct. 2021.
- Conference on Arithmetic Geometry in honor of Luc Illusie, Jun. 2021.
- Strasbourg Arithmetic and Algebraic Geometry Seminar, Apr. 2021.
- Oberwolfach Workshop, Homotpic and Geometric Galois Theory, Mar. 2021.
- KU Leuven Seminar on Number Theory and Algebraic Geometry, Mar. 2021.
- Northwestern University Number Theory Seminar, Jan. 2021.
- Caltech Mathematics Colloquium, Jan. 2021.
- AIM workshop, Arithmetic intersection theory on Shimura varieties, Jan. 2021.
- University of California, Berkeley Guest Lecture (Colloquium), Dec. 2020.
- Hebrew University and Ben-Gurion University Joint Number Theory Seminar, Nov. 2020.
- Westlake Number Theory Symposium (Hangzhou, China), Oct. 2020.
- International Seminar on Automorphic Forms (joint seminar of TU Darmstadt and ETH Zürich), Oct. 2020.
- Diophatine Problems seminar under MSRI semester program on “Decidability, Definability, and Computability in number theory”, Aug. 2020.
- London Number Theory Seminar, Jun. 2020.
- Paris Algebraic Cycles Seminar, Feb. 2020.
- Orsay Arithmetic and Algebraic Geometry Seminar, Feb. 2020.
- Philadelphia Area Number Theory Seminar, Oct. 2019.

- Duke Number Theory Seminar, Durham, Oct. 2019.
- University of Michigan Algebraic Geometry Seminar, Ann Arbor, Oct. 2019.
- AMS Special Session on Arithmetic of Shimura Varieties, Madison, Sep. 2019.
- ETH Zürich-U. Zürich-Salzburg Arithmetic and Geometry Research Group Workshop, Alpbach, Jul. 2019.
- Algebraic Groups and Automorphic Forms Seminar of IMJ-PRG, Jun. 2019.
- 8th International Congress of Chinese Mathematicians, Beijing, China, Jun. 2019.
- University of Washington Number Theory Seminar, May 2019.
- Columbia-CUNY-NYU Joint Number Theory Seminar, May 2019.
- Algebraic Geometry near-Boston Conference at MIT, Apr. 2019.
- University of Utah Representation Theory and Number Theory Seminar, Apr. 2019.
- Workshop on Arithmetic Geometry, Tokyo, Japan, Mar. 2019.
- University of Chicago Number Theory Seminar, Jan. 2019.
- Northwestern University Number Theory Seminar, Jan. 2019.
- University of Wisconsin–Madison Number Theory Seminar, Jan. 2019.
- Annual Meeting of International Consortium of Chinese Mathematicians, invited talk, Dec. 2018.
- Caltech Mathematics Colloquium, Dec. 2018.
- Purdue University Automorphic Forms and Representation Theory Seminar, Nov. 2018.
- Colorado State University Number Theory Seminar, Aug. 2018.
- Beijing International Center for Mathematical Research, Peking University, Algebraic Geometry Seminar, Jul. 2018.
- Shanghai Center of Mathematical Sciences, Fudan University, Algebraic Geometry Seminar, Jul. 2018.
- ICTP specialized seminar, Trieste, Jun. 2018.
- Conference of the Connecticut Summer School in Number Theory, Jun. 2018.
- Conference "Shimura Varieties and hyperbolicity of moduli spaces," Montreal, May 2018.
- John Hopkins University and University of Maryland Algebra and Number Theory Day, Apr. 2018.
- University of Wisconsin–Madison Number Theory Seminar, Feb. 2018.
- University of Maryland Algebra-Number Theory Seminar, Dec. 2017.
- Bonn Arbeitsgemeinschaft Arithmetische Geometrie, Nov. 2017.

- IAS Workshop "Motives, Galois representation and cohomology around the Langlands program," Nov. 2017.
- UC Berkeley Arithmetic Geometry and Number Theory Seminar, Sep. 2017.
- ETH Zürich-U. Zürich-Salzburg Arithmetic and Geometry Research Group Workshop, Alpbach, Jul. 2017.
- Institut Fourier Summer School "Arakelov Geometry and diophantine applications," Jun. 2017.
- IAS Mathematical Conversations, Apr. 2017.
- KTGU Mathematics Workshop for Young Researchers, Kyoto, Feb. 2017.
- Lectures in Arithmetic Geometry at Rice, Feb. 2017.
- Fields Institute Workshop "Heights and Applications to Unlikely Intersections," Feb. 2017.
- AMS Special Section (Automorphic Forms and Arithmetic), Atlanta, Jan. 2017.
- ETH Zürich Number Theory Seminar, Dec. 2016.
- John Hopkins University Algebraic Geometry Seminar, Oct. 2016.
- Jeunes en Arithmétique et Variétés Algébriques workshop on Algebraization Theorems, Tatihou, Jul. 2016.
- Caltech Number Theory Seminar, May 2016.
- University of Chicago Number Theory Seminar, Jan. 2016.
- University of California Santa Cruz Algebra and Number Theory Seminar, Jan. 2016.
- Princeton University/IAS Number Theory Seminar, Oct. 2015.
- Northwestern University Number Theory Seminar, Sep. 2015.
- AMS Summer Institute in Algebraic Geometry (contributed talk), Jul. 2015.
- Morningside Center of Mathematics, Chinese Academy of Sciences, seminar talk, Jun. 2015.
- Harvard University Number Theory Seminar, Apr. 2015.

Seminar and conference talks (expository):

- Jeunes en Arithmétique et Variétés Algébriques workshop on Periods from $\mathbb{C}$ to $\mathbb{C}_p$, Tatihou, Sep. 2017.
- Oberwolfach Arbeitsgemeinschaft on Higher Gross–Zagier formula, Apr. 2016.

Teaching experience:

- Junior Seminar leader, Fall 2021, Princeton.
- MAT 500 (Effective mathematical communication), Instructor, Fall 2019, Fall 2021, Princeton.

- MAT 345 (Algebra I), Instructor, Fall 2019, Princeton.
- MAT 217 (Honors linear algebra), Instructor, Spring 2018, Spring 2019, Spring 2022, Princeton.
- MAT 202 (Linear algebra with applications), Instructor, Fall 2017, Fall 2018, Princeton.
- Math 1b (Integrals, Series, and Differential equations), Instructor, Fall 2014, Spring 2014, Spring 2016, Harvard.
- Qualifying exam (for math graduate students) tutorial leader, Fall 2013, Fall 2014, Harvard.
- Math 229 (Introduction to Analytic Number Theory), Course Assistant, Fall 2013, Harvard.
- Math 1b, Graduate Calculus Fellow, Fall 2012, Harvard.

Service:

- Co-organizer of the MSRI special semester "Diophantine Geometry" in Spring 2023 with Jennifer Balakrishnan, Mirela Ciperiani, Philipp Habegger, Wei Ho, Hector Pasten, and Shou-Wu Zhang.
- The PI is a co-organizer of sessions in 2022 AWM (Association for Women in Mathematics) Research Symposium with Ha Tran and Caroline Turnage-Butterbaugh.