

# Shiang Tang

---

## CONTACT INFORMATION

150 N University St, RM 417  
West Lafayette, IN 47907  
Email: shiangtang1989@gmail.com

## RESEARCH INTERESTS

Galois representations, modular forms, algebraic groups,  $p$ -adic analysis.

## EDUCATION

- Ph.D. in Mathematics, University of Utah, 2018.
- B.S. in Mathematics and Applied Mathematics, Dalian University of Technology, China, 2012.

## EMPLOYMENT

- Visiting Assistant Professor, Purdue University, 2021–now.
- J.L.Doob Research Assistant Professor, University of Illinois at Urbana-Champaign, 2018-2021.

## PAPERS AND PREPRINTS

- *Lifting  $G$ -valued Galois representations when  $\ell \neq p$* , joint with Jeremy Booher and Sean Cotner (in preparation).
- *$p$ -adic incomplete gamma functions and Artin-Hasse-type series*, joint with Xiaojian Li, Jay Reiter, Napoleon Wang and Jin Yi (undergrad authors), arXiv:2207.11806 (submitted).
- *A note on Galois representations valued in reductive groups with open image* (under revision, Journal of Number Theory).
- *Congruences like Atkin's for the partition function*, joint with Scott Ahlgren and Patrick Allen (accepted by Transactions of the AMS).
- *Motivic Galois representations valued in spin groups*, Journal de Théorie des Nombres de Bordeaux, Tome 33 (2021) no. 1, pp. 197-221.
- *Potential automorphy of  $\mathrm{GSpin}_{2n+1}$ -valued Galois representations*, joint with Stefan Patrikis. Mathematische Zeitschrift (2021).
- *Algebraic monodromy groups of  $G$ -valued  $l$ -adic Galois representations*, Algebra Number theory, Vol.13, No.6, 1353-1394 (2019).
- *Action of intertwining operators on pseudospherical  $K$ -types*, Pacific Journal of Mathematics, Vol. 286, No. 1, 2017.
- *Principal series representations of metaplectic groups*, arXiv 1706.05145.

## TALKS

### Research talks

- Lifting  $G$ -valued Galois representations when  $\ell \neq p$ , Algebra 2022 and Beyond, June 2022.
- Potential automorphy of  $\mathrm{GSpin}_{2n+1}$ -valued Galois representations, Automorphic Forms and Representation Theory Seminar, Purdue University, Sep 2021
- Potential automorphy of  $\mathrm{GSpin}_{2n+1}$ -valued Galois representations, Number Theory Seminar, University of Illinois at Urbana-Champaign, Mar 2020
- Full-image  $p$ -adic Galois Representations and Galois Deformation Theory, Pop-up Conference in Number Theory, University of Illinois at Chicago, Nov 2018
- Full-image  $p$ -adic Galois Representations and Galois Deformation Theory, Number Theory Seminar, Purdue University, Mar 2018
- Algebraic Monodromy Groups of Galois Representations, Southwest Jiaotong University, Chengdu, China, May 2017
- Eisenstein Series and Transfer of Plancherel measures, AMS Western Sectional Meeting, Special Session on Automorphic Forms, Combinatorics and Representation Theory, University of Utah, Apr 2016
- Action of Intertwining Operators on Pseudo-Spherical  $K$ -types, Representation Theory Seminar, University of Utah, Mar 2016

**Talks for general audiences (high school, undergraduates, and young graduates)**

- Bridge to Research Seminar, Purdue University, Nov 2021
- Undergraduate learning seminar on p-adic analysis, University of Illinois, Spring 2021 (faculty organizer)
- Undergraduate learning seminar on Lie groups, Lie algebras and Weyl groups, University of Illinois, Spring 2019 (faculty organizer)
- Continued Fractions and Music Theory, Science Day Workshop for high school students, University of Utah, Nov 2016
- The Secret Life of Continued Fractions, Science Day Workshop for high school students, University of Utah, Nov 2015
- Continued Fractions and Music Theory, Undergraduate colloquium, University of Utah, Nov 2015
- Designing a Super-Variety Necklace and Polynomials over Galois Fields, Undergraduate colloquium, University of Utah, Nov 2014

TEACHING  
EXPERIENCE

**Purdue University** (Instructor of record, 2021–now)

- Ordinary Differential Equations, Linear Algebra

**University of Illinois at Urbana-Champaign** (Instructor of record, 2018–2021)

- Graduate: Algebraic Number Theory
- Upper division: Elementary Theory of Numbers, Applied Complex Variables, Introduction to Abstract Algebra, Abstract Linear Algebra
- Lower division: Fundamental Mathematics, Discrete Mathematics

**University of Utah** (Instructor of record, 2013–2018)

- Upper division: Foundations of Analysis I, Linear Algebra
- Lower division: Trigonometry, Calculus I–III, Business Calculus, Intermediate Algebra, College Algebra

MENTORSHIP

**Graduate level:** Supervised reading on Galois representations. Students: Johnson Tan and Robert Dicks (2020).

**Undergraduate level:**

- Finite Reflection Groups and Related Topics (undergraduate research project). Students: Xinjian Di, Xinghan Chen and Patrick Feltes (2019).
- Ruzhang Yang, recipient of an Honorable Mention in the Putnam Math Competition (2019).
- P-adic Numbers and Ultrametric Calculus (undergraduate research project). Students: Jay Reiter, Napoleon Wang, Hyunjin Yi and Xiaojian Li (2021).

GRANTS

- NSF grant 1902155, 2020–2022 (former PI: Prof. Patrick Allen)

SERVICE

- Reviewer: Journal of Number Theory, Documenta Math., Bulletin de la Société Mathématique de France.
- Journal referee: Journal de Théorie des Nombres de Bordeaux, Journal of Number Theory.
- Ph.D. oral exam (Yuji Yang), committee member, UIUC (2019).
- Ph.D. written exams on Algebraic Number Theory, creating exams, UIUC (2020–2021).
- Co-organizer of the Learning Seminar on Mazur’s Eisenstein ideal paper, Purdue University, Fall 2021.
- Judge for the Spring Undergrad Research Conference, Purdue University, Spring 2022.

CONFERENCES

- Algebra 2022 and beyond, Indiana University, Bloomington, June 2022.

- Joint Math Meeting, Seattle, Jan 2022.
- Spring school towards a mod  $p$  Langlands correspondence (virtual), Apr 2021.
- Workshop on Serre weights conjectures and geometry of Shimura varieties (virtual), Sep 2020
- Arizona Winter School: Nonabelian Chabauty, Tucson, Arizona, Mar 2020
- Hawaii Number Theory 2019, University of Hawaii at Manoa, Hawaii, Mar 2019
- Pop-up Conference in Number Theory, University of Illinois at Chicago, Nov 2018
- Workshop on Galois Representations, University of Heidelberg, Germany, Jul 2018
- Arizona Winter School: Iwasawa Theory, Tucson, Arizona, Mar 2018
- Atlas of Lie groups, University of Utah, Jul 2017
- Arizona Winter School: Perfectoid Spaces, Tucson, Arizona, Mar 2017
- Connecticut Summer School in Number Theory, Storrs, Connecticut, Aug 2016
- L-functions and Arithmetic: A conference in honor of the 60th birthday of Karl Rubin. Harvard University, June 2016
- AMS Western Sectional Meeting: Special Session for Automorphic Forms, Combinatorics and Representation Theory, University of Utah, Apr 2016
- Summer School on Reductive Groups, Lichtenfels, Bavaria, Germany, Aug 2015