

# Hang Xue      Curriculum Vitae

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CONTACT      Department of Mathematics, *E-mail:* xuehang@math.arizona.edu  
INFORMATION      The University of Arizona  
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Tucson, AZ 85721      <http://www.math.arizona.edu/~xuehang>

RESEARCH      Number Theory, Automorphic Representations, Arithmetic Geometry.  
INTERESTS

## EMPLOYMENT

- Associate Professor, University of Arizona, 2022 – .
- Assistant Professor, University of Arizona, 2016 – 2022.
- Postdoctoral fellow, Max-Planck-Institut für Mathematik, 2015 – 2016.
- Member, Institute for Advanced Studies, 2014 – 2015.

EDUCATION      Ph.D, Mathematics, May 2014  
• Columbia University, New York, NY, USA  
• Advisor: Professor Shou-Wu Zhang  
B.S., Pure and Applied Mathematics, July 2008  
• University of Science and Technology of China, Hefei, P.R.China

## AWARDS AND GRANTS

### *Federal*

- National Science Foundation, No. DMS-2154352, 2022-2025, Relative Langlands Program: Periods, Heights and  $L$ -functions, \$200,000.
- National Science Foundation, NSF 2200721, 2022-2025, Conferences and Meetings: Southwest Center for Arithmetic Geometry, \$450,000.
- National Science Foundation, No. DMS-1901862, 2019-2022, Relative Langlands Program: Periods, Heights and  $L$ -functions, \$150,000.
- National Science Foundation, NSF 1903892, 2019-2022, Conferences and Meetings: Southwest Center for Arithmetic Geometry, \$550,000.
- Funds from the Clay Math Institute for the 2019 Arizona Winter School, \$20,000.
- National Science Foundation, NSF 1763675, 2018, Conferences and Meetings: Southwest Center for Arithmetic Geometry, \$100,000.
- National Science Foundation No. DMS-1128115, 2014-2015 (through membership of the Institute for Advanced Study).

### *Private Foundation*

- Simons Collaboration Grant, PI, 2018-2023, \$42,000. (relinquished after one year to accept the NSF grant No. DMS-1901862)
- AMS–Simons Travel Grant, PI, 2017-2019, \$4,000.

## PUBLISHED PAPERS

- *Bessel models for real unitary groups: the tempered case*  
To appear in **Duke Math Journal**.
- *Orbital integrals on  $GL_n \times GL_n \backslash GL_{2n}$*   
**Canad. J. Math.** 74 (2022), no. 3, 858–886.
- *Epsilon dichotomy for linear models*  
**Algebra Number Theory.** 15 (2021), no. 1, 173–215.
- *On the global Gan–Gross–Prasad conjecture for unitary groups: approximating smooth transfer of Jacquet–Rallis*  
**Journal für die reine und angewandte Mathematik.** 756 (2019), 65–100
- *Central values of degree six  $L$ -functions*  
**J. Number Theory.** 203 (2019), 350–359.
- *Arithmetic theta lifts and the arithmetic Gan–Gross–Prasad conjecture for unitary groups*  
**Duke Math. J.** 168 (2019), no. 1, 127–185.
- *Fourier–Jacobi periods of classical Saito–Kurokawa lifts*  
**Ramanujan J.** 45 (2018), no. 1, 111–139.
- *Refined global Gan–Gross–Prasad conjecture for Fourier–Jacobi periods on symplectic groups*  
**Compositio Math.** 153 (2017), no. 1, 68–131.
- *Fourier–Jacobi periods and the central value of Rankin–Selberg  $L$ -functions*  
**Israel J. Math.** 212 (2016), no. 2, 547–633
- *A quadratic point on the Jacobian of the universal genus four curve*  
**Math. Res. Lett.** 22 (2015), no. 5, 1563–1571.
- *The Gan–Gross–Prasad conjecture for  $U(n) \times U(n)$*   
**Adv. Math.** 262 (2014), 1130–1191.
- (with Yi Ouyang) *Class numbers of cyclic 2-extensions and Gross conjecture over  $\mathbf{Q}$ . (English summary)* **Science China Math.** 53 (2010), no. 9, 2447–2462.
- *The arithmetic and geometry of genus four curves*  
Thesis, Columbia University 2014.

## PREPRINTS

- *Bessel models for unitary groups and Schwartz homology*  
Preprint.
- (With M. Suzuki) *Linear intertwining periods and epsilon dichotomy for linear models*  
Preprint.
- *Fourier–Jacobi periods and local spherical character identities*  
Submitted.

## INVITED TALKS

### *Public Lectures*

- Duncan Buell Everything is Mathematics Lecture Series, Tucson, AZ, Nov. 2018.

### *Conferences*

- Modern number theory and related topics, Chengdu, Nov. 2020.
- CIRM conference, Marseille, May 2020.
- RIMS conference, Kyoto, Jan 2020.
- Oberwolfach, Dec. 2019.
- The Johns Hopkins University-University of Maryland Algebra and Number Theory Day, Nov. 2019
- Periods, Representations, and Arithmetic: Recent Advances on the Gan-Gross-Prasad Conjectures and their Applications, Clay Math Institute, Oxford, Sept. 2019.
- Professor Luogeng Hua's Youth Forum, June 2019, Chinese Academy of Science, June 2019.
- 2018 Youth forum for Mathematics in Fudan University, Shanghai, Nov. 2018.
- Number Theory Workshop, *Epsilon dichotomy for linear models*, Tsinghua University Jun 2018.
- The first annual meeting of International Consortium of Chinese Mathematicians (ICCM), *Degenerate case of the arithmetic Gan–Gross–Prasad conjectures*, Dec. 2017.
- The 7th International Congress of Chinese Mathematicians (ICCM), Beijing, Aug. 2016.
- 2016 Workshop on Number Theory (satellite activity of ICCM 2016), Beijing, Aug. 2016.
- Pan Asia Number Theory (PANT) workshop, Institute of Mathematics (IoM), Academia Sinica in Taipei, July 2016.
- Relative Trace Formula, Periods,  $L$ -Functions and Harmonic Analysis, CIRM, Marseille Luminy, France, May 2016.
- KTGU Mathematics Workshop for Young Researchers, Kyoto University, Feb 2016.
- American Mathematical Society sectional meeting, Greensboro, Nov. 2014.
- Focus Research Group workshop Periods of automorphic forms and applications to  $L$ -functions, Harvard University, May 2014.
- Heights and moduli space workshop, Lorentz Center, Leiden. Jun 2013.
- Palmetto Number Theory Series XIX, University of South Carolina. Dec. 2012.

### *Seminars*

- Number Theory Seminar, Princeton, Oct, 2022.
- Number Theory Seminar, UCLA, Jan, 2022.
- Number Theory Seminar, University of Utah, Sept, 2021.
- IAS–Princeton Joint Number Theory Seminar, Mar, 2021.
- Number Theory Seminar, University of Poitiers France, Feb, 2021.
- Number Theory Seminar, University of Toronto, Dec, 2020.
- Number Theory Seminar, Aix-Marseille University, Dec, 2020.
- Number Theory Seminar, Boston College, Oct, 2020.
- National University of Singapore number theory seminar, Sept, 2020.

- University of Michigan number theory seminar, April, 2020.
- Boston College MIT joint number theory seminar, April, 2020.
- Number Theory Seminar, Yale University, April, 2020.
- IAS–PU joint number theory seminar, Princeton University, Nov. 2018.
- Algebra Seminar, The University of Science and Technology of China, June 2018.
- Number Theory Seminar, The University of Science and Technology of China, June 2018.
- Number Theory Seminar, Nanjing University, June 2018.
- Number Theory Seminar, University of Wisconsin Apr. 2018.
- Number Theory Seminar, Caltech Jan. 2018.
- Number Theory Seminar, UCSD Oct. 2017.
- Number Theory Seminar, University of Chicago Oct. 2017.
- Number Theory Seminar, Northwestern University Oct. 2017.
- Kolloquiums des SFB Transregio 45 an der Johannes Gutenberg Universität Mainz, May 2016.
- Department Colloquium, The University of Arizona, Feb 2016.
- Department Colloquium, Hong Kong University of Science and Technology, Jan 2016.
- Hauptseminar Modulformen, Ruprecht-Karls-Universität Heidelberg, Jan. 2016.
- Number Theory Lunch Seminar, Max-Planck-Institut für Mathematik, Jan. 2016.
- Séminaire Groupes Réductifs et Formes Automorphes de l'IMJ-PRG, Nov. 2015.
- Arithmetic and Algebraic Geometry Seminar, University of Amsterdam, Oct. 2015.
- Algebra, geometry and number theory seminar, Leiden University, Oct. 2015.
- PU-IAS Joint Number Theory Seminar, Institute for Advanced Study, Nov. 2014.
- UNC-Duke Number Theory Seminar, Duke University, Nov. 2014.
- Algebra Lecture Series, University of Science and Technology of China. Jun. 2013.
- Number Theory Seminar, Morningside Center of Mathematics, Chinese Academy of Science. Jun. 2013.
- Algebraic Geometry Seminar, University of Wisconsin–Madison. Mar. 2013.
- Number Theory Seminar, University of Wisconsin–Madison. Mar. 2013.
- Number Theory Seminar, UCLA. Mar. 2013.

#### SERVICE AND OUTREACH

- Journals refereed: Algebra Number Theory, Astérisque, Advances in Mathematics, Canadian Journal of Mathematics, Compositio Mathematica, Duke Math Journal, Forum of Mathematics Pi, Forum of Mathematics Sigma,

Journal of European Mathematics Society, Mathematische Annalen, Pacific Journal of Mathematics, Proceedings of London Mathematical Society, Transactions of American Mathematical Society, Transformation groups, Mathematische Zeitschrift.

- Service:
  - Undergraduate Committee, 2020-2022.
  - Undergraduate Advisor, 2018-
  - Graduate committee, 2018-2020.
  - Organizer and Co-PI of the Arizona Winter School. Scientific organizer of the Arizona Winter School 2019.
  - Reviewer of American Mathematics Society MathSciNet mathematical reviews.
  - Reviewer of zbMATH.

## TEACHING

- Spring 2022 The University of Arizona: Calculus II
- Spring 2022 The University of Arizona: Algebraic Number Theory II
- Fall 2021 The University of Arizona: Algebraic Number Theory
- Spring 2021 The University of Arizona: Linear Algebra
- Spring 2021 The University of Arizona: Lie groups and representations II
- Fall 2020 The University of Arizona: Lie groups and representations.
- Spring 2020 The University of Arizona: Algebra (graduate core)
- Fall 2019 The University of Arizona: Algebra (graduate core)
- Fall 2019 The University of Arizona: Calculus I.
- Spring 2019 The University of Arizona: Modular forms and representations theory.
- Fall 2018 The University of Arizona: Calculus I.
- Fall 2018 The University of Arizona: Applied Linear Algebra.
- Summer 2018 The University of Arizona: Introduction to Cryptography.
- Summer 2018 The University of Arizona: Applied Linear Algebra.
- Spring 2018 The University of Arizona: Algebraic Number Theory.
- Fall 2017 The University of Arizona: Algebraic Number Theory.
- Summer 2017 The University of Arizona: Introduction to Cryptography.
- Summer 2017 The University of Arizona: Applied Linear Algebra.
- Spring 2017 The University of Arizona: Topics in Number Theory.
- Fall 2016 The University of Arizona: Linear Algebra.
- Summer 2015 Columbia University: Linear Algebra.
- Summer 2014 Columbia University: Linear Algebra.
- Spring 2014 Columbia University: Pre-Calculus.
- Fall 2013 Columbia University: Calculus II.
- Summer 2013 Columbia University: Ordinary Differential Equations.
- Summer 2012 Columbia University: Linear Algebra.
- Fall 2011 Columbia University: Undergraduate Seminar, Teaching assistant.
- Fall 2010 Columbia University: Undergraduate Seminar, Teaching assistant.
- Summer 2010 Columbia University: Calculus II.