

# Jonathan Wang

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Citizenship: United States

## Professional Positions

- 9/2018– Present **NSF Postdoctoral Fellow/Pure Math Instructor**, MIT, Cambridge, MA.  
9/2017– 07/2018 **Member**, *Institute for Advanced Study*, Princeton, NJ.

## Research Interests

Representation Theory, Automorphic Forms, L-functions, Relative & Geometric Langlands Programs, Algebraic and Symplectic Geometry

## Education

- 2012–2017 **Ph.D. in Mathematics**, *University of Chicago*, Chicago, IL.  
Advisor: Vladimir Drinfeld  
2011–2012 **MASt, Mathematics**, *University of Cambridge*, Cambridge, UK.  
2007–2011 **A.M., Mathematics**, *Harvard University*, Cambridge, MA.  
2007–2011 **A.B., Mathematics**, *Harvard University*, Cambridge, MA, *summa cum laude*.  
Phi Beta Kappa

## Fellowships and Awards

- 2018–2021 NSF Mathematical Sciences Postdoctoral Research Fellowship (MSPRF) DMS-1803173  
2017 Wirszup Fellowship, University of Chicago Mathematics Department  
2013–2016 National Defense Science and Engineering Graduate Fellowship (NDSEG)  
2011–2013 NSF Graduate Research Fellowship  
2011–2012 Churchill Scholarship  
2011 Herb Alexander Award, Harvard Mathematics Department

## Publications and Preprints

10. *Local L-factors and geometric asymptotics for spherical varieties* (with Y. Sakellaridis), 100 pp. [arXiv:2009.03943](https://arxiv.org/abs/2009.03943)
9. *Smooth non-admissible asymptotics for  $SL_2(\mathbb{R})$* , 12 pp., available on website.
8. *On an invariant bilinear form on the space of automorphic forms via asymptotics*, *Duke Math. J.* **167** (16), 2965–3057 (2018). [arXiv:1609.00400](https://arxiv.org/abs/1609.00400)
7. *On the reductive monoid associated to a parabolic subgroup*, *J. Lie Theory* **27**(3), 637–655 (2017). [arXiv:1602.07233](https://arxiv.org/abs/1602.07233)

6. *On a strange invariant bilinear form on the space of automorphic forms* (with V. Drinfeld), *Selecta Math. (N.S.)* **22**(4), 1825–1880 (2016). arXiv:1503.04705
5. *Radon inversion formulas over local fields*, *Math. Res. Lett.* **23**(2), 535–561 (2016). arXiv:1503.04095
4. *A new Fourier transform*, *Math. Res. Lett.* **22**(5), 1541–1562 (2015). arXiv:1402.5555
3. *A new infinite family of minimally nonideal matrices*, *Journal of Combinatorial Theory, Series A* **118** (2011), 365–372
2. *Thin Lehman matrices and their graphs*, *Electronic Journal of Combinatorics* **17** (2010), R165
1. *The zero-divisor graph associated to a semigroup* (with L. DeMeyer, L. Greve, A. Sabbaghi), *Communications in Algebra* **38** (2010), 3370–3391

### Other articles

1. *The moduli stack of  $G$ -bundles*, Harvard University Senior Thesis, April 2011. Advisor: Dennis Gaitsgory. arXiv:1104.4828

## Teaching

- Spring 2021 **Instructor**, MIT, Virtual.  
18.704 Seminar in Algebra
- Spring 2021 **Mentor**, MIT PRIMES, Virtual.  
PRIMES-USA mentor for high school students.
- Fall 2020 **Recitation Instructor**, MIT, Virtual.  
One 18.06 Linear Algebra recitation. Two hours of remote recitation weekly, one hour office hours weekly, grade exams.
- Spring 2020-Current **Mentor**, MIT UROP, Cambridge, MA.  
Mentor one undergraduate throughout the year on a research project, 1-2 hour meetings weekly.
- Fall 2019 **Recitation Instructor**, MIT, Cambridge, MA.  
Three 18.02 Multi-variable Calculus recitations. Six hours of recitation weekly, three hours office hours weekly, grade exams. Course Evaluations: 6.5, 7.0, 4.8 (Max: 7.0)
- 2016-17 **Lecturer**, University of Chicago, Chicago, IL.  
Math 151-152-153 Freshman Calculus sequence. Lecture three hours weekly, hold weekly problem sessions and office hours, assign homework, and write exams. Course Evaluations: 4.25, 4.47, 4.76 (Max: 5.0)
- Summer 2015-16 **Mentor**, University of Chicago REU, Chicago, IL.  
Mentored three undergraduates each summer on diverse topics of study.
- Winter 2015 **Mentor**, University of Chicago Directed Reading Program (DRP), Chicago, IL.  
Mentored an undergraduate in an independent study project.
- 2013-14 **College Fellow**, University of Chicago, Chicago, IL.  
Math 161-162-163 Freshman Honors Calculus (IBL) sequence. Hold weekly problem sessions and office hours and grade homework.
- Summer 2011 **Graduate Assistant**, University of Minnesota Duluth REU, Duluth, MN.  
Mentored undergraduates on independent research projects in combinatorics and number theory.
- Spring 2009 **Course Assistant**, Harvard Mathematics Department, Cambridge, MA.  
Held weekly sections and grade problem sets for upper level course in Classical Geometry.
- Fall 2008 **Peer Tutor**, Harvard Bureau of Study Counsel, Cambridge, MA.  
Tutored other Harvard students in the subjects of mathematics and computer science.

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## Presentations

### Seminar Talks

19. IST Austria, Algebraic Geometry and Number Theory Seminar, November 2020.
18. University of Toronto, Geometric Representation Theory Seminar, October 2020.
17. National University of Singapore, Representation Theory and Number Theory Seminar, October 2020.
16. Harvard/University of Chicago, Geometric Langlands Seminar, October 2020.
15. Columbia University, Automorphic Forms and Arithmetic Seminar, October 2020.
14. MIT, Lie Groups Seminar, September 2020.
13. University of Texas–Austin, Geometry Seminar, February 2020.
12. Northeastern University, Pick My Brain Seminar, February 2019.
11. University of Wisconsin–Madison, Algebraic Geometry Seminar, December 2017.
10. Rutgers University, Junior Number Theory Days, November 2017.
9. UCLA, Number Theory Seminar, November 2017.
8. California Institute of Technology, Number Theory Seminar, November 2017.
7. University of Maryland, Lie Groups and Representation Theory Seminar, October 2017.
6. University of Toronto, Number/Representation Theory Seminar, January 2017.
5. MIT, Infinite Dimensional Algebra Seminar, December 2016.
4. Yale, Algebra and Number Theory Seminar, November 2016.
3. UIUC, Algebraic Geometry Seminar, October 2016.
2. University of Chicago, Number Theory Seminar, October 2016.
1. Northwestern University, Number Theory Seminar, October 2016.

### Conference Presentations

3. National University of Singapore/Institute of Mathematical Sciences, On the Langlands Program: Endoscopy and Beyond, January 2019.
2. AMS/MAA National Meeting, January 2010.
1. AMS/MAA National Meeting, January 2009. Undergraduate Poster Session.

### Outreach Talks

4. University of Chicago, Women in Math Symposium, February 2017.
3. University of Cambridge, Part III Seminar Series, March 2012.
2. Harvard College Program for Research in Science and Engineering (PRISE) Presentations, August 2010.
1. Harvard Math Table, September 2009.

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## Professional Services

- Co-organizer of special session at Spring 2021 Meeting of the AMS Western Section (Virtual): Geometric and categorical methods in representation theory
- Referee for: Algebra & Number Theory, Annales ENS, Compositio Mathematica, IMRN, Inventiones Mathematicae, Journal of the AMS, Journal of Topology, Representation Theory
- Teaching assistant for the graduate summer school at PCMI Summer Session 2015, Geometry of moduli spaces and representation theory.