

## Bhargav Bhatt

---

*Email:* bhargav.bhatt@gmail.com

*Web:* <http://www-personal.umich.edu/~bhattb/>

### RESEARCH INTERESTS

Algebraic geometry, number theory, commutative algebra, homotopy theory

### EMPLOYMENT

<b>Institute for Advanced Study &amp; Princeton University</b> Fernholz Joint Professor	2022 – present
<b>University of Michigan</b> Frederick W and Lois B Gehring Professor (2020 – present; on leave since summer 2022) Professor (2018 – present) Gehring Associate Professor (2015 – 2018) Associate Professor (2014 – 2015)	2014 – present
<b>Institute for Advanced Study, Princeton</b> Member in the School of Mathematics	2012 – 2014
<b>University of Michigan</b> Postdoctoral Assistant Professor (on leave for 2012 – 2014)	2010 – 2014

### EDUCATION

<b>Princeton University</b> M.A. and Ph.D. in Mathematics (Advisor: Aise Johan de Jong)	2005 – 2010
<b>Columbia University</b> B.S. in Applied Mathematics, <i>summa cum laude</i> (Advisor: Shou-wu Zhang)	2001 – 2005

### SELECTED HONORS

Nemmers Prize	2022
Plenary speaker, ICM	2022
Clay Research Award	2021
Fellow of the AMS	2021
New Horizons Prize in Mathematics	2021
Simons Investigator	2019 – 2024
Chern Professor, MSRI	Spring 2019
Eilenberg Chair, Columbia University	Fall 2018
Compositio Prize	2016
Packard Fellowship	2015 – 2023
John Dash Van Buren Jr. Prize, Columbia University	2005

### SELECTED INVITED LECTURES

AMS sectional meeting, Utah (plenary speaker)	Oct 2022
Simons Foundation MPS Annual Meeting	Oct 2022
Clay Research Conference, Oxford (plenary speaker)	Sep 2022
Simons Lectures, MIT	Apr 2022

Minerva Distinguished Lectures, Princeton University	Feb 2022
Simons Lectures, Stony Brook	Apr 2021
Kempf Lectures, Johns Hopkins University	April 2019
Current Events Bulletin Lecture, AMS/MAA Joint Meetings	Jan 2019
Eilenberg Lectures (attached to Eilenberg Chair), Columbia University	Fall 2018
Ordway Distinguished Lectures, University of Minnesota	Apr 2018
GRANTS (EXCLUDING THOSE LISTED ABOVE)	
NSF Grant for <i>Algebraic geometry close to characteristic <math>p</math></i>	2018 – 2023
NSF Grant for <i>Algebraic geometry approaching characteristic <math>p</math></i>	2015 – 2018
NSF Grant for <i>Interactions between <math>p</math>-adic arithmetic geometry and commutative algebra</i>	2012 – 2015
AMS-Simons Travel Grant	2011 – 2013
COLLABORATIVE GRANTS	
NSF FRG Grant for <i>Singularities in algebraic geometry</i> (with C. Hacon, S. Kovács, L. Ma, M. Mustață, K. Schwede, K. Smith, C. Xu)	2020 – 2023
NSF RTG Grant for <i>Number theory and representation theory at Michigan</i> (with K. Prasanna, W. Ho, T. Kaletha and A. Snowden)	2019 – 2024
Grants to support a conference on <i>Arithmetic and algebraic geometry</i> (with E. Gazaki) Foundation Nagoya Mathematical Journal NSF Conference Grant	Aug 2019
Collaboration support for a long term project on <i>Local cohomology and thickenings</i> (with M. Blickle, G. Lyubeznik, A. Singh, and W. Zhang) AIM SQuaRE Grant IAS Summer Collaborators program AIM SQuaRE Grant	2018 – 2023 Summer 2018 2012 – 2016
NSF Grant for a conference on <i>Non-archimedean geometry and its applications</i> (with T. Foster and M. Jonsson)	July 2015
VISITING POSITIONS (EXCLUDING THOSE LISTED ABOVE)	
Visitor, IAS	Spring 2020
Visitor, University of Bonn	June 2017
Visitor, Simons Center for Geometry and Physics	Apr 2016
Visitor, University of California, Berkeley	Fall 2014
Visitor, IHÉS	Sep 2013
ALGANT Scholar, Leiden	June 2013
Research Member, MSRI	Apr – May 2013
PAPERS (ALL AVAILABLE ON THE ARXIV UNLESS OTHERWISE SPECIFIED)	
53. <i>Syntomic complexes and <math>p</math>-adic étale Tate twists</i> (with A. Mathew)	
52. <i>The prismatization of <math>p</math>-adic formal schemes</i> (with J. Lurie)	
51. <i>Absolute prismatic cohomology</i> (with J. Lurie)	
50. <i>Algebraic geometry in mixed characteristic</i> For the Proceedings of the ICM 2022.	
49. <i>Totaro's inequality for classifying stacks</i> (with S. Li)	

48. *Prismatic  $F$ -crystals and crystalline Galois representations* (with P. Scholze)
47. *The six functors for Zariski-constructible sheaves in rigid geometry* (with D. Hansen)  
To appear in *Compositio*
46. *Globally  $+$ -regular varieties and the minimal model program for threefolds in mixed characteristic* (with L. Ma, Z. Patakfalvi, K. Schwede, K. Tucker, J. Waldron and J. Witaszek)
45. *Cohen-Macaulayness of absolute integral closures*
44. *Simons symposia:  $p$ -adic Hodge theory* (book, co-edited with M. Olsson)  
Proceedings of the 2017 Simons Symposium on  $p$ -adic Hodge theory (Springer)
43. *An asymptotic vanishing theorem for the cohomology of thickenings* (with M. Blickle, G. Lyubeznik, A. Singh, and W. Zhang).  
Mathematische Annalen, volume 380 (2021), 161-173.
42. *Remarks on  $K(1)$ -local  $K$ -theory* (with D. Clausen and A. Mathew).  
Selecta Math. (N.S.) 26 (2020), no. 39.
41. *Counterexamples to Hochschild–Kostant–Rosenberg in characteristic  $p$*  (with B. Antieau and A. Mathew).  
Forum of Mathematics, Sigma, Volume 9 (2021), e49
40. *Lectures from the 2017 Arizona Winter School on Perfectoid Spaces* (book, with A. Caraiani, K. Kedlaya, P. Scholze, J. Weinstein)  
AMS Mathematical Surveys and Monographs Volume: 242; 2019; 297 pp. (Edited by B. Cais.)  
*I wrote the article “The Hodge-Tate decomposition via perfectoid spaces.”*
39. *Prisms and prismatic cohomology* (with P. Scholze).  
To appear in *Annals*
38. *Torsion completions are bounded.*  
J. Pure Appl. Algebra 223 (2019), no. 5, 1940 – 1945.
37. *The arc-topology* (with A. Mathew).  
Duke Mathematical Journal 170 (9), 1899-1988.
36. *Revisiting the de Rham-Witt complex* (with J. Lurie and A. Mathew).  
Asterisque, tome 424 (2021), pp 165.
35. *Regular rings and perfect(oid) rings* (with S. Iyengar and L. Ma).  
Comm. Algebra 47 (2019), no. 6, 2367–2383.  
*Special issue for Gennady Lyubeznik’s 60th birthday.*
34. *Topological Hochschild homology and integral  $p$ -adic Hodge theory* (with M. Morrow and P. Scholze).  
Publ. Math. Inst. Hautes Études Sci. 129 (2019), 199–310.
33. *A Riemann-Hilbert correspondence in characteristic  $p$*  (with J. Lurie).  
Cambridge Journal of Mathematics, Volume 7, Number 1-2 (2019): 71–217.
32. *Refined alterations* (with A. Snowden).  
Available on homepage.
31. *Vanishing theorems for perverse sheaves on abelian varieties, revisited* (with C. Schnell and P. Scholze).  
Selecta Math. (N.S.) 24 (2018), no. 1, 63 – 84.  
*Special issue for Alexander Beilinson’s 60th birthday.*
30. *Finiteness of étale fundamental groups via reduction modulo  $p$*  (with O. Gabber and M. Olsson).
29. *Étale fundamental groups of strongly  $F$ -regular schemes* (with J. Carvajal-Rojas, P. Graf, K. Schwede, K. Tucker).  
IMRN (2019), Issue 14, July 2019, rnx253, 4325–4339.
28. *On the direct summand conjecture and its derived variant.*  
Invent. Math. (2018), 212 (2), 297 – 317.
27. *Specializing varieties and their cohomology from characteristic 0 to characteristic  $p$ .*  
Algebraic geometry: Salt Lake City 2015, 43–88, Proc. Sympos. Pure Math., 97.2 (2018).

26. *Stabilization of the cohomology of thickenings* (with M. Blickle, G. Lyubeznik, A. Singh, and W. Zhang).  
Amer. J. Math. 141 (2019), no. 2, 531–561.
25. *Integral  $p$ -adic Hodge theory* (with M. Morrow and P. Scholze).  
Publ. Math. Inst. Hautes Études Sci. 128 (2018), 219–397.
24. *The dualizing complex of  $F$ -injective and Du Bois singularities* (with L. Ma and K. Schwede).  
Math. Z. 288 (2018), no. 3 – 4, 1143 – 1155.
23. *Integral  $p$ -adic Hodge theory: announcement* (with M. Morrow and P. Scholze).  
Math. Research Letters (2016), 22(6): 1601–1612.
22. *Projectivity of the Witt vector affine Grassmannian* (with P. Scholze).  
Invent. Math. (2016), 209(2): 329–423.
21. *Tannaka duality revisited* (with D. Halpern-Leistner).  
Adv. Math. 316 (2017), 576 – 612.
20. *Algebraisation and Tannaka duality*.  
Cambridge Journal of Mathematics, Volume 4, Number 4 (2016): 403–461.
19. *WHAT IS... a perfectoid space?*.  
Notices of the AMS (2014), 61(9): 1082 – 1084.
18. *The pro-étale topology for schemes* (with P. Scholze).  
Asterisque 369 (2015), 99-201.  
*Special issue for Gérard Laumon 60th birthday.*
17. *The weak ordinarity conjecture and  $F$ -singularities* (with K. Schwede and S. Takagi).  
Higher dimensional algebraic geometry, 11–39, Adv. Stud. Pure Math., 74 (2017).  
*Special issue for Professor Yujiro Kawamata's sixtieth birthday.*
16. *Local cohomology modules of a smooth  $\mathbb{Z}$ -algebra have finitely many associated primes* (with M. Blickle, G. Lyubeznik, A. Singh, and W. Zhang).  
Invent. Math. (2014), 197(3): 509–519.
15. *Lefschetz for local Picard groups* (with A. J. de Jong).  
Annales Scientifiques de l'École Normale Supérieure (2014), 47(4): 833 – 849.
14. *On the non-existence of small Cohen-Macaulay algebras*.  
Journal of Algebra (2014), 411(1): 1–11.
13. *Completions and derived de Rham cohomology*.  
Available at <https://arxiv.org/abs/1207.6193>.
12. *Torsion in the crystalline cohomology of singular varieties*.  
Documenta Mathematica (2014), 19: 673 – 687.
11.  *$p$ -adic derived de Rham cohomology*.  
Available at <https://arxiv.org/abs/1204.6560>.
10. *Crystalline cohomology and de Rham cohomology* (with A. J. de Jong).  
Available at <https://arxiv.org/abs/1110.5001>.
9. *Moduli of products of stable varieties* (with W. Ho, Z. Patakfalvi, and C. Schnell).  
Compositio Mathematica (2013), 149(12): 2036–2070.
8. *The  $F$ -pure threshold of Calabi-Yau hypersurfaces* (with A. Singh).  
Math. Ann. 362 (2015), no. 1-2, 551–567.
7. *Log canonical thresholds,  $F$ -pure thresholds, and nonstandard extensions* (with D. Hernández, L. Miller, and M. Mustață).  
Algebra & Number Theory (2012), 6(7): 1459–1482.
6. *Derived splinters in positive characteristic*.  
Compositio Mathematica (2012), 148(6): 1757–1786.  
*This paper won the Compositio Prize.*

5. *p*-divisibility for coherent cohomology.  
Forum of Mathematics, Sigma (2015), Vol. 3, e15, 27 pages.
4. *Almost direct summands*.  
Nagoya Mathematical Journal (2014), 214: 195 – 204.
3. *Annihilating the cohomology of group schemes*.  
Algebra & Number Theory (2012), 6(7): 1561–1577.
2. *Derived direct summands*.  
Ph.D. dissertation, available on ProQuest.
1. *A period-index result*,  
Appendix to: *Index reduction for Brauer classes via stable sheaves* (by D. Krashen and M. Lieblich).  
IMRN (2008), no. 8, Art. ID rnn010, 31 pp.

#### CONFERENCES AND LECTURE SERIES

Panorama of Mathematics, Bonn	Oct 2023
Arithmetic Geometry, Darmstadt	Oct 2022
Algebraic Geometry, Oberwolfach (virtual)	July 2022
ICM (virtual)	July 2022
Periods, Motives and Differential equations (in honor of Y. André’s 60th birthday; virtual), IHP	Apr 2022
Hodge theory and related topics, IMSA (virtual)	Mar 2022
Non-archimedean geometry, Oberwolfach (virtual)	Feb 2022
Arithmetic Geometry (in honor of T. Saito’s 60th birthday), Tokyo (virtual)	Sep 2021
Arithmetic Geometry (in honor of L. Illusie’s 80th birthday), Beijing (virtual)	June 2021
Special month on singularities & K-stability, Utah (series, virtual)	May 2021
Packard Fellows Meeting (virtual)	Sep 2020
Stacks Project Workshop, Ann Arbor (virtual)	Aug 2020
International colloquium on arithmetic geometry, TIFR	Jan 2020
Periods and motives, Berlin	July 2019
Derived categories and geometry in positive characteristic, Warsaw	July 2019
Geometry and arithmetic of algebraic varieties, Bonn	June 2019
Derived algebraic geometry and its applications, MSRI	Mar 2019
Current Events Bulletin Lecture, AMS/MAA Joint Meetings	Jan 2019
Arithmetic geometry (in honor of Michael Rapoport’s 70th birthday), Bonn	Oct 2018
Arithmetic algebraic geometry (in honor of Ofer Gabber’s 60th birthday), IHÉS	June 2018
AGNES, Rutgers	Apr 2018
<i>The homological conjectures</i> , an MSRI Hot Topics Workshop, Berkeley	Mar 2018
<i>Midwest Topology Seminar</i> , Northwestern	Mar 2018
Western Algebraic Geometry Symposium (WAGS), UCLA	Oct 2017
Algebraic Geometry, Oberwolfach	Sep 2017
Interactions between Representation Theory and Algebraic Geometry (in honor of the 60th birthdays of Alexander Beilinson and Victor Ginzburg), Chicago	Aug 2017
Local Cohomology in Commutative Algebra and Algebraic Geometry (in honor of Genady Lyubeznik’s 60th birthday), Minnesota	Aug 2017
Stacks Project Workshop, Ann Arbor	Aug 2017

Journées Arithmétiques, Caen	July 2017
Arbeitstagung 2017: Physical Mathematics (in honor of Yuri Manin's 80th birthday), Bonn	June 2017
Geometric Methods in Number Theory and Representation Theory, Evanston	May 2017
Séminaire Grothendieck, ETH Zurich	May 2017
Arizona Winter School: <i>Perfectoid spaces: p-adic Hodge theory</i> (series), Arizona	Mar 2017
Asymptotic Phenomena in Local Algebra and Singularity Theory, Oberwolfach	Dec 2016
11th Annual Belgian-Dutch Algebraic Geometry Day, Amsterdam	Dec 2016
Higher Dimensional Algebraic Geometry and Characteristic $p$ , Luminy	Sep 2016
Packard Fellows Meeting	Sep 2016
Arithmetic Geometry, Oberwolfach	Aug 2016
Higher Dimensional Algebraic Geometry, Salt Lake City	July 2016
Advances in Geometric Representation Theory, Ann Arbor	May 2016
Complex, logarithmic, and $p$ -adic Hodge theory (series), SCGP, Stony Brook	Apr 2016
Arbeitsgemeinschaft: The Geometric Langlands Conjecture, Oberwolfach	Apr 2016
Recent developments in integral $p$ -cohomology theories (series), Bonn	Mar 2016
Moduli Spaces and Arithmetic Geometry (in honor of Frans Oort's 80th birthday), Leiden	Nov 2015
Algebraic Geometry (in honor of Arthur Ogus's 70th birthday), IHÉS	Sep 2015
Jumbo Algebraic Geometry Conference, Salt Lake City	July 2015
Algebraic Geometry Bootcamp on Perfectoid Spaces (series), Salt Lake City	July 2015
The Mathematics of Alexander Grothendieck, Montpellier	June 2015
Arithmetic and Algebraic Differentiation (in honor of Alexandru Buium's 60th birthday), Berkeley	May 2015
Algebraic Geometry, Oberwolfach	Mar 2015
37 <sup>th</sup> Autumn School in Algebraic Geometry (series), Lukecin	Sep 2014
Summer School in Algebraic Geometry, Seattle	Aug 2014
FRG Special Month on Birational Geometry in Positive Characteristic, Ann Arbor	June 2014
Hot topics: Perfectoid Spaces, MSRI	Feb 2014
Homological and Characteristic $p$ Methods in Commutative Algebra, AMS JMM, Baltimore	Jan 2014
Fundamental Groups in Arithmetic and Algebraic Geometry, Pisa	Dec 2013
<i>The pro-étale topology</i> (series), Stanford	Nov 2013
AGNES, Boston College	Oct 2013
$p$ -adic Hodge Theory and Beyond, IHÉS	Sep 2013
Arithmetic Geometry, Warsaw	July 2013
Algebraic Geometry, Amsterdam	July 2013
<i>Crystalline cohomology and de Rham cohomology</i> (series), Leiden	July 2013
Arithmetic Algebraic Geometry, Berlin	June 2013
Motivic Invariants and Singularities, Notre Dame	June 2013
The Commutative Algebra of Singularities, MSRI	May 2013
Johns Hopkins-Maryland Algebra and Number Theory Day	Oct 2012
Arithmetic Geometry, Oberwolfach	Aug 2012

Characteristic $p$ and $p$ -adic Geometry, Mainz	June 2012
Computational Workshop on $F$ -singularities, Ann Arbor	May 2012
Witt Vectors in Arithmetic, Geometry and Topology, Albuquerque	May 2012
$p$ -adic Hodge theory (series), Ann Arbor	May 2012
Western Algebraic Geometry Symposium (WAGS), Seattle (Mendelbaldeko Lecture)	Apr 2012
Algebraic Geometry section at the AMS-Sectional Meeting, Kansas	Mar 2012
Michigan-OSU-UIC Algebraic Geometry Workshop, Columbus	Mar 2012
Relating Test Ideals and Multiplier Ideals, AIM	Aug 2011
AMS-MRC Workshop on Commutative Algebra, Snowbird	Jun 2010
AMS-MRC Workshop on Higher Dimensional Algebraic Geometry, Snowbird	Jun 2010
Frobenius Splitting, Ann Arbor	May 2010

#### COLLOQUIA AND SEMINAR TALKS

*Colloquia:* Berkeley, Brown, Caltech, Chicago ( $\times 2$ ), Cornell, Harvard, Max Plank Institute (Bonn), Maryland, Michigan ( $\times 2$ ), Minnesota, MIT, Northwestern, Princeton, Stony Brook, Toronto, University of Bonn, UCLA, University of Colorado, University of Oregon, Utah ( $\times 2$ ), Yale

*Seminar talks (in algebraic/arithmetic geometry, commutative algebra, and number theory):* Berkeley ( $\times 2$ ), BC-MIT, Brown, Caltech ( $\times 2$ ), Columbia ( $\times 4$ ), Cornell, Duke ( $\times 2$ ), Georgia Tech, Harvard ( $\times 2$ ), Harvard-MIT, IHES, Johns Hopkins, Jussieu, Kansas, Michigan ( $\times 8$ ), Northwestern ( $\times 2$ ), Orsay, Penn State, Princeton ( $\times 2$ ), Stanford ( $\times 3$ ), Stony Brook ( $\times 2$ ), TIFR, University of Amsterdam, University of Bonn, UC Davis, UCLA, University of Colorado, University of Copenhagen, UIC, University of Oregon, University of Washington ( $\times 2$ ), Utah ( $\times 4$ ), UW Madison, Yale

*Other research seminars:* Chicago Geometric Langlands Seminar ( $\times 7$ ), CUNY Einstein Seminar, Harvard Thursday seminar ( $\times 2$ ), IAS Member Seminar, IAS short talk ( $\times 2$ ), MIT Topology Seminar, UT Austin Geometry Seminar

*virtual seminars during the Covid pandemic:* Fellowship Of The Ring (MSRI), Chicago Geometric Langlands Seminar ( $\times 5$ ), Harvard NT, Joint NU/UIC/UofC AG, MATRIX, Michigan ( $\times 11$ , expository),  $p$ -adic Geometry seminar (RAMpAGe), Princeton AG, Shafarevich Seminar (Steklov), Stanford AG

*Expository talks (excluding lectures at conferences):* Bourbaki, Columbia, IAS/Princeton ( $\times 8$ ), IAS Mathematical Conversations, Michigan ( $\times 17$ ), MSRI ( $\times 3$ )

#### TEACHING EXPERIENCE

Math 549: Geometrization of integral $p$ -adic Hodge theory (Princeton)	Fall 2022
Math 614: Commutative Algebra (Michigan)	Fall 2021
Math 731: $D$ -modules (Michigan)	Fall 2020
Math 631: Algebraic Geometry (Michigan)	Fall 2019
Eilenberg lectures: Prismatic cohomology (Columbia)	Fall 2018
Math 592: Algebraic Topology (Michigan)	Winter 2018
Math 731: Abelian varieties (Michigan)	Fall 2017
Math 679: Perfectoid spaces (Michigan)	Winter 2017
Math 731: Perverse sheaves (Michigan)	Fall 2015
Math 613: Homological Algebra (Michigan)	Winter 2015
Math 592: Algebraic Topology (Michigan)	Winter 2015
Math 214: Linear Algebra (Michigan)	Winter 2012

Math 731: Étale cohomology (Michigan)	Fall 2011
Math 115: Calculus I (Michigan; two sections)	Fall 2010
Math 453: Algebraic Number Theory (Princeton) — Teaching Assistant	Fall 2009
Math 103: Calculus I (Princeton)	Fall 2007
Math 215: Analysis in a Single Variable (Princeton) — Teaching Assistant	Fall 2006

#### CONFERENCES AND PROGRAMS CO-ORGANIZED

<i>Hochster 81st</i> , a conference at the University of Michigan	Aug 2024
<i>p-adic arithmetic geometry</i> , special year at the IAS	2023 – 2024
<i>Recent advances in algebraic K-theory</i> , summer school at IHÉS (scientific committee)	July 2023
<i>Recent advances in algebraic geometry and commutative algebra in or near characteristic p</i> , special session at an AMS Special Session at the fall sectional meeting, Salt Lake City	Oct 2022
<i>p-adic Hodge theory and applications</i> , workshop at the Clay Research Conference	Sep 2022
<i>p-adic Hodge theory and stacks</i> , a workshop at the University of Michigan	May 2022
<i>p-adic Hodge theory</i> , Simons Symposium series:	
Aspects of <i>p</i> -adic Hodge theory	April 2022
Non-abelian <i>p</i> -adic Hodge theory	May 2019
Integral <i>p</i> -adic Hodge theory and derived algebraic geometry	May 2017
<i>Fields medal symposium for Peter Scholze</i> , Fields Institute, Toronto	Oct 2021
<i>Arithmetic and Algebraic Geometry</i> , a conference at the University of Michigan	Aug 2019
<i>Derived Algebraic Geometry and Birational Geometry and Moduli Spaces</i> , topical workshop at MSRI (joint between the two semester programs)	Feb 2019
<i>Derived algebraic geometry</i> (lead organizer), semester-long program at MSRI	Spring 2019
<i>The homological conjectures</i> , MSRI “Hot topics” workshop	Mar 2018
<i>Derived algebraic geometry and Representation theory</i> , a session at the AMS Algebraic Geometry Summer Institute, Salt Lake City	July 2015
<i>Non-archimedean geometry and its applications</i> , a conference at the University of Michigan	June 2015
<i>Derived Algebraic Geometry</i> , a workshop at the University of Michigan	May 2012
<i>Almost Purity</i> , a workshop at the University of Michigan	May 2011
<i>MRC-Commutative Algebra</i> , an AMS Special Session at the Joint Meetings, New Orleans	Jan 2011

#### SEMINARS CO-ORGANIZED

Spring Lectures in Algebraic Geometry (Michigan, once annually)	2015 – 2022
Algebraic Geometry Preprint Seminar (Michigan)	2015 – 2022
Algebraic Geometry Seminar (Michigan)	2015 – 2022
Arithmetic Geometry Learning Seminar (Michigan). (Topics covered: algebraic <i>K</i> -theory, the Weil conjectures, the Mordell conjecture, adic spaces, Drinfeld modules, geometric Langlands for $GL(2)$ , condensed mathematics, the affine Grassmannian and geometric Satake, the universal HKR filtration, perverse sheaves and the decomposition theorem, the Mordell conjecture following Lawrence-Venkatesh, the $P=W$ conjecture, unramified cohomology, geometric Langlands for $\mathcal{D}$ -modules in positive characteristic)	2015 – 2022
Joint Number Theory Seminar (IAS/Princeton)	Spring 2013 – Spring 2014
Working Group on <i>p</i> -adic Hodge theory (IAS/Princeton)	Spring 2013
Learning seminar on <i>D</i> -modules (Michigan)	Fall 2011



Learning seminar on $\mathbb{A}^1$ -homotopy theory (Columbia)	Summer 2008
Learning seminars (Princeton). (Topics covered: arithmetic moduli of elliptic curves, the Weil conjectures, perverse sheaves, and the Mordell conjecture.)	2006 – 2009

#### MENTORING AND SUPERVISION

##### Postdocs mentored:

Shizhang Li (Michigan; next position: faculty at Morningside Center, Beijing)	2019 – 2022
Zili Zhang (Michigan; next position: faculty at Tongji University, Shanghai)	2017 – 2020
Evangelia Gazaki (Michigan; next position: faculty at University of Virginia)	2016 – 2019
Axel Stabler (Michigan; informally)	2016 – 2017

##### Graduate students supervised:

Longke Tang (Princeton)	2022 –
Gleb Terentiuk (Michigan)	2021 –
Andy Jiang (Michigan)	2021 –
Bogdan Zavyalov (Michigan, visiting from Stanford)	Fall 2019
Shubhodip Mondal (Michigan; next position: postdoc at MPI, UBC)	2018 –
Haoyang Guo (Michigan; next position: postdoc at MPI)	2017 – 2021
Emanuel Reinecke (Michigan; next position: postdoc at IAS, MPI)	2015 – 2020

#### SERVICE TO THE UNIVERSITY

##### Thesis committees:

*Michigan:* Shubhodip Mondal (2022), Alex Horawa (2022), Haoyang Guo (2021), Eamon Quinlan (2021), Montek Gill (2020), Rachel Webb (2020), Emanuel Reinecke (2020), Gilad Pagi (2018), Rankeya Datta (2018), Ashwath Rabindranath (2018), Harold Blum (2018), Dondi Ellis (2017), Rebecca RG (2016), Suchandan Pal (2016), Juan Perez (2015), Benjamin Weiss (2011)  
*Others:* Yanhong Yang (Columbia, 2012)

##### Thesis reader:

*Michigan:* Shubhodip Mondal (2022), Haoyang Guo (2021), Ruian Chen (2020), Montek Gill (2020), Emanuel Reinecke (2020), Dondi Ellis (2017)  
*Others:* Zhouhang Mao (UPMC, 2021), Jorge Antonio (University of Toulouse, 2019), Yanhong Yang (Columbia, 2012)

##### Prelim/general exams:

*Princeton:* Longke Tang (2022)  
*Michigan:* Glen Terentiuk (2022), Jonghyun Lee (2022), James Hotchkiss (2021), Andy Jiang (2021), Attilio Castano (2020), Shubhodip Mondal (2019), Haoyang Guo (2018), Emanuel Reinecke (2016), Takumi Murayama (2016)  
*Others:* Hanlin Cai (Utah, 2021)

Supervised a summer REU on $F$ -pure thresholds (Michigan)	2011, 2012
Ad hoc reviewer of nominations for external fellowships (Michigan)	2016 – 2022
Computer Committee (Michigan)	2019 – 2022
Website Committee (Michigan)	2019 – 2020
Personnel Committee (Michigan)	2015 – 2018
Qualifying Exams Committee (Michigan):	
Topology	2015 – 2016, 2020 – 2021
Algebra	2016 – 2017, 2019 – 2020, 2021 – 2022
Graduate Admissions Committee (Michigan)	2014 – 2015, 2020 – 2022
Undergraduate Awards and Scholarships Committee (Michigan)	2014 – 2015
President of the Undergraduate Mathematics Society (Columbia)	2003 – 2005

OTHER SERVICE

AMS Current Events Bulletin Committee 2019, 2020

Editor for:

Algebraic Geometry	2021 –
CAMS (Communications of the American Mathematical Society) ( <i>associate editor</i> )	2021 –
Duke	2020 –
ANT (Algebra & Number Theory)	2019 –
IMRN (International Mathematical Research Notices)	2018 – 2022
Two <i>Simons Symposia</i> volumes on <i>p-adic Hodge theory</i>	2017 –

Reviewer (ad hoc) for:

European Research Council  
Simons Foundation  
National Science Foundation

Served as a reviewer and jury member for a Habilitation defense (Orsay)

Refereed or provided quick opinions on papers for: *Acta Mathematica*, *Advances in Cryptology* (2005), *Advances in Mathematics*, *Algebra and Number Theory*, *Algebraic Geometry*, *American Journal of Mathematics*, *Annals*, *Annals of K-theory*, *Annales l'ENS*, *Annales de l'institut Fourier*, *Asterisque*, *Bulletin of LMS*, *Cambridge Journal of Mathematics*, *Crelle*, *Compositio*, *Documenta*, *Duke*, *EPIGA*, *Experimental Mathematics*, *Forum of Math - Sigma*, *GAFA*, *Geometry and Topology*, *IMRN*, *Inventiones*, *Journal of Algebra*, *JAG*, *Journal of the Institute of Mathematics of Jussieu*, *Journal of LMS*, *Journal of Pure and Applied Algebra*, *JAMS*, *JEMS*, *Math Annalen*, *Math Research Letters*, *Michigan Math Journal*, *Nagoya Math Journal*, *Proceedings of LMS*, *Publ. Math. IHÉS*, *Selecta*, and various conference proceedings.