

## EMPLOYMENT

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<b>National University of Singapore</b> Associate Professor	Singapore 2022–Present
<b>Max Planck Institute for Mathematics</b> Research Group Leader / W2 Professor	Bonn, Germany 2019–2022
<b>University of Notre Dame</b> Assistant Professor	South Bend, USA 2018–2019
<b>Columbia University</b> J.F. Ritt Assistant Professor	New York, USA 2014–2018
<b>Institut de Mathématiques de Jussieu</b> Postdoctoral Researcher	Paris, France 2013–2014

## EDUCATION

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<b>Boston College</b> Ph.D. in Mathematics, Advisor: Avner Ash – Thesis: “Overconvergent Cohomology: Theory and Applications”	Boston, USA 2010–2013
<b>Brown University</b> B.A. in Mathematics, with Honors	Providence, USA 2006–2010

## PUBLICATIONS

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All papers and preprints available at [davidrenshawhansen.net](http://davidrenshawhansen.net)

1. **Geometric Eisenstein series, I. Finiteness theorems**, with L. Hamann and P. Scholze, submitted
2. **Some remarks on the Kottwitz conjecture**, with C. Johansson, submitted
3. **Beijing notes on the categorical local Langlands conjecture**, preprint
4. **Arithmetic properties of  $\ell$ -adic étale cohomology and nearby cycles of rigid analytic spaces**, with B. Zavyalov, under revision at *J. Alg. Geom.*
5.  **$p$ -adic sheaves on classifying stacks, and the  $p$ -adic Jacquet-Langlands correspondence**, with L. Mann, under revision at *J. Inst. Math. Jussieu*
6. **An enhanced six-functor formalism for diamonds and  $v$ -stacks**, with D. Gulotta and J. Weinstein, under revision at *Selecta Math.*
7. **Relative perversity**, with P. Scholze  
*Comm. Amer. Math. Soc.*, Vol. 3, pp. 631–668
8. **On the Kottwitz conjecture for local shtuka spaces**, with T. Kaletha and J. Weinstein  
*Forum of Math. Pi*, Vol. 10 e13

9. **Weakly de Rham complexes**  
*TIFR Colloquium Proceedings*, pp. 307-314
10. **The six functors for Zariski-constructible sheaves in rigid geometry**, with B. Bhatt  
*Compositio Math.*, Vol. 158 Issue 2, pp. 437-482
11. **On the supercuspidal cohomology of basic local Shimura varieties**  
*J. reine angew. Math.*, to appear
12. **Sheafiness criteria for Huber rings**, with K. Kedlaya, under revision at *Algebra and Number Theory*
13. **Perfectoid Shimura varieties and the Calegari-Emerton conjectures**, with C. Johansson  
*J. London Math. Soc.*, Vol. 108 (5) pp. 1954-2000
14. **Perfectoid quotients of the Lubin-Tate tower, revisited**, appendix to a paper of C. Johansson and J. Ludwig  
*Math. Annalen* Vol. 380 Issue 2, pp. 80-89
15. **Remarks on nearby cycles of formal schemes**, preprint
16. **Vanishing and comparison theorems in rigid analytic geometry**  
*Compositio Math.* Vol. 156 Issue 2, pp. 299-324
17. **On  $p$ -adic L-functions for Hilbert modular forms**, with J. Bergdall  
*Memoirs of the AMS*, Vol. 298
18. **Line bundles on rigid varieties and Hodge symmetry**, with S. Li  
*Math. Zeit.*, Vol. 296, pp. 1777-1786
19. **Degenerating vector bundles in  $p$ -adic Hodge theory**  
*J. Inst. Math Jussieu*, to appear
20. **Extensions of vector bundles on the Fargues-Fontaine curve**, with C. Birkbeck, T. Feng, S. Hong, Q. Li, A. Wang and L. Ye  
*J. Inst. Math. Jussieu*, Vol. 21 Issue 2, pp. 487-532
21. **Moduli of local shtukas and Harris's conjecture**  
*Tunisian J. Math.*, Vol. 3 No. 4, pp. 749-799
22. **Period morphisms and variations of  $p$ -adic Hodge structure**, preprint
23. **Quotients of adic spaces by finite groups**  
*Math. Res. Letters*, to appear
24. **On the  $GL_n$ -eigenvariety and a conjecture of Venkatesh**, with J. Thorne  
*Selecta Math.* Vol. 23 Issue 2, pp. 1205-1234
25. **Iwasawa theory of overconvergent modular forms, I: Critical-slope  $p$ -adic L-functions**, preprint
26. **Overconvergent modular forms and perfectoid Shimura curves**, with P. Chojecki and C. Johansson  
*Documenta Math.* Vol. 22, pp. 191-262
27. **Universal eigenvarieties, trianguline Galois representations, and  $p$ -adic Langlands functoriality**  
*J. reine angew. Math.* Vol. 2017 Issue 730, pp. 1-64

28. **Minimal modularity lifting for  $GL_2$  over an arbitrary number field**  
*Math. Res. Letters*, to appear
29. **Shimura lifts of half-integral weight modular forms arising from theta functions**, with Y. Naqvi.  
*The Ramanujan Journal* Vol. 17, No. 3.

*Some papers in preparation*

1. **Foundations for categorical local Langlands**, with L. Mann
2. **Geometric Eisenstein series, II. Intersection cohomology**, with L. Hamann and P. Scholze
3. **Geometric Whittaker coefficients and the Fargues-Fontaine curve**, with L. Hamann and L. Mann
4. **Eisenstein compatibility for the coarse local Langlands functor**, with L. Hamann and L. Mann
5. **Serre functors for ind-coherent sheaves**, with J. Syu

## LECTURES AND EVENTS

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### Seminar and colloquium lectures

Over 75 invited seminar and colloquium talks from 2013 to present. A detailed list is available upon request.

### Conference lectures

- Representation theory down under, Sydney June 2025\*
- Geometric approaches to the local Langlands program, Maryland March 2025\*
- Workshop on  $p$ -adic geometry, Chicago September 2024
- Arithmetic geometry, Oberwolfach July 2024
- Galois representations and reciprocity, Hanoi July 2024
- Michael Rapoport 75th birthday conference, Münster October 2023
- Pan-Asia number theory conference, Harbin August 2023
- ICBS number theory satellite conference, Beijing July 2023
- Local Langlands and  $p$ -adic methods, Bonn June 2023
- $p$ -adic Hodge theory, Oxford September 2022
- Simons symposium on  $p$ -adic Hodge theory, Scotland May 2022
- Cohomology of varieties, Warsaw April 2022
- Non-archimedean geometry, Oberwolfach February 2022
- KIAS CMC Thematic Program on Arithmetic, Geometry, and Physics (6 hours of lectures) August 2021
- Transchromatic homotopy theory, Regensburg August 2020†
- Rigid geometry and eigenvarieties, Vancouver July 2020†
- International colloquium on arithmetic geometry, Mumbai January 2020
- Geometrization of the local Langlands correspondence, Montreal (4 hours of lectures) May 2019

• Algebra and number theory day, Johns Hopkins	April 2019
• Arithmetic of Shimura varieties, Oberwolfach	January 2019
• Pop-up conference in number theory, UIC	November 2018
• Michael Rapoport 70th birthday conference, Bonn	October 2018
• Galois representations, Heidelberg	July 2018
• Spring lecture series and conference, University of Arkansas	April 2018
• Summer school on modular forms, Padova	September 2017†
• $p$ -adic methods for Galois representations and modular forms, Barcelona	February 2017
• Automorphic forms and arithmetic, AMS Special Session at the Joint Meetings	January 2017
• Shimura varieties, representation theory, and related topics, Kyoto University	November 2016
• Arithmetic geometry, Oberwolfach	August 2016
• The $p$ -adic Langlands program and related topics, Indiana University	May 2016
• Southern California number theory day, UCSD	February 2016
• Non-archimedean geometry and applications, Oberwolfach	December 2015
• Analytic number theory and its applications, Thessaloniki	July 2014
• $p$ -adic variation in number theory, BU	June 2014
• Atkin memorial conference, UIC	May 2014
• Journee arithmetique a Villeteuse, Paris 13	February 2014
• L-functions and Galois representations, UCLA	May 2013

## Other invited events

• Non-archimedean geometry, Oberwolfach	June 2025*
• Minicourse on categorical local Langlands, Bonn	December 2024*
• Geometric Langlands seminar, Chicago (6 hours of lectures)	September 2024
• Visiting researcher, Münster (3 hours of lectures)	May 2024
• Annual meeting for the Simons collaboration grant on “Perfection”, New York	March 2024
• Minicourse on categorical local Langlands, Morningside Center (6 hours of lectures)	July 2023
• Arithmetic of Shimura varieties, Oberwolfach	February 2023
• Invited visitor at KIAS	August 2021
• Arbeitsgemeinschaft on derived Galois deformation rings, Oberwolfach	April 2021
• Topological cyclic homology and arithmetic, Oberwolfach Seminar	October 2019
• Guest of the “Arbeitsgruppe Arithmetische Algebraische Geometrie”, Bonn	November 2018
• $p$ -adic cohomology and arithmetic applications, Banff	October 2017
• Arizona Winter School on perfectoid spaces, Tucson	March 2017
• Arbeitsgemeinschaft on geometric Langlands, Oberwolfach	April 2016†

\*Upcoming

†Unable to attend due to personal or family illness

‡Cancelled or postponed due to COVID-19

## TEACHING

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### National University of Singapore

<i>Commutative Algebra and Homological Algebra</i>	Spring 2025
<i>Representation Theory</i>	Fall 2024
<i>Commutative Algebra and Homological Algebra</i>	Spring 2024
<i>Representation Theory</i>	Fall 2023
<i>Rigid Analytic Geometry</i>	Spring 2023

### University of Notre Dame

<i>Calculus II; Graduate Algebra II</i>	Spring 2019
<i>Calculus II</i>	Fall 2018

### Columbia University

<i>Honors Math B; Number Theory and Cryptography (+2 independent reading courses)</i>	Spring 2018
<i>Honors Math A (+1 independent reading course)</i>	Fall 2017
<i>Honors Math B (+1 independent reading course)</i>	Spring 2017
<i>Honors Math A; p-adic Hodge theory (+1 independent reading course)</i>	Fall 2016
<i>Number Theory and Cryptography (+3 independent reading courses)</i>	Spring 2016
<i>Calculus II; Intro to Higher Math (+1 independent reading course)</i>	Fall 2015
<i>Number Theory and Cryptography (+1 independent reading course)</i>	Spring 2015
<i>Two sections of Calculus I</i>	Fall 2014

### Boston College

<i>Calculus II</i>	Spring 2013
<i>Calculus I</i>	Fall 2012
<i>Calculus II</i>	Spring 2012
<i>Calculus I</i>	Fall 2011

## ADVISING

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### Ph.D. Students

• Jhan-Cyuan Syu, National University of Singapore	2023-Present
• Linus Hamann, Princeton University	2019-2023

### Masters Students

• Bence Hevesi, University of Bonn	2019-2020
• Tobi Moektijono, University of Bonn	2019-2020
• Simon Schirren, University of Bonn	2019-2020

## Postdocs

- Finn Wiersig, NUS 2024-Present
- Alex Youcis, NUS 2024-Present
- Haoyang Guo, MPIM 2021-2022
- Bogdan Zavyalov, MPIM 2021-2022
- Daniel Gulotta, MPIM 2020-2022

## CONFERENCE ORGANIZATION

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- Workshop on  $p$ -adic geometry, National University of Singapore November 2024
- $p$ -adic geometry,  $p$ -adic Hodge theory, and Shimura varieties, SRI at Colorado State July 2025
- New tools in the local and global Langlands programs, IASM Hangzhou August 2025
- Relative Langlands program, IMS Singapore December 2025

## ADDITIONAL ACTIVITIES

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- Categorical local Langlands seminar, NUS Spring 2024  
*Co-organizer*
- Recent Advances in Modern  $p$ -Adic Geometry (RAMpAGe) virtual seminar June 2020–August 2022  
*Co-organizer*
- Student Number Theory Seminar, Columbia Spring 2015–Spring 2018  
*Co-organizer*
- Committee member for Ph.D. defenses of many students (at Columbia, Notre Dame, NUS) April 2016–Present
- Advisor for senior honors thesis of Columbia undergraduate Thomas Mack-Crane Spring 2015
- Advisor for an REU project at Columbia Summer 2015
- Referee work 2014-Present  
*Referee reports for Annals of Math., Inventiones Math., J. Amer. Math. Soc., Astérisque, Annals of Math. Studies, Cambridge J. Math., Compositio Math., J. reine angew. Math., Math. Annalen, and many other journals.*  
*Quick opinions for many journals.*  
*Reviewed various book proposals for World Scientific.*
- Editor at *Research in Number Theory* and *Research in the Mathematical Sciences* 2024-Present

## GRANTS, HONORS AND AWARDS

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- Singapore Ministry of Education Tier 1 Grant, S\$250,000 Jan. 2023 –Dec. 2025  
Project Title: “Langlands correspondence and non-archimedean geometry”
- Junior Faculty Teaching Excellence Award, Columbia University Math Department 2016
- Donald J. White Teaching Excellence Award, Boston College 2012
- David Howell Premium for Excellence in Mathematics, Brown University 2010
- Josephine de Kármán Foundation Fellow 2009–2010
- Barry M. Goldwater Scholar 2008–2010

## REFERENCES

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- **Avner Ash**, Boston College ashav@bc.edu
- **Bhargav Bhatt**, Princeton University / IAS bhargav.bhatt@gmail.com
- **Tasho Kaletha**, University of Michigan / Universität Bonn kaletha@umich.edu
- **Minhyong Kim**, ICMS / University of Edinburgh minhyong.kim2020@gmail.com
- **Barry Mazur**, Harvard University mazur@math.harvard.edu
- **Michael Thaddeus**, Columbia University (*Teaching reference*) mt324@columbia.edu
- **Peter Scholze**, Universität Bonn / MPIM scholze@mpim-bonn.mpg.de
- **Sug Woo Shin**, University of California, Berkeley sug.woo.shin@berkeley.edu