

## 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.com](http://davidrenshawhansen.com)

1. **Arithmetic properties of  $\ell$ -adic étale cohomology and nearby cycles of rigid analytic spaces**, with B. Zavyalov, preprint
2.  **$p$ -adic sheaves on classifying stacks, and the  $p$ -adic Jacquet-Langlands correspondence**, with L. Mann, submitted
3. **An enhanced six-functor formalism for diamonds and v-stacks**, with D. Gulotta and J. Weinstein, submitted
4. **Relative perversity**, with P. Scholze, *Comm. Amer. Math. Soc.*, to appear
5. **On the Kottwitz conjecture for local shtuka spaces**, with T. Kaletha and J. Weinstein *Forum of Math. Pi*, Vol. 10 e13
6. **Weakly de Rham complexes** *TIFR Colloquium Proceedings*, to appear
7. **The six functors for Zariski-constructible sheaves in rigid geometry**, with B. Bhatt *Compositio Math.*, Vol. 158 Issue 2, pp. 437-482

8. **On the supercuspidal cohomology of basic local Shimura varieties**, submitted
9. **Sheafiness criteria for Huber rings**, with K. Kedlaya, under revision at *Algebra and Number Theory*
10. **Perfectoid Shimura varieties and the Calegari-Emerton conjectures**, with C. Johansson, under revision at *J. London Math. Soc.*
11. **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
12. **Remarks on nearby cycles of formal schemes**, preprint (2018)
13. **Vanishing and comparison theorems in rigid analytic geometry**  
*Compositio Math.* Vol. 156 Issue 2, pp. 299-324
14. **On  $p$ -adic L-functions for Hilbert modular forms**, with J. Bergdall  
*Memoirs of the AMS*, to appear
15. **Line bundles on rigid varieties and Hodge symmetry**, with S. Li  
*Math. Zeit.*, Vol. 296, pp. 1777-1786
16. **Degenerating vector bundles in  $p$ -adic Hodge theory**  
*J. Inst. Math Jussieu*, to appear
17. **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
18. **Moduli of local shtukas and Harris's conjecture**  
*Tunisian J. Math.*, Vol. 3 No. 4, pp. 749-799
19. **Period morphisms and variations of  $p$ -adic Hodge structure**, preprint (2016)
20. **Quotients of adic spaces by finite groups**  
*Math. Res. Letters*, to appear
21. **On the  $GL_n$ -eigenvariety and a conjecture of Venkatesh**, with J. Thorne  
*Selecta Math.* Vol. 23 Issue 2, pp. 1205-1234
22. **Iwasawa theory of overconvergent modular forms, I: Critical-slope  $p$ -adic L-functions**, preprint (2016)
23. **Overconvergent modular forms and perfectoid Shimura curves**, with P. Chojecki and C. Johansson  
*Documenta Math.* Vol. 22, pp. 191-262
24. **Universal eigenvarieties, trianguline Galois representations, and  $p$ -adic Langlands functoriality**  
*J. reine angew. Math.* Vol. 2017 Issue 730, pp. 1-64
25. **Minimal modularity lifting for  $GL_2$  over an arbitrary number field**  
*Math. Res. Letters*, to appear
26. **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. **Untitled project on geometric Eisenstein series**, with L. Hamann and P. Scholze
2. **Some remarks on the Kottwitz conjecture**, with C. Johansson
3. **Finiteness theorems for  $p$ -adic sheaves on  $\text{Bun}_G$** , with L. Mann

## LECTURES AND EVENTS

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### Seminar and colloquium lectures

Over 70 invited seminar and colloquium talks from 2013 to present. A detailed list is available upon request.

### Conference lectures

- 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

- 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

*Rigid Analytic Geometry* Spring 2023

### University of Notre Dame

*Calculus II; Graduate Algebra II* Spring 2019

*Calculus II* Fall 2018

### Columbia University

*Honors Math B; Number Theory and Cryptography (+2 independent reading courses)* Spring 2018

*Honors Math A (+1 independent reading course)* Fall 2017

*Honors Math B (+1 independent reading course)* Spring 2017

*Honors Math A;  $p$ -adic Hodge theory (+1 independent reading course)* Fall 2016

*Number Theory and Cryptography (+3 independent reading courses)* Spring 2016

*Calculus II; Intro to Higher Math (+1 independent reading course)* Fall 2015

*Number Theory and Cryptography (+1 independent reading course)* Spring 2015

*Two sections of Calculus 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

- Axel Kölschbach, University of Bonn 2019-Present
- Linus Hamann, Princeton University (jointly advised with Chris Skinner) 2019-Present

### Masters Students

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

### Postdocs

- Daniel Gulotta, MPIM 2020-2022
- Haoyang Guo, MPIM 2021-2022
- Bogdan Zavyalov, MPIM 2021-2022

## ADDITIONAL ACTIVITIES

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- 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 Columbia Ph.D. defense of Raju Krishnamoorthy (Advisor: Johan de Jong) April 2016
- Committee member for Columbia Ph.D. defense of Daniel Gulotta (Advisor: Eric Urban) March 2018
- 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.*

## SCHOLARSHIPS AND AWARDS

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- 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
- **Michael Harris**, Columbia University harris@math.columbia.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@math.uni-bonn.de
- **Sug Woo Shin**, University of California, Berkeley sug.woo.shin@berkeley.edu