

Curriculum Vitæ — Peter Haine

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Employment

2023–2025 **NSF Postdoctoral Fellow, UC Berkeley**
 Sponsoring scientist: David Nadler

2022–2023 **Member, Institute for Advanced Study**
 Sponsoring scientist: Jacob Lurie
 (Membership offered for 2021–2023)

2021–2022 **NSF Postdoctoral Fellow and UC President’s Postdoctoral Fellow, UC Berkeley**
 Sponsoring scientist: David Nadler

Education

2021 **Massachusetts Institute of Technology, Cambridge, MA, *Ph.D. Candidate in Mathematics***
 Advisor: Clark Barwick

2016 **Massachusetts Institute of Technology, Cambridge, MA, *S.B. Mathematics***

Research Interests

Homotopy theory, algebraic geometry, algebraic K-theory, & related subjects

Selected Awards & Distinctions

2021–2025 **National Science Foundation Mathematical Sciences Postdoctoral Research Fellowship**
 NSF Award DMS-2102957

2021–2022 **University of California President’s Postdoctoral Fellowship**

2021 **MIT Mathematics Community Building Award**

2020–2021 **George Lusztig PRIMES Mentorship, MIT**

Spring 2020 **Higher Categories and Categorification Program Associate, MSRI**

Fall 2019 **AMS Graduate Student Travel Grant**

August 2019 **Leibniz Graduate Student Grant, Mathematisches Forschungsinstitut Oberwolfach**
 Workshop on *Homotopy Theory*

2016–2021 **National Science Foundation Graduate Research Fellowship**

2016–2019 **Dean of Science Fellow (MIT)**

Publications & Preprints

7. C. Barwick, S. Glasman, and P. Haine, *Exodromy*, Preprint available at [arXiv:1807.03281](https://arxiv.org/abs/1807.03281), Aug. 2020.
6. S. Devalapurkar and P. Haine, *The James and Hilton–Milnor splittings, & the metastable EHP sequence*, Preprint available at [arXiv:1912.04130](https://arxiv.org/abs/1912.04130), Apr. 2020.
5. P. Haine, *On the homotopy theory of stratified spaces*, Preprint available at [arXiv:1811.01119](https://arxiv.org/abs/1811.01119), Sep. 2019.
4. V. Guillemin and P. Haine, *Differential Forms*. World Scientific Publishing Company, Mar. 2019, ISBN: 9789813272774. DOI: 10.1142/11058.
3. C. Barwick and P. Haine, *Exodromy for stacks*, Preprint available at [arXiv:1901.09414](https://arxiv.org/abs/1901.09414), Jan. 2019.
2. P. Haine, *Extended étale homotopy groups from profinite Galois categories*, Preprint available at [arXiv:1812.11637](https://arxiv.org/abs/1812.11637), Dec. 2018.
1. S. Fomin, R. Shankar, P. Haine, and V. Chugunov, *Stability analysis of non-Newtonian rimming flow*, Appl. Math. Model., vol. 40, no. 4, pp. 2999–3010, 2016. DOI: 10.1016/j.apm.2015.09.088.

Selected Talks

- December 14, 2020 **Universität Hamburg Research Seminar on Algebraic Topology,**
Revisiting classical splitting results
- December 7, 2020 **University of Michigan Algebraic Topology Seminar,**
Stratified étale homotopy theory
- November 3, 2020 **UChicago-Northwestern Topology Seminar,**
Stratified étale homotopy theory
- June 2, 2020 **Oberseminar: Integral Homotopy Theory, Universität Regensburg**
Borel Global Algebras
- May 20, 2020 **Motives and What Not, Motivic Zoom Conference Series**
Stratified étale homotopy theory
- May 5, 2020 **SFB Lecture, Universität Regensburg**
New perspectives on étale homotopy theory
- April 28, 2020 **Working Group on Stratified Homotopy Theory, MSRI**
The homotopy theory of stratified spaces
- April 24, 2020 **Working Group on Stratified Homotopy Theory, MSRI**
Intro to constructible sheaves & exit paths
- March 10, 2020 **Pyknotic/Condensed Seminar, MSRI**
Pyknotic spaces
- March 4, 2020 **Pyknotic/Condensed Seminar, MSRI**
Pyknotic sets

- December 2, 2019 **Johns Hopkins Topology Seminar**
On the homotopy theory of stratified spaces
- October 13, 2019 **AMS Fall Eastern Sectional Meeting**, Binghamton, NY
On the homotopy theory of stratified spaces
- September 10, 2019 **Notre Dame Topology seminar**
Stratified spaces, constructible sheaves, & exit-paths
- August 8, 2019 **Workshop on Homotopy Theory**, Mathematisches Forschungsinstitut Oberwolfach
On the homotopy theory of stratified spaces
- October 18, 2018 **Homotopy Harnessing Higher Structures Programme**, Isaac Newton Institute
Constructible étale & analytic sheaves and exit paths
- December 7, 2017 **OSU Homotopy Theory Seminar**
Monodromy & Stratified Homotopy Theory

Teaching & Mentoring Experience

- Fall 2020 **Mentor**, MIT Math Department's MIT Grad-Undergrad Math Mentoring Initiative (GUMMI)
Mentored two undergrads applying to math grad school
- Fall 2019 **Teaching Assistant**, *Project Laboratory in Mathematics* (18.821), MIT
- 2018–2019 **Reading Course Mentor**, MIT Department of Mathematics
Mentored an undergraduate reading course on differential forms and equivariant de Rham theory with Victor Guillemin
- Winter 2018 **Directed Reading Program Mentor**, MIT Department of Mathematics
Mentored an undergraduate in a category theory and topos theory reading course
- Summer 2017 **√Mathroots Academic Mentor**
Mentored high school students through the MIT Math Department's √Mathroots program
- Winter 2017 **Directed Reading Program Mentor**, MIT Department of Mathematics
*Mentored two undergraduates in reading Emily Riehl's text *Category theory in Context**

Service & Organizational Activities

- Fall 2020 **Co-organizer**, Harvard/MIT Thursday Seminar on Condensed Mathematics
- Fall 2020 **Co-organizer**, MIT Juvitop Seminar on the Cobordism Hypothesis
- 2020– **Co-organizer**, MIT Grad-Undergrad Math Mentoring Initiative (GUMMI)
- Summer 2019 **Co-organizer**, MIT Reading Group on *An Inclusive Academy*
- 2019– **School of Science Graduate Student Council**, MIT
- Fall 2019 **Co-organizer**, MIT Juvitop Seminar on Differential Cohomology
- Spring 2019 **Co-organizer**, Miniature Seminar on Factorization Homology

2018– **Coordinator**, MIT PRIMES Circle
Fall 2018 **Co-organizer**, MIT Juvitop Seminar on *Ambidexterity in $K(n)$ -local Stable Homotopy Theory*
Fall 2017 **Organizer**, MIT Topology Seminar
Spring 2016– **Diversity and Community Building Committee**, MIT Department of Mathematics

Languages

English *Native*

Spanish *Fluent*