

# Harrison Chen

## Curriculum Vitae

### Education

- 2011–2018 **Ph.D. Mathematics**, *University of California, Berkeley*  
Dissertation: A Localization Theorem for Derived Loop Spaces and Periodic Cyclic Homology  
Advisor: David Nadler
- 2007–2011 **B.S. Mathematics**, *Massachusetts Institute of Technology*

### Employment

- 2021–2024 **Institute Research Scholar**, Academia Sinica, Institute of Mathematics
- 2018–2021 **H.C. Wang Assistant Professor**, Cornell University, Department of Mathematics

### Publications

- D. Ben-Zvi, H. Chen, D. Helm and D. Nadler, *Equivariant localization for Langlands parameters*, in preparation (2023).
- H. Chen and G. Dhillon, *A Langlands dual realization of coherent sheaves on the nilpotent cone*, arXiv:2310.10539 (2023).
- D. Ben-Zvi, H. Chen, D. Helm and D. Nadler, *Between Coherent and Constructible Local Langlands Correspondences*, arXiv:2302.00039, to appear in Proc. Symp. Pure Math. (2023).
- H. Chen, *Categorical cyclic homology and filtered  $\mathcal{D}$ -modules on stacks: Koszul duality*, arXiv:2301.06949 (2023).
- D. Ben-Zvi, H. Chen, D. Helm and D. Nadler, *Coherent Springer theory and the categorical Deligne-Langlands correspondence*, Invent. Math. **235** (2024), 255–344.
- H. Chen, *Equivariant localization for cyclic homology*, Adv. Math. **364** (2020), 107005.
- M. Balagovic and H. Chen, *Category  $\mathcal{O}$  for Rational Cherednik Algebras  $H_{t,c}(GL_2(F_p), h)$  in Characteristic  $p$* , J. Pure Appl. Alg. **217** (2013), no. 9, 1683-1699.
- M. Balagovic and H. Chen, *Representations of Rational Cherednik Algebras in Positive Characteristic*, J. Pure Appl. Alg. **217** (2013), no. 4, 716-740.

### Invited Talks

- Dec 1, 2023 *Between coherent and constructible Springer theory*, Conference on Algebraic Representation Theory 2023, National Center of Theoretical Sciences

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- May 11, 2023 *Geometric and categorical local Langlands correspondences*, Colloquium, National Cheng Kung University
- Apr 4, 2023 *Filtered  $D$ -modules, categorical traces, and Koszul duality*, Representation and Number Theory Seminar, Chinese University of Hong Kong
- Feb 24, 2023 *Circle actions, coherent Springer theory and classical Springer theory*, Algebra and Geometry Seminar, The Hong Kong University of Science and Technology
- Jan 17, 2023 *Coherent Springer theory*, Taiwan Mathematical Society Annual Meeting, National Tsing Hua University
- Nov 9, 2022 *Coherent Springer theory and constructible Springer theory*, Number Theory and Representation Theory Seminar, Shanghai Center for Mathematical Sciences
- Oct 14, 2021 *Categorical Deligne-Langlands, coherent Springer theory and categorical traces*, Automorphic Forms and Representation Theory Seminar, Purdue University
- Apr 2, 2021 *Categorical Deligne-Langlands and coherent Springer theory*, Séminaires de Géométrie Arithmétique et Motivique, Université Sorbonne Paris Nord
- Jan 29, 2021 *Categorical Deligne-Langlands and coherent Springer theory*, Colloquium, National Tsing Hua University
- Jan 25, 2021 *Categorical Deligne-Langlands and coherent Springer theory*, Seminar in Representation Theory, Academia Sinica
- Nov 23, 2020 *Coherent Springer theory and categorical Deligne-Langlands*, Algebra Seminar, University of Georgia
- Nov 10, 2020 *Coherent Springer theory and categorical Deligne-Langlands*, Lie Groups Seminar, Massachusetts Institute of Technology
- Nov 2, 2020 *Coherent Springer theory and categorical Deligne-Langlands*, Geometry, Symmetry and Physics Seminar, Yale University
- Oct 28, 2020 *Coherent Springer theory and categorical Deligne-Langlands*, Representation Theory Seminar, Chinese University of Hong Kong
- Oct 24, 2019 *Equivariant localization and Atiyah-Segal completion for Hochschild and cyclic homology*, Mathematical Physics Seminar, Perimeter Institute for Theoretical Physics
- Mar 16, 2018 *Equivariant localization for cyclic homology and derived loop spaces*, Algebraic Geometry Seminar, University of Wisconsin – Madison
- Nov 29, 2017 *Equivariant localization for cyclic homology*, Algebraic Geometry Seminar, University of Michigan
- Nov 17, 2017 *Equivariant localization for cyclic homology*, Representation Theory Seminar, University of Texas at Austin
- Oct 12, 2017 *Equivariant localization for cyclic homology*, Geometry/Physics Seminar, Northwestern University
- Oct 10, 2017 *Equivariant localization for cyclic homology*, Math Physics Seminar, University of Pennsylvania

## Teaching Experience

Spring 2021 Geometric Representation Theory (Math 7390, Cornell)

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- Spring, Fall 2020 Calculus II (Math 1120, Cornell)
- Fall 2019 Algebraic Geometry (Math 6670, Cornell)
- Fall 2019 Multivariable Calculus (Math 2220, Cornell)
- Spring 2019 Calculus for Engineers (Math 1190, Cornell)
- Fall 2018 Finite Mathematics for the Life and Social Sciences (Math 1105, Cornell)
- Summer 2015 Linear Algebra and Differential Equations (Math 54, Berkeley)
- Summer 2014 Introduction to Analysis (Math 104, Berkeley)

## ■ Mentorship and Outreach

- Summer 2019 Summer Program for Undergraduate Research at Cornell
- Fall 2018 – Advisor, Math Explorers Club (K-12 outreach) at Cornell
- Spring 2021
- Spring 2018 Directed Reading Program with Yimeng Wang, on quiver representations
- Fall 2016 Honors thesis (informal) with Weiyi Liu, on algebraic geometry
- Fall 2015 Directed Reading Program with Bryan Wang, on elliptic curves

## ■ Professional Service

- opinion/referee Selecta Mathematica, Journal of Topology, AMS Proceedings of Symposia in Pure Mathematics

## ■ Committees and Organizational Activity

- Spring 2023 Representation Theory Seminar, Academia Sinica
- Fall 2022 Research Seminar: Character sheaves on loop groups, Academia Sinica
- Fall 2019 - Algebraic Geometry Seminar, Cornell University
- Spring 2021
- Fall 2018 - Putnam Committee, Cornell University
- Spring 2021
- April 2018 RTG Research Workshop on the Tate conjectures, University of California Berkeley
- Spring 2017 Derived Algebraic Geometry Seminar, University of California Berkeley
- December 2014 Workshop on Mathematical Aspects of Six-Dimensional Quantum Field Theory, University of California Berkeley

## ■ Conference Participation

- Dec 2023 Taipei Conference on Representation Theory VII, Academia Sinica
- Dec 2023 Conference of Algebraic Representation Theory, National Center of Theoretical Sciences
- Nov 2023 Arthur packets, Banff International Research Station
- Sep 2023 Arithmetic and Cohomology of Algebraic Varieties, Vietnam Academy of Science and Technology

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- Jan 2023 Taiwanese Mathematical Society Annual Meeting, National Tsing Hua University
- Jul 2022 Summer School on the Langlands Program, Institut des Hautes Études Scientifiques
- Jan 2022 Taiwanese Mathematical Society Annual Meeting, Academia Sinica
- Nov 2021 Conference on Algebraic Representation Theory, Seoul National University
- Oct 2020 Algebraic Geometry Northeastern Series, Stony Brook University
- Jun 2020 Geometric Representation Theory, Perimeter Institute for Theoretical Physics
- Sep 2019 Algebraic Geometry Northeastern Series, Boston College
- Aug 2019 Quantum structures in algebra and geometry, Northeastern University
- Mar 2019 Derived algebraic geometry and its applications, MSRI
- Feb 2019 Introductory Workshop: Derived Algebraic Geometry and Birational Geometry and Moduli Spaces, MSRI
- Sep 2018 Route 81 Conference on Commutative Algebra and Algebraic Geometry, Syracuse University
- Aug 2017 Interactions Between Representation Theory and Algebraic Geometry, University of Chicago
- Jun 2017 Derived Algebraic Geometry and Interactions, University of Toulouse
- Oct 2015 Workshop on Springer Theory and Related Topics, Univ. of Massachusetts Amherst
- May 2015 Representation Theory and Geometry of Symplectic Resolutions, Northeastern Univ.
- Dec 2014 Workshop on Mathematical Aspects of Six-Dimensional Quantum Field Theory, UC Berkeley
- Jun 2013 Second PRIMA Congress, Shanghai Jiao Tong University
- Apr 2013 Lie Theory Workshop on Tensor Categories and Categorification, Univ. of Oregon
- Apr 2013 Interactions between Noncommutative Algebra, Representation Theory, and Algebraic Geometry, MSRI
- Feb 2013 Representation Theory, Homological Algebra and Free Resolutions, MSRI
- Jun 2012 Summer Graduate Workshop in Noncommutative Algebraic Geometry, MSRI

## Languages

English	C2 (native)
Mandarin	est. B2 (TOCFL 4)
Taiwanese	est. A1
Hokkien	