

# James Hotchkiss

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Columbia University  
Mathematics Hall, Room 415

## Employment

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| NSF Postdoc, Columbia University              | 2024–present |
| Ritt Assistant Professor, Columbia University | 2023–2024    |

## Education

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| University of Michigan, Ph.D. in Mathematics<br>Advisor: Alexander Perry | 2023 |
| Harvard College, A.B. in Mathematics <i>cum laude</i>                    | 2018 |

## Visiting Positions

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|---|-------------|
| Vincent Della Pietra Endowed Postdoctoral Fellow, SLMath (formerly MSRI)<br>Semester program in Noncommutative Algebraic Geometry | Spring 2024 |
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## Fellowships and awards

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| NSF Postdoctoral Research Fellowship               | 2024 |
| Donald J. Lewis Fellowship, University of Michigan | 2022 |
| Herb Alexander Award, Harvard College              | 2018 |

## Publications and Preprints

*The period-index problem for hyper-Kähler varieties via hyperholomorphic bundles*  
(with D. Maulik, J. Shen, Q. Yin, R. Zhang),  
arXiv:2502.09774 (2025).

*The period-index conjecture for abelian threefolds via Donaldson–Thomas theory*  
(with A. Perry),  
arXiv:2405.03315 (2024).

*On decompositions for Fano schemes of intersections of two quadrics*  
(with Pieter Belmans, Jishnu Bose, Sarah Frei, Benjamin Gould, Alicia Lamarche,  
Jack Petok, Cristian Rodriguez Avila, Saket Shah),  
arxiv:2403.12517 (2024).

*The period-index problem for complex tori*,  
arxiv:2301.09293 (2023).

*Hodge theory of twisted derived categories and the period-index problem*,  
arxiv:2212.10638 (2022).

*The gonality of complete intersection curves* (with B. Ullery and C. Lau),  
J. Alg. 560 (2020), 579-608.

## Lecture series

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|---|----------------|
| PRAGMATIC<br>Catania, Sicily  | September 2025 |
| Bridgeland Stability and Applications<br>CIMPA, Brazil                          | August 2025    |
| Brauer Groups and Derived Categories (3 lectures)<br>FRG Workshop, Northwestern | October 2023   |

## Conference Talks

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|--|---------------|
| Arithmetic, K-theory and Algebraic Cycles<br>Ohio State University   | May 2025      |
| Algebraic K-theory<br>AMS Central Sectional, Lawrence, KS  | March 2025    |
| Geometry Meets Physics<br>Zeist, Netherlands   | January 2025  |
| Derived Categories and Moduli Spaces<br>UC Santa Barbara   | May 2024      |
| Ramification in Algebraic and Arithmetic Geometry<br>AMS Central Sectional, Milwaukee, WI                    | April 2024    |
| Derived Categories, Arithmetic and Geometry,<br>Join Mathematics Meeting, San Francisco, CA                  | January 2024  |
| Workshop on Derived Categories,<br>Hausdorff Research Institute  | November 2023 |
| Algebraic Geometry and Singularities in Mixed and<br>Positive Characteristic, FRG Special Month in Ann Arbor | May 2023      |
| Brauer Groups in Algebraic Geometry and Arithmetic,<br>AMS Central Sectional, Cincinnati, OH                 | April 2023    |
| Michigan Algebraic Geometry Symposium,<br>University of Michigan   | March 2023    |

## Seminar Talks

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|---|---------------|
| Brown Algebraic Geometry Seminar                                  | February 2025 |
| Yale University, Geometry, Symmetry, and Physics Seminar          | October 2024  |
| Dartmouth College, Algebra and Number Theory Seminar              | May 2024      |
| SLMath (formerly MSRI), Noncommutative Projective Schemes Seminar | February 2024 |

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| Columbia University, Algebraic Geometry Seminar                          | December 2023 |
| Stony Brook University, Algebraic Geometry Seminar                       | December 2023 |
| University of Toronto, Algebraic Geometry Seminar                        | December 2023 |
| Princeton University, Algebraic Geometry Seminar                         | November 2023 |
| Valley Geometry Seminar, UMass Amherst                                   | October 2023  |
| University of Wisconsin, Madison, Algebra and Algebraic Geometry Seminar | May 2023      |
| University of Maryland, Algebra–Number Theory Seminar                    | May 2023      |
| Leibniz Universität Hannover, Algebraic Geometry Seminar                 | April 2023    |
| Harvard–MIT Algebraic Geometry Seminar                                   | February 2023 |
| Ohio State University, Arithmetic Geometry Seminar                       | February 2023 |

### Other Invited Events

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| Algebraic Geometry and Noncommutative Projective Varieties,<br>Oberwolfach                  | September 2024 |
| Arithmetic Geometry, Group Actions and Rationality Problems,<br>Simons Foundation, New York | May 2024       |
| Conference on Higher Dimensional Geometry,<br>Simons Foundation, New York                   | October 2023   |
| Stacks Project Workshop,<br>University of Michigan, Ann Arbor                               | August 2023    |
| Derived Categories, Arithmetic and Geometry,<br>AMS Mathematical Research Community         | June 2023      |

### Seminars Co-organized

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| Algebraic geometry seminar, Columbia University    | Fall 2024–present |
| Shifted symplectic structures, Columbia University | Fall 2024         |
| Hyperkähler varieties, Columbia University         | Fall 2023         |
| Donaldson–Thomas Theory, University of Michigan    | Spring 2022       |
| Hodge Theory, University of Michigan               | Spring 2020       |
| Étale Cohomology, University of Michigan           | Spring 2019       |

### Departmental service

Oral exam committee:

- Vidhu Adhihetty, Columbia, 2024

Thesis reader:

- Morena Porzio, Columbia, 2025

Undergraduate mentoring:

- Spring 2025: Supervised two undergraduates in reading course on elliptic curves

## Other Service

Referee for: Journal of the American Mathematical Society; Mathematische Zeitschrift; Homology, Homotopy and Applications; Journal of Symbolic Computation; Journal für die reine und angewandte Mathematik

## Teaching

*Columbia University*

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|------------|-----------|
| Calculus I | Fall 2023 |
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*University of Michigan*

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| Calculus I | Spring 2023, Spring 2022, Spring 2021,<br>Fall 2020, Spring 2020, Fall 2019, Spring 2019 |
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| Precalculus | Fall 2018 |
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*Harvard College*

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| Course Assistant, Undergraduate Algebraic Geometry | Spring 2018 |
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