Nicolas Addington

Department of Mathematics
University of Oregon
Eugene, OR 97403-1222

Fenton Hall 208
adding@uoregon.edu
pages.uoregon.edu/adding

Employment

University of Oregon
Associate Professor 2021–present
Assistant Professor 2015–21

Duke University 2012–15
William W. Elliott Assistant Research Professor

Imperial College London
Research Associate 2010–12

Visiting Positions

Université de Bourgogne Summer 2016
Enseignant Invité

Hausdorff Research Institute for Mathematics, Bonn Spring 2014
Junior Hausdorff Trimester Program

Education

University of Wisconsin–Madison 2009
Ph.D. in Mathematics
Dissertation: Spinor sheaves and complete intersections of quadrics,
supervised by Andrei Căldăraru.

University of Washington 2004
B.S. in Mathematics
Thesis: A method for recovering arbitrary graphs,
supervised by James Morrow.
B.A. in Music Theory and History
Both degrees cum laude with college honors.

Papers and Preprints

Hodge numbers are not derived invariants in positive characteristic
with D. Bragg.
Math. Ann., to appear. arXiv:2106.09949.

A categorical $\mathfrak{sl}_2$ action on some moduli spaces of sheaves
with R. Takahashi.
Trans. Amer. Math. Soc., to appear. arXiv:2009.08522.

On the period of Lehn, Lehn, Sorger, and van Straten’s symplectic eightfold
with F. Giovenzana.
Kyoto J. Math., to appear. arXiv:2003.10984.
Rational points and derived equivalence  
with B. Antieau, S. Frei, and K. Honigs.  
*Compositio Math.* 157(5):1036–1050, 2021.

Twisted Fourier–Mukai partners of Enriques surfaces  
with A. Wray.  
*Math. Z.* 297:1239–1247, 2021.

Some non-special cubic fourfolds  
with A. Auel.  
*Documenta Math.* 23:647–651, 2018.

Cubic fourfolds fibered in sextic del Pezzo surfaces  
with B. Hassett, Y. Tschinkel, and A. Várrilly-Alvarado.  
*Amer. J. Math.* 141(6):1479–1500, 2019.

Moduli spaces of torsion sheaves on K3 surfaces and derived equivalences  
with W. Donovan and C. Meachan.  
*J. Lond. Math. Soc. (2)* 93(3):846–865, 2016.

Mukai flops and \(\mathbb{P}\)-twists  
with W. Donovan and C. Meachan.  
*J. reine angew. Math.* 748:227-240, 2019.

On two rationality conjectures for cubic fourfolds  
*Math. Res. Lett.* 23(1):1–13, 2016.

On the symplectic eightfold associated to a Pfaffian cubic fourfold  
with M. Lehn.  
*J. reine angew. Math.* 731:129–137, 2017.

The Pfaffian–Grassmannian equivalence revisited  
with W. Donovan and E. Segal.  
*Alg. Geom.* 2(3):332–364, 2015.

The Brauer group is not a derived invariant  
In *Brauer groups and obstruction problems: moduli spaces and arithmetic*,  
volume 320 of *Progr. Math.*, pp. 1–5. Birkhäuser, 2017.

Categories of massless D-branes and del Pezzo surfaces  
with P. S. Aspinwall.  
*J. High Energy Phys.* 7(176):39pp., 2013.

Hodge theory and derived categories of cubic fourfolds  
with R. P. Thomas.  
*Duke Math. J.* 163(10):1885–1927, 2014.

D-brane probes, branched double covers, and noncommutative resolutions  
with E. Segal and E. Sharpe.  
*Adv. Th. Math. Phys.* 18(6):1369–1436, 2014.

New derived symmetries of some hyperkähler varieties  
*Alg. Geom.* 3(2):223–260, 2016.

The derived category of the intersection of four quadrics  
arXiv:0904.1766.
Spinor sheaves on singular quadrics
*Proc. Amer. Math. Soc.* 139(11):3867–3879, 2011.

**Grants and Awards**

NSF RTG Grant no. DMS-2039316
*Combinatorics, geometry, representation theory, and topology*
Co-PI, with PI Daniel Dugger and five other Co-PIs 2021–26

NSF Standard Grant no. DMS-1902213
*K3 surfaces, derived categories, and cubic fourfolds*
No-cost extension to 2023 2019–22

Rector's Award for Excellence in Teaching 2012
Faculty of Natural Sciences Award for Excellence in Teaching 2012
Excellence in Mathematical Research Award 2009
NSF VIGRE Merit Fellowship Summer 2008, Spring 2009
Phi Beta Kappa 2003

**Lecture Series**

Pacific Institute for the Mathematical Sciences (PIMS), Vancouver August 2021
Summer school on Brauer classes in moduli problems and arithmetic
Three lectures, with Sarah Frei and Katrina Honigs

Centre International de Rencontres Mathématiques (CIRM), Luminy December 2018
Géométrie algébrique et géométrie complexe
Short course, three lectures

Mathematical Sciences Research Institute (MSRI), Berkeley Summer 2018
Summer school on derived categories
Two weeks of lectures, joint with Alexander Polishchuk

Université de Bourgogne July 2016
Interacting algebraic geometry
Short course, two lectures

Research Institute for Mathematical Sciences (RIMS), Kyoto October 2015
Japanese–European symposium on symplectic varieties
Short course, three lectures

**Conference Talks since 2015**

University of Michigan August 2022
Derived Categories, Moduli Spaces, and Hyperkähler Varieties

Mathematische Forschungsinstitut Oberwolfach (MFO) July 2022
Algebraic Geometry: Moduli Spaces, Birational Geometry and Derived Aspects

University of Massachusetts Amherst June 2021
Categorical braid group actions and categorical representation theory

Steklov Institute of Mathematics, Moscow December 2020
Categories and birational geometry
Banff International Research Station (BIRS) Derived, birational, and categorical algebraic geometry November 2020
Western Algebraic Geometry Online (WAGON) April 2020
University of Warsaw Derived categories and geometry in positive characteristic July 2019
Schiervonnikoog Island, Netherlands Rationality of algebraic varieties April 2019
International Centre for Mathematical Sciences, Edinburgh Constructions and obstructions in birational geometry November 2018
Simons Foundation, New York Birational Geometry Conference August 2017
University of Michigan Mirror Symmetry Conference for Young Mathematicians May 2017
Rice University Texas Algebraic Geometry Symposium (TAGS) April 2017
University of Massachusetts Amherst Algebraic Geometry Northeast Series (AGNES) November 2016
Simons Center for Geometry and Physics, Stony Brook Derived categories and Chow groups of hyperkähler and Calabi–Yau varieties September 2016
Onuma International Seminar House, Hokkaido On explicit description of holomorphic symplectic varieties August 2016
Institut de Mathématiques de Toulouse New methods in birational geometry June 2016
Banff International Research Station (BIRS) Homological mirror geometry March 2016
University of California, San Diego Complex algebraic geometry January 2016
University of Utah AMS summer institute in algebraic geometry July 2015

Seminars and Colloquia since 2015
Indian Institute of Technology, Gandhinagar, Geometry, Algebra, Numbers and Integers, Topology (GANIT) seminar April 2022
University of Nottingham, Online Algebraic Geometry Seminar September 2021
International Centre for Mathematical Sciences (ICMS), Edinburgh Derived Seminar May 2021
University of Michigan / Michigan State University Joint Colloquium April 2021
Beijing Institute of Mathematical Sciences and Applications, Geometric Representation Seminar April 2021
Imperial College London, Geometry and Topology Seminar February 2021
University of Warwick, Algebraic Geometry Seminar February 2021
UC Santa Barbara, Algebraic Geometry Seminar January 2021
Kansas State University, Mirror Symmetry Seminar January 2021
University of Illinois at Chicago, Algebraic Geometry Seminar January 2021
Leibniz Universität Hannover, Algebraic Geometry Seminar November 2020
University of California, Davis, Algebraic Geometry Seminar February 2019
University of British Columbia, Algebraic Geometry Seminar October 2018
University of Arizona, Algebraic Geometry Seminar March 2018
Stony Brook University, Algebraic Geometry Seminar November 2017
Colorado State University, “Fragment” Seminar October 2017
Indiana University, Algebra Seminar April 2017
Rice University, Colloquium April 2017
University of Washington, Algebraic Geometry Seminar October 2016
Imperial College London, Algebraic Geometry Seminar July 2016
University of Utah, Algebraic Geometry Seminar January 2016

Postdoctoral Supervision
Katrina Honigs 2019–21
Assistant Professor, Simon Fraser University

Ph.D. Supervision
Andy Huchala expected 2025
Corey Brooke expected 2023
Andrew Wray 2020
Data Scientist, Fullpower-AI
Ryan Takahashi 2020
Pro tem instructor, University of Oregon
Sarah Frei 2019
John Wesley Young Research Instructor (postdoc), Dartmouth College
Moduli spaces of sheaves on K3 surfaces and Galois representations.
Selecta Math. 26(1):16pp, 2020.

Master’s and Undergraduate Supervision
Chris Keane, MS 2019–22
Makenna Greenwalt, undergraduate research project Summer 2022
An undergraduate introduction to Eckardt points and cubic surfaces
Isabella Harker, undergraduate research project Summer 2022
  Videos illustrating the conic fibration on a cubic surface
  and the elliptic fibration on the quartic surface containing a line.
  Available at pages.uoregon.edu/adding/videos

Karl Richter, undergraduate research project Summer 2022
  Video illustrating the Noether–Lefschetz theorem for quartic surface

Jessica Taylor, BS thesis 2021–22
  *Lines and conics on quartic surfaces: an algorithmic approach*

Simon Venter, translation project 2020–22
  *Small resolutions of special three-dimensional varieties*, arXiv:2208.01383
  Translation of J. Werner, *Kleine Auflösungen spezieller dreidimensionaller Varietäten*
  originally published as Bonner Mathematische Schriften No. 186.

Ian McCohanchie, research project Summer 2021
Leonie Way, research project Summer 2019

Jutta Frieden, MSc thesis (Imperial College) 2012
  *The Lefschetz hyperplane theorem*

Hugh Gledhill, BSc thesis (Imperial College) 2012
  *Galois theory, covering spaces, and Riemann surfaces*

**Teaching**
University of Oregon 2015–present
  Math 202–5, Math Labs (Fall 2019 and 2021, two sections each time)
  Math 243, Introduction to Statistics (Winter 2022)
  Math 252, Calculus II (Fall 2015, Spring 2016, Winter 2019)
  Math 320, ODEs with theory (Spring 2019)
  Math 391–2, Abstract Algebra (2020–21)
  Math 420, Second Course in ODEs (Spring 2016)
  Math 431, Point-set topology (Fall 2018 and 2019)
  Math 432, First course in manifolds (Winter 2020)
  Math 444, Ring theory (Fall 2016)
  Math 445, Group theory (Winter 2016)
  Math 605, Reading courses (12 quarters)
  Math 607, Topics Course: Moduli Spaces of Sheaves (Winter 2016)
  Math 607, Topics Course: Homological Algebra (Spring 2020)
  Math 607, Topics Course: Connections and Characteristic Classes (Winter 2021)
  Math 634, Algebraic Topology I (Fall 2020)
  Math 637, Differential Geometry I (Fall 2021)
  Math 681–2–3, Algebraic Geometry (2017–18, Spring 2022)
  Math 692, “What every topologist should know” (Spring 2019)
Duke University 2012–15
  Multivariable calculus, abstract algebra, mathematical logic, Riemannian geometry, reading course on matrix factorizations, mini-course on derived categories. Recognized for high course evaluation scores, Fall 2013.

Imperial College London 2010–12
  Taught undergraduate algebraic topology three times. Supervised an undergraduate thesis and a master’s thesis. Won two teaching awards.

University of Wisconsin 2004–09
  Teaching assistant for nine semesters: including one teaching calculus independently; one with the Wisconsin Emerging Scholars program, working with students from disadvantaged backgrounds; and one with the Honors program.

University of Washington 2003
  Teaching Assistant, Robinson Center for Young Scholars

Professional Service

Co-organizer, special session for PRIMA Congress 2012–15
  (upcoming, with Alexander Polishchuk)

Local co-organizer, Western Algebraic Geometry Symposium (WAGS) 2012–15
  (with Nicholas Proudfoot)

Co-organizer, Follow-up workshop to JTP “Algebraic Geometry” 2013–14
  Hausdorff Research Institute for Mathematics, Bonn
  (with Margherita Lelli-Chiesa, Dennis Eriksson, Francesco Polizzi)

Co-organizer, Derived categories workshop 2013–14
  Hausdorff Junior Trimester Program “Algebraic Geometry,” Bonn
  (with Nathan Broomhead)

Co-organizer, Graduate student topology and geometry conference 2013–14
  (with Michael Childers, Christine Lien, Jo Nelson)

NSF Panelist 2010–14

Refereeing and quick opinions, including Duke Math. J. and J. Eur. Math. Soc. 2010–present

Referee for a German habilitation thesis 2013

Referee for a European grant agency 2015

Referee for two European Ph.D. theses 2018, 2021

Departmental Service

Dissertation, oral exam, and undergraduate thesis committees 2017–present
  Dissertation committees for Catherine Hsu, Christophe Dethier, Joel Doss, Wei Zhang, Elijah Bodish, Jon Aycock, Ross Casebolt, 13 further oral exam committees, 3 undergraduate thesis committees

Scholarships and awards committee 2015–21

Colloquium committee 2019–21
Climate committee (DEI) 2020–22
Teaching effectiveness committee 2021–22
Executive committee 2017–18, 2019–22
Department head search committee 2017, 2020
Graduate advising committee 2016–17, 2018–19

Other Employment
Madison (Wisconsin) Symphony Orchestra 2007–09
  Substitute violin
Tacoma (Washington) Symphony Orchestra 2003–04
  Substitute violin
Milliman & Robertson, Inc. 2000–03
  Assistant network and database administrator

Languages
English (native), French (good)

Citizenship
United States