

CURRICULUM VITAE (2023 VERSION)

NICHOLAS SWITALA

Contact information

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Education

- (2015) **Ph.D. in Mathematics**, University of Minnesota (adviser: Gennady Lyubeznik)
- (2010) **M.S. in Mathematics**, University of Minnesota
- (2008) **B.S. in Mathematics**, *summa cum laude*, University of Minnesota

Appointments

- (2019–present) **Lecturer**, Department of Mathematics, Statistics, and Computer Science, University of Illinois at Chicago
- (2016–2019) **Research Assistant Professor** and **NSF Postdoctoral Fellow**, Department of Mathematics, Statistics, and Computer Science, University of Illinois at Chicago
- (2015–2016) **Postdoctoral Faculty Fellow**, Department of Mathematics, University of Nebraska-Lincoln

Papers

- R. Datta, N. Switala, and W. Zhang, Annihilators of \mathcal{D} -modules in mixed characteristic, to appear in *Mathematical Research Letters* (preprint version [arXiv:1907.09948](https://arxiv.org/abs/1907.09948))
- N. Switala and W. Zhang, A prime-characteristic analogue of a theorem of Hartshorne-Polini, *Journal of Pure and Applied Algebra* **224** 106386, 2020
- N. Switala and W. Zhang, On completion of graded \mathcal{D} -modules, *Mathematical Research Letters* **27** (3) 887–901, 2020
- N. Switala and W. Zhang, A dichotomy for the injective dimension of \mathcal{F} -finite \mathcal{F} -modules and holonomic \mathcal{D} -modules, *Communications in Algebra* **47** (6) 2525–2539 (special issue in honor of Gennady Lyubeznik), 2019
- N. Switala and W. Zhang, Duality and de Rham cohomology for graded \mathcal{D} -modules, *Advances in Mathematics* **340** 1141–1165, 2018
- N. Switala, On the de Rham homology and cohomology of a complete local ring in equicharacteristic zero, *Compositio Mathematica* **153** (10) 2075–2146, 2017
- N. Switala, Van den Essen’s theorem on the de Rham cohomology of a holonomic \mathcal{D} -module over a formal power series ring, *Expositiones Mathematicae* **35** (2) 149–165, 2017
- N. Switala, Lyubeznik numbers for nonsingular projective varieties, *Bulletin of the London Mathematical Society* **47** (1) 1–6, 2015
- N. Switala, Some local cohomology invariants of nonsingular projective varieties and complete local rings, Ph.D. thesis, University of Minnesota, 2015

Awards, honors, and grants ¹

- (2016–2019) NSF Mathematical Sciences Postdoctoral Research Fellowship (NSF grant DMS-1604503)
- (2011–2012) School of Mathematics Outstanding Teaching Assistant Award, University of Minnesota

¹graduate school or later

Conferences organized

- Workshop on \mathcal{D} -modules and Hodge theory, University of Illinois at Chicago, co-organizer with Wenliang Zhang (November 2018)

Invited talks

- Algebraic geometry seminar, Northwestern University (April 2019)
- Joint Mathematics Meetings, special session on recent advances in homological and commutative algebra, Baltimore (January 2019)
- AMS sectional meeting, special session on advances in commutative algebra, University of Michigan (October 2018)
- Commutative algebra and algebraic geometry seminar, University of Notre Dame (November 2017)
- Commutative algebra seminar, University of Minnesota (November 2017)
- Algebra seminar, University of Kansas (October 2017)
- Commutative algebra seminar, University of Michigan (October 2017)
- Conference on local cohomology (for Gennady Lyubeznik's sixtieth birthday), University of Minnesota (August 2017)
- Commutative algebra seminar, University of Illinois at Chicago (April 2016)
- Workshop in commutative algebra and related topics, University of Kansas (March 2015)
- Commutative algebra seminar, University of Utah (January 2015)

Notable workshops and conferences attended

- International Congress of Mathematicians, Rio de Janeiro (August 2018)
- Hot topics workshop on the homological conjectures, MSRI, Berkeley (March 2018)
- AMS Mathematics Research Community in commutative algebra, Snowbird, Utah (June 2015)
- RTG local cohomology workshop, University of Illinois at Chicago (February 2015)

Teaching experience²

- University of Illinois at Chicago
 - Analysis I (spring 2020)
 - Introduction to Advanced Mathematics (spring 2020, fall 2020, spring 2022)
 - Calculus III (fall 2019)
 - Calculus II (fall 2019)
 - Commutative and Homological Algebra (graduate course: fall 2018)
 - Applied Linear Algebra (spring 2018, fall 2020, fall 2022; as course coordinator, spring 2021, fall 2021, spring 2022, spring 2023)
 - Mini-course on algebraic \mathcal{D} -modules (fall 2016)
- University of Nebraska-Lincoln
 - Elementary Analysis (spring 2016)
 - Differential Equations (fall 2015)
 - Linear Algebra (fall 2015)
- University of Minnesota
 - Applied Linear Algebra (summer 2012, spring 2014)
 - Introduction to Modern Algebra (summer 2013)
 - Excursions in Mathematics (survey course for liberal arts majors: spring 2012)
 - Advanced Calculus I (summer 2011)
 - Short Calculus (summer 2010)

²as sole instructor or instructor of record only