

DYLAN SPENCE

Rawles Hall 238 \diamond 831 East 3rd St. \diamond Bloomington, IN 47405

dkspence952.github.io \diamond dkspence@indiana.edu

EDUCATION

Indiana University Bloomington

Ph.D. in Mathematics

Thesis: *Derived categories of singular curves*

Expected May 2021

Advisor: Valery Lunts

Indiana University Bloomington

M.A. in Mathematics

December 2018

University of Delaware

B.S. in Physics & B.S. in Applied Mathematics

May 2016

RESEARCH INTERESTS

Algebraic geometry. In particular derived categories, deformation theory, moduli, and related equivariant questions. Applications to homological mirror symmetry, birational geometry, geometric representation theory, and motives. Further interests include noncommutative and higher algebraic structures arising in the above.

PUBLICATIONS

In Preparation

- *A note on semiorthogonal indecomposability of some Cohen-Macaulay varieties.*

Preprints

- *Reconstruction of projective curves from the derived category.* arXiv 2002.07961. Submitted.

TEACHING EXPERIENCE

Indiana University Bloomington

Instructor of Record

- Math-M 106: Math of Decision and Beauty *Fall 2020*
- Math-J 111: Introduction to College Math I *Fall 2019*
- Math-M 106: Math of Decision and Beauty *Summer 2019*
- Math-J 113: Introduction to Calculus with Applications *Spring 2019*
- Math-J 010: Introduction to Algebra *Summer 2018*
- Math-M 106: Math of Decision and Beauty *Spring 2018*
- Math-M 106: Math of Decision and Beauty *Summer 2017*
- Math-M 014: Basic Algebra *Fall 2016*

Grader

- Math-M 501: Survey of Algebra *Fall 2020*
- Math-M/S 403: Introduction to Modern Algebra I *Fall 2019*
- Math-M 501: Survey of Algebra *Spring 2018*
- Math-M 336: Topics in Euclidean Geometry *Spring 2018*
- Math-M 380: History of Math *Spring 2017*

University of Delaware

Teaching Assistant

- PHYS202: Introductory Physics II
- PHYS202: Introductory Physics II

Winter 2016

Winter 2015

UNDERGRADUATE MENTORING - DIRECTED READING PROGRAM

Directed Reading Program

2018-Present

Program Coordinator

Graduate Mentor:

- Nathaniel Lowry.

Spring 2019

Project Title: Rational points on elliptic curves

Book: *Elliptic curves* by Dale Husemöller.

- Nathaniel Lowry.

Spring 2018

Project Title: Introduction to algebraic geometry

Book: *Algebraic Geometry: A Problem Solving Approach* by Thomas Garrity, et. al.

AWARDS AND HONORS

Hazel King Thompson Fellowship

Summer 2020

Research fellowship

David A. Rothrock Teaching Award

April 2018

For excellence in teaching

Hazel King Thompson Fellowship

Spring 2016

For the recruitment of excellent graduate candidates

INVITED TALKS

Midwest Algebraic Geometry Graduate Conference

May 2020

Title: *Reconstruction of projective curves from the derived category*

Online

Particle Physics Seminar

March 2018

Title: *Complex and algebraic geometry in physics*

University of Delaware

SEMINARS (CO)ORGANIZED

Seminar on Homological Projective Duality

Fall 2020

Co-organizer

Seminar on K3 Surfaces

Fall 2019

Organizer

Seminar on Noncommutative Motives

Fall 2019

Co-organizer

Seminar on Pure Motives

Spring 2019

Co-organizer

Graduate Student Colloquium

Fall 2018

Co-organizer

Seminar on Poisson Geometry

Spring 2018

Co-organizer

CONFERENCES AND WORKSHOPS ATTENDED

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| SPONGE (Stacks Project ONline Geometry Event) Online | <i>August 2020</i> |
| Midwest Algebraic Geometry Graduate Conference Online | <i>May 2020</i> |
| The Geometry of Derived Categories University of Liverpool | <i>September 2019</i> |
| Derived Categories, Moduli Spaces, and Deformation Theory Cetraro Italy | <i>June 2019</i> |
| Stability Conditions and Homological Projective Duality University of Michigan | <i>April 2018</i> |

SERVICE AND PROFESSIONAL DEVELOPMENT

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| IU Directed Reading Program Program coordinator; supervised two projects | <i>2018 - Present</i> |
| American Mathematical Society Member | <i>2016 - Present</i> |
| Jumpstart Qualifier Preparation Instructor for algebra | <i>Summer 2018</i> |
| ScienceFest Volunteer for a public science day at IU | <i>2016, 2017</i> |
| Delaware Science Olympiad Event director | <i>2012, 2013, 2015, 2016</i> |