

# Alexander Wilson

awilson6@oberlin.edu

## Employment

**Oberlin College**, *Visiting Assistant Professor*.

Sep 2023–

## Education

**Dartmouth College**.

Sep 2018–Jun 2023

- Ph.D., Mathematics
- Thesis Advisor: Rosa Orellana

**Michigan State University**.

Sep 2014–May 2018

- Bachelor of Science in Advanced Mathematics
- Minor in German

## Publications

**A Super Multiset Insertion Algorithm and a Mixed Multiset Partition Algebra**, *In progress*.

**A Diagram-Like Basis for the Multiset Partition Algebra**, *In progress*.

**A Charged Graph Algebra (with Rosa Orellana)**, *In progress*.

**Closed Forms of Recursive Polynomials and Applications (with Michelle Haver, Kathleen Lee, William McDermott, Wei-Hsuan Yu and Aklilu Zeleke)**, *Ars Combinatoria*, 142 (2019), 175-195.

## Presentations

### *Invited Conference Talks*

**Special Session on Research Community in Combinatorics**, *Joint Math Meetings*, Boston, MA. Jan 2023

**Session on Algebraic Combinatorics and Representation Theory**, *Winter Meeting of the CMS*, Toronto, ON. Dec 2022

**Young Voices in Combinatorics**, *AMS 2022 Fall Eastern Sectional Meeting*, Amherst, MA. Oct 2022

### *Invited Seminar Talks*

**UW Milwaukee**, *Algebra Seminar*. Apr 2023

**Washington University in St. Louis**, *Combinatorics Seminar*. Mar 2023

**Michigan State University**, *Combinatorics and Graph Theory Seminar*. Sep 2022

**University of Vermont**, *Combinatorics Seminar*. May 2022

**Dartmouth College**, *Combinatorics Seminar*. Feb 2022

## Other

<b>A Diagram-Like Basis for the Multiset Partition Algebra</b> , <i>Contributed Talk</i> , Spectra LGBTQ+ in Mathematics Conference.	<b>Aug 2021</b>
<b>Schur-Weyl Duality and Centralizer Algebras</b> , <i>Graduate Student Seminar (virtual)</i> , Dartmouth College.	<b>Oct 2020</b>
<b>Building Character(s): Representation Theory of Finite Groups</b> , <i>Graduate Student Seminar</i> , Dartmouth College.	<b>Feb 2020</b>
<b>Classic Bases of Symmetric Functions and Transition Matrices</b> , <i>Combinatorics Seminar</i> , Dartmouth College.	<b>Nov 2019</b>
<b>Some Bases of Symmetric Functions</b> , <i>Graduate Student Seminar</i> , Dartmouth College.	<b>Oct 2019</b>
<b>Manifolds with Boundary</b> , <i>Geometry and Topology Student Seminar</i> , Michigan State University.	<b>Sep 2017</b>
<b>Obtaining a Projective Toric Variety from a Polytope</b> , <i>Seminar on Toric Varieties</i> , Michigan State University.	<b>Jun 2017</b>
<b>REU Symposium</b> , <i>Poster Session</i> , Arlington, VA.	<b>Oct 2016</b>
<b>Mathfest</b> , Columbus, OH.	<b>Aug 2016</b>

## Teaching

<b>Oberlin College</b> , <i>Instructor</i> .	<b>Sep 2023–</b>
<ul style="list-style-type: none"> <li>Math 220: Discrete Mathematics (Fall 2023)</li> <li>Math 234: Differential Equations (Fall 2023)</li> </ul>	
<b>Dartmouth College</b> , <i>Instructor</i> .	<b>Sep 2020–Jun 2023</b>
<ul style="list-style-type: none"> <li>Math 22: Linear Algebra with Applications (Fall 2022)</li> <li>Math 3: Calculus (Fall 2021)</li> <li>Math 1: Introduction to Calculus (virtual, Fall 2020)</li> </ul>	
<b>Dartmouth College</b> , <i>Teaching Assistant</i> .	<b>Sep 2018–Jun 2020</b>
<ul style="list-style-type: none"> <li>Math 10: Introductory Statistics (Spring 2020, online over Zoom)</li> <li>Math 11: Accelerated Multivariable Calculus (Fall 2019)</li> <li>Math 8: Calculus of Functions of one and Several Variables (Winter 2019)</li> <li>Math 1: Introduction to Calculus (Fall 2018)</li> </ul>	
<b>Michigan State University</b> , <i>Math Learning Center Supervisor</i> .	<b>Sep 2015–May 2018</b>
<ul style="list-style-type: none"> <li>Managed a center of around twenty tutors, conducting evaluations and mentoring tutors on effective tutoring techniques.</li> </ul>	
<b>Michigan State University</b> , <i>Undergraduate Learning Assistant</i> .	<b>Sep 2015–May 2018</b>
<ul style="list-style-type: none"> <li>Taught a recitation of around twenty students in business calculus, calculus II, honors calculus III, and honors linear algebra.</li> </ul>	
<b>Lyman Briggs College</b> , <i>Worksheet Author</i> .	<b>Summer 2017</b>
<ul style="list-style-type: none"> <li>Composed worksheets for a biology-based calculus course which connected calculus concepts to biology through mathematical modelling.</li> </ul>	

## Service

### *K-12 Outreach*

**Co-Organizer**, *Sonia Kovalevsky Math Day at Dartmouth.* **Apr 2022**

**Camp Leader**, *Exploring Mathematics at Dartmouth: Cryptography and Graph Theory (virtual).* **Summer 2020**

**Graduate Leader**, *Sonia Kovalevsky Math Day at Dartmouth.* **Apr 2019**

### *Dartmouth Mathematics Directed Reading Program*

**Mentor**, *Magical Mathematics by Diaconis and Graham.* **Winter 2023**

**Mentor**, *Integer-Point Enumeration in Polyhedra by Beck and Robins.* **Spring 2022**

**Mentor**, *Representation Theory of Finite Groups by James and Liebeck.* **Winter 2020**

### *Other*

**Co-facilitator**, *Dartmouth Math Department Racial Justice Discussion Group.* **Aug 2020–May 2021**

## Honors and Awards

**TA Award for Excellence in Teaching**, *MSU Mathematics Department.* **Apr 2017**

**Richard E. Phillips Memorial Scholarship**, *MSU Mathematics Department.* **Apr 2017**

**Leroy G. Augenstein Award**, *MSU College of Natural Science.* **Apr 2017**

## Languages

### *Natural*

**German**: Proficient

### *Programming*

**Mathematica**: Proficient

**Python/Sage**: Proficient