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Employment

George Mason University, Assistant Professor, Fall 2018–present

Syracuse University, Philip T. Church Postdoctoral Fellow, Fall 2016–Summer 2018

- Mentors: Claudia Miller and Graham Leuschke

Education

University of Michigan, Ph.D. in Mathematics, 2016

- Advisor: Mel Hochster
- Dissertation: *Closure operations that induce big Cohen-Macaulay modules and algebras, and classification of singularities.*

Bryn Mawr College, BA/MA in Mathematics, 2011

- Advisor: Helen Grundman
- MA Thesis: *Galois groups of certain polynomials of prime degree*

Research Interests

Commutative Noetherian rings and algebraic geometry, especially big Cohen-Macaulay modules and algebras, closure operations, and their relationship to classifying singularities. Singularities in characteristic $p > 0$.

Publications

1. *Closure operations that induce big Cohen-Macaulay modules and classification of singularities*, *J. Algebra*, 467 (2016), p. 237-267, arXiv:1512.06843
2. *F-singularities under generic linkage* (with Linqun Ma, Janet Page, William Taylor, and Wenliang Zhang), *J. Algebra*, 505 (2018), p. 194-210, arXiv:1607.03972
3. *Closure operations that induce big Cohen-Macaulay algebras*, *J. Pure Appl. Algebr.*, 222 (2018), p. 1878-1897, arXiv:1512.07862
4. *Big Cohen-Macaulay and seed algebras in equal characteristic zero via ultraproducts* (with Geoffrey D. Dietz), to appear in *J. Commut. Algebr.*, arXiv:1608.08193
5. *Betti numbers of the Frobenius powers of the maximal ideal over a generic hypersurface* (with Claudia Miller and Hamidreza Rahmati), submitted for publication.
6. *Test Ideals for all Characteristics* (with Felipe Pérez), submitted for publication, arXiv:1907.02150
7. *Closure-Interior Duality over Complete Local Rings* (with Neil Epstein), in preparation.

Mentoring

1. Computations of test ideals of big Cohen-Macaulay modules, Spring 2019
 - Two undergraduates.

Research Talks

1. Plenary Lecture, Graduate Workshop in Commutative Algebra for Women & Mathematicians of Other Minority Genders, University of Minnesota, April 2019
2. AWM Research Symposium, Research Session on Commutative Algebra, Houston, TX, April 2019
3. AMS Special Session on Commutative Algebra and its Environs, Oahu, HI, March 2019
4. AMS Special Session on Commutative Algebra, Fayetteville, AR, November 2018
5. AMS Special Session on Advances in Commutative Algebra, Ann Arbor, MI, October 2018
6. Commutative Algebra Seminar, University of Utah, October 2018
7. AMS Special Session on Commutative Algebra, Newark, DE, September 2018
8. Speaker and session chair, Algebraic Geometry, Commutative Algebra, and Number Theory, Women's Intellectual Network Research Symposium, University of Virginia, September 2018
9. AMS Special Session on Homological Commutative Algebra, Boston, MA, April 2018
10. AMS Special Session on Commutative Algebra in all Characteristics, Joint Math Meetings, San Diego, CA, January 2018
11. Structures on Free Resolutions Mini-Symposium, Texas Tech University, October 2017
12. AMS Special Session on Homological Methods in Commutative Algebra, Denton, TX, September 2017
13. The Prospects for Commutative Algebra, Wine and Cheese Talk, Osaka, Japan, July 2017
14. AMS Special Session on Commutative Algebra, Charleston, SC, March 2017
15. AMS Special Session on An Amicable Combination of Algebra and Number Theory, Joint Math Meetings, Atlanta, GA, January 2017
16. CMS Special Session on Recent Advances in Commutative Algebra, Winter Meeting, December 2016
17. Algebra Seminar, Syracuse University, November 2016
18. Route 81 Conference, Syracuse University, Syracuse, NY, September 2016
19. AMS Special Session on Commutative Ring Theory, Fargo, ND, April 2016
20. AMS Special Session on Commutative Algebra and its Interactions with Algebraic Geometry, Joint Math Meetings, Seattle, WA, January 2016
21. Algebra Seminar, University of Texas at Austin, Austin, TX, December 2015
22. Commutative Algebra Seminar, Georgia State University, GA, November 2015
23. AMS Special Session on Homological Methods in Commutative Algebra, Fullerton, CA, October 2015
24. AMS Special Session on Commutative Algebra, Chicago, IL, October 2015

25. Kumunu Jr., University of Nebraska–Lincoln, Lincoln, NE, April 2015
26. Commutative Algebra Seminar, University of Michigan, April 2015 and November 2015
27. AMS Special Session on Closure Operations in Commutative Algebra, Washington, DC, March 2015
28. Commutative Algebra Seminar, University of Virginia, VA, March 2015 and December 2015

Honors and Grants

AMS-Simons Travel Grant, 2019

CHSS Internal Award for Team-Taught Course on History of Mathematics, 2019

Project NExT Fellow, Mathematical Association of America, 2018

AWM Mathematics Travel Grant, February 2017

Participant, AMS Math Research Community on Commutative Algebra, Summer 2015

AMS Graduate Student Travel Grant, Spring 2015

NSF Graduate Research Fellowship, Awarded 2011

Ann Pell Wheeler Prize in Mathematics, Bryn Mawr College, 2011

MIT Lincoln Labs Research Award in Math, Bryn Mawr College, 2011

Teaching

Instructor, George Mason University, Fall 2018–present

- *History of Math*, MATH 400/HIST 387, Spring 2020 (upcoming)
 - Funded by a GMU grant for team-taught courses, taught jointly with Jessica Otis
- *Abstract Algebra*, MATH 321, Fall 2019 (upcoming)
- *Graduate Algebra 1*, MATH 621, Spring 2019
- *Geometry*, MATH 302, Fall 2018

Instructor, Syracuse University, Fall 2016–Spring 2018

Taught all courses using active learning techniques.

- *Test Ideals*, Spring 2018
 - Upper-level graduate student course
- *Projective Geometry*, Spring 2018 (upcoming)
 - Junior/senior level course
- *History of Math*, Fall 2017
 - Designed new course curriculum, incorporating material on mathematics of non-European cultures
 - Junior/senior level course
 - Taught class using Inquiry-Based Learning
- *Calculus 1 for the Life Sciences*, Spring 2017 and Fall 2017
- *Calculus 1*, Fall 2016

Graduate Student Instructor, University of Michigan, Fall 2012–Winter 2013 and Fall 2014–Winter 2015

- *Multivariable Calculus*, Spring 2015
 - Held lab sessions using Mathematica
- *Calculus 2*, Fall 2014
 - Instructor of record
 - Ran class primarily with group work, occasional mini-lectures
- *Calculus 1*, Fall 2012 and Spring 2013
 - Instructor of record
 - Ran class with a mix of group work and lectures

Pedagogy Training

Project NExT Fellow, Summer 2018–present

- Participant in workshops on classroom management, implementing active learning in the classroom, and inclusive teaching

Academy of Inquiry-Based Learning Workshop at De Paul University, Summer 2017

- Participated in 1-week workshop on implementing Inquiry-Based Learning techniques in the classroom

Graduate Teacher Certificate, University of Michigan, Fall 2016

- Attended workshops on inclusive teaching, research-based teaching practices, and writing and grading exams
- Observed by and received feedback from a teaching consultant
- Worked with a teaching mentor

Outreach

Mentor, National Alliance for Doctoral Studies in the Mathematical Sciences, Spring 2016–present

- Volunteered to advise doctoral and pre-doctoral students from underrepresented groups

Michigan Math and Science Scholars, Summer 2014 and Summer 2016

- Assisted at an intensive summer program for high school students
- Set problems and directed group activities for Cryptology and Fibonacci Numbers courses
- Assisted with course design, ran workshops, and worked with students for Art and Mathematics course

Nebraska Conference for Undergraduate Women in Mathematics, Winter 2016

- Served on panels, answered questions about graduate school

Summer Program for Women in Mathematics, Summer 2013

- Worked as a TA for courses in Fourier Analysis and Statistics
- Mentored female undergraduates who were considering graduate school in math

Math Circle, University of Michigan, Fall 2012–Winter 2014

- Ran 2-session programs for middle schoolers and high schoolers
- Topics included Groups in Motion, Permutation Groups and Cayley’s Theorem, Binary and Other Non-Decimal Bases

Graduate Student Mentor, University of Michigan, Fall 2012–present

- Mentored incoming students
- Helped with course selection

Expository Talks

1. Utica College Undergraduate Math Club, November 2017
2. Ithaca College Colloquium, November 2017
 - Presented research to undergraduates and faculty in other areas of math
3. Adelphi University Math and Computer Science Seminar, April 2017
 - Gave workshop-style talk on hyperbolic space to undergraduates
 - Incorporated audience exploration of crocheted models
4. Syracuse University Undergraduate Math Club, Fall 2016
 - Spoke about “Visualizing Projective Space”
5. Undergraduate Math Club, University of Michigan, Fall 2013–Fall 2015
 - Spoke about “Visualizing Projective Space”
 - Spoke about “Diophantus was a Potato Farmer (and other mathematical tales)”

Additional Teaching

Mathematics Tutor, University of Michigan, Fall 2011–Spring 2016

Teaching Assistant, Math Department, Bryn Mawr College, Fall 2009–Spring 2011

- Held problem sessions and graded problem sets for Abstract Algebra and Transitions to Higher Mathematics courses

Mathematics Tutor, Bryn Mawr College, Spring 2009

Teaching Assistant, Computer Science Department, Bryn Mawr College, Fall 2008–Spring 2009

- Assisted students with homework assignments for Introduction to Computing

Selected Additional Conferences Attended

1. Conference on Commutative Algebra and its Interaction with Algebraic Geometry in honor of Bernd Ulrich, June 2019
2. Route 81 Conference, Cornell University, October 2017
3. Local Cohomology in Commutative Algebra and Algebraic Geometry, University of Minnesota, August 2017

4. Stillman's Conjecture and other Progress on Free Resolutions: a workshop in honor of the sixtieth birthdays of Dave Bayer and Mike Stillman, University of California, Berkeley, July 2017
5. A View Towards Algebraic Geometry, a conference in honor of David Eisenbud's 70th Birthday, Martha's Vineyard, MA, May 2017
6. Homological Conjectures in Commutative Algebra Workshop, University of Illinois at Chicago, November 2016
7. Commutative Algebra and its Interactions with Algebraic Geometry: Tight Closure, Linkage, and Syzygies: A conference honoring Craig Huneke on the occasion of his 65th birthday, University of Michigan, July 2016
8. Midwest Commutative Algebra and Algebraic Geometry Conference at Notre Dame: A Meeting in Honor of Juan Migliore, University of Notre Dame, May 2016
9. KUMUNU Jr., University of Nebraska, April 2016
10. Southwest Local Algebra Meeting, Texas State University, February 2016
11. D-modules in commutative algebra, CIMAT, Guanajuato, Mexico, August 2015
12. Midwest Commutative Algebra Conference at Purdue, Purdue University, August 2015
13. RTG Local Cohomology Workshop, University of Illinois at Chicago, March 2015
14. KUMUNU, University of Missouri, Columbia, September 2014
15. Commutative Algebra – Algebraic Geometry in the Southeast, University of South Carolina, November 2013

Service

Reviewer, AMS MathSciNet, Summer 2018–present

Organizer, Commutative Algebra Learning Seminar, Syracuse University, Fall 2016–Spring 2018

- Chose texts to read and assisted graduate students in preparing talks

Reviewer, Zentralblatt MATH, Spring 2016–present

Organizer, Women in Math Club, University of Michigan, Winter 2014–Fall 2016

- Held social events to help women meet each other, find support networks

Organizer, Student Commutative Algebra Seminar, University of Michigan, Fall 2014–Winter 2016

- Chose topics and graduate student speakers for weekly seminar

Organizer, Distressing Math Collective, Bryn Mawr College, Spring 2008–Fall 2010

- Organized seminar featuring weekly talks by undergraduate and graduate students

Professional Memberships

Association for Women in Mathematics, 2016–present

American Mathematical Society, 2010–present

Mathematical Association of America, 2018–present