

MATTHEW N. MASTROENI

CONTACT INFORMATION

Department of Mathematics
Oklahoma State University
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Stillwater, OK 74078

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`mmastro/github.io`

EMPLOYMENT

Postdoctoral Fellow, Oklahoma State University, 2018 – present.

EDUCATION

Ph.D. in Mathematics

University of Illinois at Urbana-Champaign, 2018.
Thesis: *Betti Numbers of Koszul Algebras and Codimension Two
Matrix Factorizations*
Advisor: Hal Schenck

M.S. in Mathematics

Syracuse University, 2012.

B.A. in Mathematics

Ithaca College, 2009.

RESEARCH INTERESTS

Computational and homological aspects of commutative algebra, especially the structure of free resolutions.

PUBLICATIONS

- (1) C. Francisco, M. Mastroeni, J. Mermin, and J. Schweig. *Computing generalized Frobenius powers of monomial ideals*. In preparation.
- (2) L. Ferraro, F. Galetto, F. Gandini, H. Huang, M. Mastroeni, and X. Ni. *The InvariantRing package for Macaulay2*. Submitted.
- (3) P. Mantero and M. Mastroeni. *The structure of Koszul algebras defined by four quadrics*. Submitted.
- (4) M. Mastroeni, H. Schenck, and M. Stillman. *Quadratic Gorenstein rings and the Koszul property II*. Submitted.
- (5) P. Mantero and M. Mastroeni. *Betti numbers of Koszul algebras defined by four quadrics*. J. Pure Appl. Algebra. To appear.
- (6) M. Mastroeni, H. Schenck, and M. Stillman. *Quadratic Gorenstein rings and the Koszul property I*. Trans. Amer. Math. Soc. To appear.
- (7) M. Mastroeni. *Koszul almost complete intersections*. J. Algebra 501 (2018), 285–302.

PUBLICATIONS (CONTINUED) (8) M. Mastroeni. *Matrix factorizations and singularity categories in codimension two*. Proc. Amer. Math. Soc. 136 (2018), no. 11, 4605–4617.

INVITED TALKS	AMS Special Session on Commutative Algebra (virtual)	April 2021
	Algebra and Geometry Seminar – Iowa State University	October 2020
	AMS Special Session on Commutative Algebra and Connections to Algebraic Geometry and Combinatorics (virtual)	October 2020
	AMS Special Session on Combinatorial Techniques in Commutative Algebra – West Lafayette, IN	April 2020 (canceled)
	Algebra Seminar – University of Arkansas	April 2019
	AMS Special Session on Interactions Between Combinatorics and Commutative Algebra – Fayetteville, AR	November 2018
	AMS Special Session on Commutative Algebra and Complexity – Ann Arbor, MI	October 2018
	Math Department Colloquium – Oklahoma State University	October 2018
	Algebra Seminar – University of Arkansas	April 2018
	Combinatorial and Commutative Algebra Seminar – Oklahoma State University	April 2018
	Commutative Algebra Seminar – University of Nebraska–Lincoln	April 2018
	AMS Special Session on Commutative and Combinatorial Algebra – Columbus, OH	March 2018
	AMS Special Session on Commutative Algebra in All Characteristics – San Diego, CA	January 2018
	Structures on Free Resolutions – Lubbock, TX	October 2017

HONORS AND AWARDS

Departmental TA Instructional Award

University of Illinois Math Department, 2017.

- Annual departmental award based on a teaching portfolio, student evaluations, an interview, and classroom observation.

REGS Day Award

University of Illinois Math Department, 2013.

- Award for the best summer research project on higher codimension matrix factorizations.

HONORS AND
AWARDS
(CONTINUED)

Donald E. Kibbey Prize
Syracuse University Math Department, 2010.

University Fellowship
Syracuse University, 2009.

TEACHING
EXPERIENCE

Instructor (Oklahoma State University)

Math 2144 Calculus 1	Fall 2020, Fall 2018
Math 2153 Calculus 2	Fall 2019
Math 3013 Linear Algebra	Spring 2020
Math 3613 Intro to Abstract Algebra	Spring 2020, Fall 2019, Spring 2019

Instructor (University of Illinois)

Math 124 Finite Mathematics	Spring 2018
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Grader (University of Illinois)

Math 416 Abstract Linear Algebra	Spring 2018
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Teaching Assistant (University of Illinois)

Math 221 Calculus 1	Fall 2016, Fall 2015
Math 231 Calculus 2	Fall 2017, Spring 2016, Spring 2015, Fall 2014, Spring 2014, Spring 2013, Fall 2012
Math 241 Calculus 3	Fall 2013

Instructor (Syracuse University)

MAT 221 Elementary Probability and Statistics 1	Fall 2011, Spring 2011
MAT 286 Calculus for the Life Sciences	Spring 2012

Teaching Assistant (Syracuse University)

MAT 121 Probability and Statistics for the Liberal Arts 1	Fall 2010
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SERVICE,
MENTORING,
AND OUTREACH

Stillwater High School Math Seminar
Stillwater, OK, April 2020 (canceled), November 2019.

Graduate Affairs Committee Member
University of Illinois Math Department, Fall 2017 – Spring 2018.

SERVICE,
MENTORING,
AND OUTREACH
(CONTINUED)

TA Teaching Awards Committee Member

University of Illinois Math Department, Fall 2017.

Graduate Student Mentor – Illinois Geometry Lab

University of Illinois, June 2017.

Seminar Organizer – Commutative Ring Theory Seminar

University of Illinois, Fall 2014 – Spring 2018.

PROFESSIONAL
DEVELOPMENT

Macaulay2 Workshop – Cleveland State University (online workshop)	May 2020
CIME Recent Developments in Commutative Algebra Workshop	July 2019
CBMS Conference on Applications of Polynomial Systems – Texas Christian University	June 2018
Macaulay2 Workshop – University of Wisconsin Madison	April 2018
MSRI Homological Conjectures Workshop	March 2018
Stillman’s Conjecture and other Progress on Free Resolutions – UC Berkeley	July 2017
RTG Homological Conjectures in Commutative Algebra Workshop – University of Illinois Chicago	November 2016
Macaulay2 Workshop – University of Utah	May 2016
RTG Local Cohomology Workshop – University of Illinois Chicago	February 2015