

Jessica Sidman
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Mount Holyoke College
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Curriculum Vitae

Education

Ph.D., 2002, University of Michigan.

M.S., 1999, University of Michigan.

B.A., 1997, Scripps College.

Teaching

Professor of Mathematics on the John S. Kennedy Foundation, 2017-present.

Professor, Mount Holyoke College, 2014-2017.

Associate Professor, Mount Holyoke College, 2009-2014.

Assistant Professor, Mount Holyoke College, 2008-2009.

Clare Boothe Luce Assistant Professor, Mount Holyoke College, 2003-2008

Graduate Student Instructor, University of Michigan, 1998-2002.

Publications (*=undergraduate coauthor)

J. Sidman, W. Traves, and A. Wheeler, *Geometric Equations for Matroid Varieties*, arXiv:1908.01233.

J. Sidman, *Polynomials and Rigidity Theory*, in Applications of Polynomial Systems, to appear.

Z. Rosen, J. Sidman, and L. Theran, *Algebraic Matroids in Action*, The American Mathematical Monthly, to appear.

J. Sidman and W. Traves, "Cayley Factorization and Special Positions" in the Handbook of Geometric Constraint Systems Principles, 85-106, Chapman and Hall/CRC, New York, 2018.

J. Sidman and A. St. John, *The Rigidity of Frameworks: Theory and Applications*, Notices of The American Mathematical Society, Volume 64, Number 9, October 2017, pp. 973-977

J. Farre*, H. Kleinschmidt*, J. Sidman, A. St. John, S. Stark*, L. Theran, X. Yu*, *Algorithms for detecting dependencies and rigid subsystems for CAD*, Computer Aided Geometric Design **47** (2016), 130-149.

G. Burnham*, Z. Rosen*, J. Sidman, P. Vermeire, *Line arrangements modeling curves of high degree*, Recent Advances in Algebraic Geometry, 52-70, London Mathematical Society Lecture Notes Series, **417**, Cambridge, 2015.

J. Farre*, H. Kleinschmidt*, A. Lee-St.John, J. Sidman, S. Stark*, and L. Theran, *Detecting dependencies in geometric constraint systems*, July 9-11, 2014, 147-166.

C. Clement*, A. Lee-St.John, J. Sidman, *Hyperbanana Graphs*, Proceedings of the 25th Canadian Conference on Computational Geometry, (2013), 199-204.

H. Schenck and J. Sidman, "Commutative algebra of subspace arrangements and hyperplane arrangements," in *Commutative Algebra: Expository Papers Dedicated to David Eisenbud on the Occasion of His 65th Birthday*, 639-666, Springer Verlag, New York, 2013.

A. Lee-St.John and J. Sidman, *Combinatorics and the rigidity of CAD systems*, Computer-Aided Design, **45** (2013), no. 2, 473-482.

J. Sidman, *An Introduction to Algebraic Geometry: Polygons, Parameterizations, and Equations*, American Mathematical Monthly, **19** (2012), no.3, 183-198.

J. Sidman and G. Smith, *Linear determinantal equations for all projective schemes*, Algebra and Number Theory, **5** (2012), no. 8, 1041-1061.

J. Sidman, P. Vermeire, *Equations defining secant varieties: geometry and computation*. Combinatorial aspects of commutative algebra and algebraic geometry, Abel Symp., 6, Springer, Berlin, 2011.

J. Sidman and P. Vermeire, *Syzygies of the secant variety of a curve*, Algebra and Number Theory, vol. 3, No. 4, 2009.

J. Sidman and S. Sullivant, *Prolongations and computational algebra*, Canadian J. Math, Vol. 61, No. 4, 2009, p. 930-949.

D. Cox and J. Sidman, *Secant varieties of toric varieties*, J. Pure and Applied Algebra (2007) vol. 209, no. 3, pp. 651-669.

J. Sidman, "Resolutions and Subspace arrangements" in *Syzygies and Hilbert Functions*, 249-265, Lect. Notes Pure Appl. Math., 254, Chapman&Hall/CFC, Boca Raton, FL, 2007.

J. Sidman, A. Van Tuyl, and H. Wang, *Multigraded regularity: coarsenings and resolutions*. J. Algebra, (2006) 301, no. 2, 703-727.

J. Sidman and A. Van Tuyl, *Multigraded regularity: syzygies and fat points*, Beiträge (2006) **47**, no. 1, 67-87. (Due to a mixup of electronic files at the journal an older version was printed, and the correct version is only available online at the journal webpage.)

A. Bjorner, I. Peeva, and J. Sidman, *Subspace arrangements defined by products of linear forms*, J. London Math. Soc., (2005) **71** no.2, 273--288.

A. Conca, J. Sidman, *Generic Initial ideals of points and curves*, J. Symb. Comp. (2005) **40**, 1023--1038.

J. Sidman, *Defining equations of subspace arrangements embedded in reflection arrangements*, IMRN, (2004), no. 15, 713—727.

H. Derksen, J. Sidman, *Castelnuovo-Mumford regularity by approximation*, Adv. in Math. (2004) **188** , no. 1, 104-123.

D. Eisenbud, Lectures on the geometry of syzygies. With a chapter by Jessica Sidman. Math. Sci. Res. Inst. Publ., 51, *Trends in Commutative Algebra*, 115-152, Cambridge Univ. Press, Cambridge, 2004.

H. Derksen and J. Sidman, *A sharp bound for the Castelnuovo-Mumford regularity of subspace arrangements*, Adv. in Math., **172** (2002), no. 2, 151--157.

J. Sidman, *On the Castelnuovo-Mumford regularity of products of ideal sheaves*, Adv. in Geom., **2** (2002), no. 3, 219--229.

Awards

Best Paper Award

Symposium on Solid and Physical Modeling, SPM 2012
University of Burgundy, Dijon, France, October 29-31st, 2012.

2012 Meribeth E. Cameron Faculty Award for Scholarship

Mount Holyoke College, 2012.

Selected talks

Conference talks

Algebraic Geometry Northeast Section

UMass Amherst, Amherst, March 22, 2019.

Combinatorial Algebra

AWM Research Symposium 2019, Rice University, Houston, April 7, 2019.

AMS Special Session on Commutative Algebra and Complexity

University of Michigan, Ann Arbor, October 20, 2019.

Applications of Polynomial Systems an NSF/CBMS Regional Conference in the Mathematical Sciences

Texas Christian University, Fort Worth, June 7, 2018.

SIAM Mini-Symposium on Algebraic Methods in Rigidity Theory

Atlanta, August 1, 2018.

AMS Special Session on Gaussian Graphical Models and Combinatorial Algebraic Geometry

Atlanta, January 4, 2017.

Geometry Rigidity Theory and Applications

International Centre for Mathematical Sciences, Edinburgh, June 2, 2016.

AMS-AWM Special Session on Commutative Algebra

Seattle, January 8, 2016.

Minimal Free Resolutions, Betti Numbers, and Combinatorics

International Centre for Mathematical Sciences, Edinburgh, June 4, 2015.

AMS-SIAM Special Session on Mathematics of Computation: Algebra and Number Theory

San Diego, January 11, 2013.

SIAM Mini-symposium: Combinatorial Algebraic Geometry

Minneapolis, July 11, 2012.

Special session: Algebraic Geometry and Commutative Algebra

AWM Anniversary Conference at Brown University

September 17, 2011.

AMS Special Session on The Algebraic Geometry and Topology of Hyperplane Arrangements

College of the Holy Cross

April 9th, 2011

Combinatorial Algebra meets Algebraic Combinatorics

Lakehead University

January 22nd, 2011

Abel Symposium

Voss, Norway, June 2, 2009.

Commutative algebra and its interactions with algebraic geometry

Banff International Research Station, Banff, Canada, June 11, 2007.

AMS special session: toric varieties

Rutgers University, New Brunswick, October 6, 2007.

Hilbert Functions and syzygies in commutative algebra and combinatorics

Cortona, Italy, September 18, 2007.

Castelnuovo-Mumford regularity and related topics

CIRM, Luminy, May 12, 2006.

AMS special session: combinatorial algebraic geometry

Notre Dame University, South Bend, April 9, 2006.

AMS special session: algebraic statistics

Joint Meetings, San Antonio, January 13, 2006.

Conference of the School on Commutative Algebra and Interactions with Algebraic Geometry and Combinatorics

Trieste, Italy, June 10, 2004.

Workshop on Combinatorial Aspects of Hyperplane Arrangements

MSRI, Berkeley, November 1, 2004.

Tutorials and short courses

**Analytic and Algebraic Geometry: Common Problems – Different Methods.
Undergraduate Summer School Lecturer**

Park City Mathematics Institute, Park City, July 21-26 2008.

Women and mathematics: Algebraic Geometry and Group Actions

Institute for Advanced Studies, Princeton, May 21-24, 2007.

Tutorial: What is algebraic geometry?

Institute for Mathematics and Its Applications, Minneapolis, April 13, 2007.

Colloquia and seminars

MAXIMALS Algebra Seminar

University of Edinburgh, December 4, 2017

Pure Mathematics Colloquium

St. Andrews University

November 30, 2017

Colloquium

Wesleyan University

March 3, 2011

Colloquium

Canada/USA Mathcamp

July 6th, 2010

Valley Geometry Seminar

UMass, Amherst

February 5, 2010

Reed Mathematics Colloquium

October 25, 2007.

Queen's algebraic geometry seminar

Queen's University, Kingston, Canada, January 17, 2005 and November 5, 2007.

University of Connecticut Department Colloquium

November 15, 2007.

Department Colloquium

Wellesley College, March 14, 2005.

Algebraic geometry seminar

University of Michigan, Ann Arbor, October 12, 2004.

Algebraic geometry seminar

Università di Genova, Italy, June 15, 2004.

Mathematics Colloquium

SUNY Albany, April 23, 2004.

Geometry-Algebra-Singularities-Combinatorics seminar

Northeastern University, Boston, March 15, 2004.

Claremont Colleges Mathematics Colloquium

Pomona College, November 13, 2002.

Local expository talks

Math Forum

Smith College

April 6th, 2017

REU Colloquium

Yale University, June 27, 2016.

Math Forum

Smith College

February 14th, 2013.

Prime Time Talk

Hampshire College Summer Studies in Mathematics

July 13th, 2010

Math Club

University of Connecticut

October 6th, 2010

Prime Time Talk

Hampshire College Summer Studies in Mathematics

July 28, 2009

Math Forum

Smith College

September 22, 2009

Working commutative algebra/algebraic geometry seminar: Green's conjecture

University of Massachusetts, Amherst, February 8, 15, 29, 2008.

Westfield State Math Club

Westfield State College, Westfield, October 16, 2007.

The "What is ...?" seminar

UMass, Amherst, April 9, 2004 and March 29 and April 5, 2007.

Minimal Model Program Seminar

UMass, Amherst, April 20, 2007.

Working commutative algebra seminar

UMass, Amherst, September 17 and November 12, 2004, and February 25, 2005.

Combinatorics Study Group

Mount Holyoke College, October 21, 2004.

Grants and fellowships

Ideals, Varieties, and Applications

Co-PI (with Nathan Pflueger, Gregory Call, Robert Benedetto), NSF Conference Grant, DMS-1903186.

RUI: Computational and Combinatorial Commutative Algebra

NSF grant DMS-0600471, 2006-2009.

Faculty fellowship: Investigations in computational and combinatorial commutative algebra

(The committee granted the fellowship in name only as I ended up with funding from Luce.)

NSF Mathematical Sciences Postdoctoral Research Fellowship

NSF grant DMS-0201607

UC Berkeley 2002-2003 and UMass Amherst 2004-2005.

Workshops Attended

Algebraic Vision

American Institute of Mathematics

May 2-6, 2016.

Advances in Combinatorial and Geometric Rigidity

Banff International Research Station

July 12-17, 2015.

Configuration Spaces of Linkages

American Institute of Mathematics

October 27-31, 2015.

College Service

Math/Stat Club coordinator (with Margaret Robinson and Alanna Hoyer-Leitzel)

2018-2019

TA/grader coordinator (with Margaret Robinson)

Department of Mathematics and Statistics, 2018-2019

Hiring committee member

Statistics search, 2018-2019

Hiring committee member

Dance department, 2018-2019.

Hiring committee chair for Department of Mathematics and Statistics

2018-2019

Advisory Committee On Appointments, Reappointments, And Promotions

2016-2019

Dean of Faculty Search Committee

2016

Planning and Budget Committee

Replacement 2016

Faculty Conference Committee

2012-2013.

Pre-calculus materials workshop

Led interdisciplinary faculty workshop to develop materials for pre-calculus students
May and June 2012.

Strategic Planning Committee

2010-2011.

Planning and Budget Committee

Mount Holyoke College

Replacement 2006-2007

Full term 2007-2011 (Chair in 2010-2011).

Disciplinary Service

Co-organizer for Ideals, Varieties, and Applications

Amherst College, June 10-14, 2019.

Co-director Career Mentoring Workshop

Mount Holyoke College, June ??2018.

Handbook of Geometric Constraints: Principles

Co-editor (with Meera Sitharam and Audrey St. John) 2016-2017.

MAA Committee on Early Career Mathematicians

Member

2016-2017.

Career mentoring talk

Stonybrook University, September 26, 2016

Combinatorial Algebraic Geometry: Introductory Workshop

Co-organizer

Fields Institute in August, 2016.

Career Mentoring Workshop

Mentor and panelist

Wheaton College

June 7, 2016.

Algebraic Geometry Northeast Section Workshop

Panelist.

Yale University

April 9, 2016.

Algebraic Geometry Northeast Section Workshop

Co-organizer

UMass, Amherst

March 31-April 1st, 2012.

Career Mentoring Workshop

Mentor and panelist

Wheaton College

June 26th, 2012

Career Mentoring Workshop

Mentor

West Point Military Academy

July 19th, 2011

Algebraic Geometry Northeast Section (AGNES)

Co-organizer of poster session.

UMass, Amherst,

April 9-11, 2010.

MSRI workshop “Connections for women: Algebraic geometry and related fields”
Organizing committee, January 2009.

Co-coordinator of the Sky Dot Project NExT sessions for Mathfest
Providence, August 11, 2004.

A Walk Through the Math Pipeline from End to End (sponsored by the Committee on Science Policy and the Committee on the Professions)
Panelist, Joint Mathematical Meeting, Phoenix, January 9, 2004.

Professional organizations

Association for Women in Mathematics
American Mathematical Society
Mathematical Association of America

Refereeing

Journal of Algebra
Journal of Symbolic Computation
Journal of Algebraic Geometry
Journal of the London Mathematical Society
Proceedings of the American Mathematical Society
Advances in Mathematics
SIAM Journal on Applied Algebra and Algebraic Geometry

Editorial work

Associate Editor
American Mathematical Monthly