Jessica Sidman
Department of Mathematics
Amherst College
jsidman@amherst.edu
Curriculum Vitae

Education

Ph.D., 2002, University of Michigan.
M.S., 1999, University of Michigan.
B.A., 1997, Scripps College.

Employment

Brian E. Boyle Professor in Mathematics and Computer Science, 2024-present.
Professor of Mathematics, Amherst College, 2023-2024.
Professor of Mathematics on the John S. Kennedy Foundation, 2017-2023.
Professor (and department chair), 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

Postdoctoral positions

NSF Postdoctoral Fellow at UC Berkeley, 2002-2003
NSF Postdoctoral Fellow at UMass Amherst, 2004-2005.

Journal publications (*=undergraduate coauthor)

M. DiPasquale, J. Sidman, and W. Traves, *Geometric Aspects of the Jacobian of a Hyperplane Arrangement*, IMRN, **2025** (2025), no. 13, 1-33.

J. Sidman, W. Traves, and A. Wheeler, *Geometric Equations for Matroid Varieties*, Journal of Combinatorial Theory, Series A, **178** (2021)**.**

Z. Rosen, J. Sidman, and L. Theran, *Algebraic Matroids in Action*, The American Mathematical Monthly, **127** (2020), no.3, 199-216.

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.

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 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, 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,* Bëitrage (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.

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.

Preprints

Z. Rosen, J. Sidman, and L. Theran, *Linearizing Algebraic Matroids,* arXiv: 2507.07220.

Conference proceedings

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.

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

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.

Book chapters

J. Sidman, *Polynomials and Rigidity Theory*, in Applications of Polynomial Systems, D. Cox with contributions from Carlos D'Andrea, Alicia Dickenstein, Jonathan Hauenstein, Hal Schenck, and Jessica Sidman, CBMS Regional Conference Series in Mathematics, Vol. 134, 2020.

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.

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.

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.

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

Notes

C. Hacon and J. Sidman, *Lessons From Our advisor*, Notices of The American Mathematical Society, Volume 68, Number 8, September 2021, pp. 1313-1315.

J. Sidman, *Congratulations! You have Tenure! And Now What?*, Notices of The American Mathematical Society, Volume 66, Number 9, October 2020, pp. 1442-1444.

J. Sidman, *Thoughts on Helping Students to Feel Included,* Notices of The American Mathematical Society, Volume 66, Number 7, August 2020, pp. 1047-1048.

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.

Awards

Merten M. Hasse Prize (joint with Zvi Rosen and Louis Theran)
Algebraic Matroids in Action, The American Mathematical Monthly, **127** (2020), no.3, 199-216.

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.

Conference talks

Minisymposium on Matroids and Applications
SIAM Conference on Applied Algebraic Geometry, Madison, July 10, 2025.

Workshop on Matroids, Rigidity, and Algebraic Statistics
ICERM, March 21, 2025

Workshop on Constraint Systems: Distance Geometry, Structured Polynomials, Matrix Completion, and Kinematics
Fields Institute, August 9, 2023

Special Session on Matroids and RigidityTheory
Southeastern Int'l Conference on Combinatorics, Graph Theory & Computing, March 10, 2022

Virtual Discrete Math 2-Day at Albany
Hosted virtually by SUNY Albany, April 26, 2020.

Texas Algebraic Geometry Seminar 2019
Texas A&M University, College Station, October 5th, 2019.

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.

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.

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.

<u>**Colloquia and seminars**</u>

Commutative Algebra and Algebraic Geometry Seminar
University of Minnesota, April 30, 2025.

Claremont Center for the Mathematical Sciences Colloquium
Pomona College, October 23, 2024

Matroids – Combinatorics, Algebra, and Geometry Seminar
Fields Institute, October 11, 2022

Algebraic Geometry Seminar
Stony Brook University, April 6, 2022

AWM Distinguished Speaker Series
University of Oregon, January 11, 2022

Taters
Boise State University, October 22, 2021

Mathematics Department Colloquium Series
US Naval Academy, October 13, 2021

Virtual seminar on algebraic matroids and rigidity theory
MIT, May 21, 2020.

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 6$^{\text{th}}$, 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.

Workshops and Conferences attended

The Grading Conference
Virtual, June 3-4, 2022.

Women in Commutative Algebra and Algebraic Geometry
Fields Institute (virtual), February 5-6 and June 3, 2022

Grants and fellowships

Hudson River Undergraduate Math Conference Grant
Co-PI (with Giuliana Davidoff, Margaret Robinson, Dylan Shepardson), NSF Conference Grant.

ICMS Research in Groups: Graph Rigidity and Control of Robot Formations. CoPI (with Bernd Schulze, Anthony Nixon, Audrey St. John, Louis Theran, Daniel Zelazo), July 25 – August 3, 2022.

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.

NSF Mathematical Sciences Postdoctoral Research Fellowship
NSF grant DMS-0201607

Selected Department Service at Amherst
Putnam Co-Coordinator, 2025-present
Comprehensive Exam Co-Coordinator, 2025-present

Associate Chair, 2025-present
Math Fellows Co-Coordinator, 2023-2024
Math Faculty Community Building, 2023-2024
Math Q Fellow Hiring Committee, 2024
ARHS contact, 2024

College Service at Amherst
Health Professions Committee, 2025-present

Selected Department Service at Mount Holyoke

Search chair, Problem Solving Club Advisor, Math Modeling Club Advisor, Math/Stat/DS Lunch coordinator, TA and Grader coordinator, Course assignments and scheduling

Selected College Service at Mount Holyoke

Faculty Advisor for the Student AWM Chapter, 2022-2023

Faculty Advisor for STEMPOC, 2022-2023

Faculty Marshall, 2022-present

Advisory Committee on Appointments, Reappointments and Promotion 2016-2020

Department Chair, 2014-2017

Faculty Planning and Budget Committee, 2016, 2006-2011.

Faculty Conference Committee, 2012-2103

College Planning Committee, 2010-2011

Disciplinary Service

Co-organizer of Women in Commutative Algebra Workshop
Fields Institute, March 10-14, 2025.

Co-organizer of the Workshop on Real Algebraic Geometry and Algorithms for Geometric Constraint Systems
Fields Institute, June 14-18, 2021.

Education Advisory Board
ICERM, Brown University 2019-2022.

Co-organizer: Discrete Math Day
November 16, 2019

Co-organizer: Ideals, Varieties, and Applications
Amherst College, June 10-14, 2019.

Co-director: Career Mentoring Workshop
Mount Holyoke College, June 24-26, 2018.

Co-organizer: Algebraic methods in rigidity theory mini-symposium
SIAM AG '17, Georgia Tech, August 1, 2017.

Co-organizer: Combinatorial Algebraic Geometry: Introductory Workshop
Fields Institute in August, 2016.

Co-organizer: Algebraic Geometry Northeast Section Workshop
UMass, Amherst, March 31-April 1st, 2012.

Co-organizer: Algebraic Geometry Northeast Section Poster Session
UMass, Amherst, April 9-11, 2010.

Co-organizer: Connections for Women: Algebraic Geometry and Related Fields
MSRI, January 26-30, 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.

Editorial work

Associate Editor for the American Mathematical Monthly
Series Editor for Undergraduate Texts in Mathematics, Springer-Verlag.

Refereeing

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