

Jonathan Kujawa

Institutional Address

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Education

2003 Ph.D. Mathematics University of Oregon
 Thesis Advisor: Jonathan Brundan
 Thesis: “The Representation Theory of the Supergroup $GL(m|n)$ ”
1999 M.S. Mathematics University of Oregon
1997 B.A. Mathematics Gustavus Adolphus College
1995 – 96 Budapest Semesters in Mathematics

Academic Positions

2017 – present Professor of Mathematics University of Oklahoma
2012 – 2017 Associate Professor of Mathematics University of Oklahoma
Spring 2015 Visiting Research Fellow Mittag-Leffler Institute
2007 – 2012 Assistant Professor of Mathematics University of Oklahoma
Spring 2008 Postdoctoral Member Mathematical Sciences Research Institute
2004 – 07 NSF Postdoctoral Fellow University of Georgia
 Senior Sponsoring Scientist: Daniel Nakano
2004 – 05 Franklin Teaching Fellow University of Georgia
2003 Postdoctoral Fellow University of Toronto
1997 – 03 Graduate Teaching Fellow University of Oregon

Research Grants: Principal Investigator

2020 SQuaRE Research Group, American Institute of Mathematics
 (with N. Davidson, R. Muth, and J. Zhu)
2017 – 22 Simons Foundation Collaboration Grant
2016 – 17 NSA Research Grant (H98230-16-0055)
2012 – 16 NSF Research Grant (DMS-1160763)
2014 NSF Conference Grant (DMS-1406933)
2011 – 12 NSA Research Grant (H98230-11-1-0127)
2007 – 11 NSF Research Grant (DMS-0734226)
2004 – 07 NSF Postdoctoral Fellowship (DMS-0402916)

Other Grants and Awards

2017 Plenary Talk, AMS Sectional Meeting, U. Central Florida, Orlando, FL.
2012 Irene Rothbaum Outstanding Assistant Professor
 Award given annually to one assistant professor in the OU College of Arts and Sciences.
2011, 2012 OU College of Arts and Sciences Junior Faculty Summer Fellowship
2008, 2012 OU Vice President for Research Travel Grants
2006 AMS/NSF Travel Grant to attend the 2006 ICM
2002 D. K. Harrison Research Award, University of Oregon

Research Interests

Representation theory and Lie theory. Particularly their connections to algebraic geometry, low-dimensional topology, and algebraic combinatorics.

Publications

- [1] Complexity and support varieties for type P Lie superalgebras, (with B. Boe), *submitted*, (2020).
- [2] Support varieties and modules of finite projective dimension for modular Lie superalgebras, (with C. Drupieski, Appendix by S. Iyengar and L. Avramov), *submitted*, (2019).
- [3] Quantum webs of type Q, (with G. Brown and N. Davidson), *submitted*, (2019).
- [4] Support schemes for infinitesimal unipotent supergroups, (with C. Drupieski), *submitted*, (2018).
- [5] M-traces in (non-unimodular) pivotal categories, (with N. Geer and B. Patureau-Mirand), *submitted*, (2018).
- [6] Webs of type Q, (with G. Brown), *submitted*, (2017).
- [7] Tensor triangular geometry for quantum groups, (with B. Boe and D. Nakano), *submitted*, (2017).
- [8] Graded analogues of one-parameter subgroups and applications to the cohomology of $GL_{m|n(r)}$, (with C. Drupieski), *Advances in Math.*, **348**, (2019), 277-352.
- [9] On support varieties for Lie superalgebras and finite supergroup schemes, (with C. Drupieski), *J. of Algebra*, **525**, (2019), 64–110.
- [10] On the cohomological spectrum and support varieties for infinitesimal unipotent supergroup schemes, (with C. Drupieski), *Adv. in Algebra*, Springer Proc. Math. Stat., **277**, Springer, (2019), pp. 121–167.
- [11] A basis theorem for the degenerate affine Brauer-Clifford supercategory, (with J. Brundan and J. Comes), *Canad. J. Math.*, **71** (5), (2019), 1061-1101.
- [12] Geometric Schur duality of classical type, (with H. Bao, Y. Li, W. Wang), *Transformation Groups*, **23**, (2018), 329–389.
- [13] Tensor triangular geometry for classical Lie superalgebras, (with B. Boe and D. Nakano), *Advances in Math.*, **314**, (2017), 228–277.
- [14] The marked Brauer category, (with B. Tharp), *J. London Math. Soc.* **95**, (2017), No. 2, 393-413
- [15] Presenting Schur superalgebras, (with H. El Turkey), *Pacific J. Math.*, **262**, (2013), No. 2, 285-316.
- [16] Ambidextrous objects and trace functions for nonsemisimple categories, (with N. Geer and B. Patureau-Mirand), *Proc. Amer. Math. Soc.*, **141**, (2013), no. 9, 2963-2978.

Publications, continued

- [17] The generalized Kac-Wakimoto conjecture and support varieties for the Lie superalgebra $\mathfrak{osp}(m|2n)$, *Southeast Lie Theory Conf. Proc., Proc. Symp. Pure Math.*, **86**, (2012).
- [18] Modified Traces on Deligne’s Category $\text{Rep}(S_t)$,
(with J. Comes), *J. Algebraic Combin.*, **36** (2012), no. 4, 541–560.
- [19] Complexity for modules over the classical Lie superalgebra $\mathfrak{gl}(m|n)$,
(with B. Boe and D. Nakano), *Compositio Math.*, **148**, Issue 5, (2012), 1561–1592.
- [20] Degenerate affine Hecke-Clifford algebras and type Q Lie superalgebras,
(with D. Hill and J. Sussan), *Math. Zeit.*, Volume 268, Numbers 3-4 (2011), 1091–1158.
- [21] Generalized trace and modified dimension functions on ribbon categories,
(with N. Geer and B. Patureau-Mirand), *Selecta Math.*, Volume 17, Issue 2 (2011), 453–504.
- [22] Complexity and module varieties for classical Lie superalgebras,
(with B. Boe and D. Nakano), *Int. Math. Res. Notices*, no. 3 (2011), 696–724.
- [23] Cohomology and support varieties for Lie superalgebras,
(with B. Boe and D. Nakano), *Trans. Amer. Math. Soc.*, **362** (2010), 6551–6590.
- [24] Cohomology and support varieties for Lie superalgebras II,
(with B. Boe and D. Nakano), *Proc. London Math. Soc.*, **98** (2009), no. 1, 19–44.
- [25] On Kostant’s theorem for Lie algebra cohomology,
(with UGA VIGRE Algebra Group), *Contemp. Math.*, **478** (2009) 39-60.
- [26] Cohomology and support varieties for the Lie superalgebra $W(n)$,
(with I. Bağcı and D. Nakano), *Int. Math. Res. Notices*, Article ID: rnn115, (2008).
- [27] Support varieties for Weyl modules over bad primes,
(with UGA VIGRE Algebra Group), *J. Algebra*, **312** no 2. (2007), 602–633.
- [28] The Steinberg tensor product theorem for $GL(m|n)$,
Contemp. Math., **413** (2006), 123–132.
- [29] Representation type of Schur superalgebras,
(with D. Hemmer and D. Nakano), *J. Group Theory*, **9** no 3. (2006), 283–306.
- [30] Crystal structures arising from representations of $GL(m|n)$,
Rep. Theory, **10** (2006), 49–85.
- [31] Varieties of nilpotent elements for simple Lie algebras II: bad primes,
(with UGA VIGRE Algebra Group), *J. Algebra*, **292** no 1. (2005), 65–99.
- [32] A new proof of the Mullineux conjecture,
(with J. Brundan), *J. Algebraic Combin.*, **18** no 1. (2003), 13–39.

Conferences and Invited Talks

- 2020 August Cohomology of Finite Groups: Interactions and Apps., MFO, Oberwolfach, Germany.
 March AMS SE Section Meeting Special Session, Univ. of Virginia, Charlottesville, VA.
 January Colloquium, Reed College.
- 2019 December Algebraic and Geometric Categorification, BIRS-CMO, Oaxaca, Mexico.
 September AMS Central Section Meeting Special Session, UW-Madison, Madison, WI.
 July Reps. of monoidal categories and 2-categories, Univ. of East Anglia, Norwich, UK.
 June Vietnam-USA Joint Math. Meeting Special Session, Quy Nhon, Vietnam
 March AMS SE Section Meeting Special Session, Auburn Univ., Auburn, AL.
- 2018 September Interactions of low-dim. topology and higher representation theory, Universität Zürich.
 February Southwest Local Algebra Meeting, University of Arkansas.
 January Colloquium and Seminar, University of Oregon.
- 2017 December Rep. Theory of Symmetric Groups and Related Algebras, IMS NUS, Singapore.
 October Plenary talk, AMS SE Section Meeting, Univ. of Central Florida, Orlando, FL.
 July Mathematical Congress of the Americas Special Session, Montreal, Canada.
 July Workshop on Rep. Theory of Lie Superalg. and related topics, NCTS, Taipei, Taiwan.
 March AMS SE Section Meeting Special Session, College of Charleston, Charleston, SC.
 January AMS National Meeting Special Session, Atlanta, GA.
- 2016 January AMS National Meeting Special Session, Seattle, WA.
- 2015 October Colloquium, DePaul University.
 October Algebra and Combinatorics Seminar, Loyola University.
 May Representation Theory Workshop, Uppsala, Sweden.
 March Interaction of Rep. Theory with Geometry and Combinatorics, Bonn, Germany.
 January Rep. Theory, Categorification, and Noncomm. Algebra, UNAM, Mexico City.
- 2014 October Commutative Algebra Seminar, University of Utah.
 October Colloquium, Utah State University.
 October Lie Theory Seminar, University of Colorado.
 September Algebraic Lie Theory, ICMS, Edinburgh, Scotland.
 September AMS Central Section Meeting Special Session, UW-Eau Claire, Eau Claire, WI.
 May Southeast Lie Theory Conference, University of Georgia.
 April Great Plains Combinatorics Conference, University of Kansas.
 March AMS SE Section Meeting Special Session, Univ. of Tennessee, Knoxville, TN.
- 2013 October AMS Eastern Section Meeting Special Session, Temple Univ., Philadelphia, PA.
 May Workshop on Super Rep. Theory, Academia Sinica, Taipei, Taiwan.
 April AMS Central Section Meeting Special Session, Univ. of Colorado, Boulder, CO.
- 2012 October AMS SE Section Meeting Special Session, Tulane University, New Orleans, LA.
 September New York Algebra Colloquium, CUNY, NYC, NY.
 September AMS Eastern Section Meeting Special Session, RIT, Rochester, NY.
 May Lie Theory Seminar, University of CA, Riverside
 March AMS Central Section Meeting Special Session, Univ. of Kansas, Lawrence, KS.
 March AMS SE Section Meeting Special Session (two talks), USF, Tampa, FL.

Conferences and Invited Talks, continued

- 2011 October Colloquium, Utah State University.
 October AMS Western Section Meeting Special Session, Univ. of Utah, Salt Lake City, UT.
 September Algebraic Representation Theory Conference, Uppsala University, Sweden.
 March Representation Theory Seminar, Virginia Tech.
- 2010 May Southeast Lie Theory Conference, University of Georgia.
 April AMS Central Section Meeting Special Session, Macalester College, St. Paul, MN.
 March Combinatorial Rep. Theory Workshop, MFO, Oberwolfach, Germany.
 January AMS National Meeting Special Session, San Francisco, CA.
- 2009 November Algebra and Combinatorics Seminar, Texas A & M University.
 October AMS Central Section Meeting Special Session, Baylor University, Waco, TX.
 July LMS Symposium on Comb. Geo. Structures in Rep. Theory, Durham, UK.
- 2008 October AMS Central Section Meeting Special Session, Kalamazoo, MI.
 October AMS Western Section Meeting Special Session, Vancouver, Canada.
 September Rep. Theory, Geometry, and Combinatorics Seminar, Univ. of Cal., Berkeley, CA.
 July Summer School on Quantum Grps and Lie Theory, ECNU, Shanghai, China.
 April Conference on Homological Methods in Rep. Theory, MSRI, Berkeley, CA.
 March AMS SE Section Meeting Special Session, Baton Rouge, LA.
 February Millican Colloquium, University of North Texas.
- 2007 November AMS SE Section Meeting Special Session, Murfreesboro, TN.
 September Group Embeddings: Geometry and Representations, BIRS, Banff, Canada.
 May Algebraic Lie Theory, BIRS, Banff, Canada.
 March AMS SE Section Meeting Special Session, Davidson, NC.
 January AMS National Meeting Special Session, New Orleans, LA.
- 2006 November Algebra Seminar, University of Toledo.
 August Conference on Ass. and Non-ass. Alg. Structures, Oviedo, Spain.
 February Algebra Seminar, University of Virginia.
- 2005 October Colloquium, University of Southern Alabama.
 October Algebra Seminar, University of Southern Alabama.
 September Algebra Seminar, University of Virginia.
 June Conference on Alg. and Finite Reductive Groups, EPFL, Lausanne, Switzerland.
 March Colloquium, Kansas State University.
 January AMS National Meeting Special Session, Atlanta, GA.
- 2004 October Colloquium, University of Toledo.
 July AMS Summer Research Conference: Rep. of Algebraic Groups, Quantum Groups, and Lie Algebras, Snowbird, UT.
- 2003 January Contributed Talk, AMS National Meeting, Baltimore, MD.
- 2002 July International Conf. on Rep. of Algebras, X, Fields Institute, Toronto, ON.
 June AMS Summer Research Conference: Groups, Representations and Cohomology, Mount Holyoke College, MA.

Other Presentations

- 2019 November GIT Seminar, University of Oklahoma.
 March Algebra Seminar, University of Oklahoma.
 April Graduate Student Seminar, University of Oklahoma.
- 2018 August Algebra Seminar, University of Oklahoma.
- 2017 September Algebra Seminar, University of Oklahoma.
 April Graduate Student Seminar, University of Oklahoma.
- 2015 November Graduate Student Seminar, University of Oklahoma.
- 2014 September Algebra Seminar, University of Oklahoma.
 April Algebra Seminar, University of Georgia.
 March Algebra Seminar, University of Oklahoma.
- 2012 November Algebra Seminar, University of Oklahoma.
 January Algebra Seminar, University of Oklahoma.
- 2011 August Algebra Seminar, University of Oklahoma.
 April Undergraduate Colloquium, Lewis and Clark College, Portland, OR.
- 2010 August Algebra Seminar, University of Oklahoma.
 May VIGRE Summer School on Lie and Representation Theory, University of Georgia.
 April Undergraduate Colloquium, Gustavus Adolphus College, St. Peter, MN.
 April Mathematics Department Awards Dinner, University of Oklahoma.
 February Algebra Seminar, University of Oklahoma (two talks).
- 2009 January Graduate Student Recruitment Day, University of Oklahoma
 February Algebra Seminar, University of Oklahoma (three talks).
- 2008 October Graduate Student Seminar, University of Oklahoma.
 May Seminar on representations of symmetric groups and closely related objects, MSRI.
 February Postdoctoral Seminar, MSRI.
- 2007 October Graduate Student Seminar, University of Oklahoma.
 September Algebra Seminar, University of Oklahoma.
 Spring VIGRE Graduate Seminar, University of Georgia.
- 2006 November Algebra Seminar, University of Georgia.
 September VIGRE Algebra Seminar, University of Georgia.
 February Algebra Seminar, University of Georgia.
- 2005 December VIGRE Graduate Seminar, University of Georgia.
 October Algebra Seminar, University of Georgia.
 April VIGRE Graduate Seminar, University of Georgia.
- 2004 October VIGRE Algebra Seminar (three talks), University of Georgia.
 September Algebra Seminar, University of Georgia.
 March Algebra Seminar, University of Georgia.
 February Lie Theory Seminar (three talks), University of Georgia.

Teaching Experience

Intro. to Representation Theory I	Fall 2012
Lie Theory I	Fall 2010
Lie Theory II	Spring 2016, Fall 2011
Graduate Abstract Algebra I	Fall 2016, Fall 2009
Graduate Abstract Algebra II	Spring 2017, Spring 2012, Spring 2010
Abstract Linear Algebra	Fall 2013, Fall 2010
Discrete Mathematics	Fall 2019, Spring 2018, Fall 2013
Undergraduate Abstract Algebra I/II	Fall 2018/Spring 2019, Fall 2011/Spring 2012, Fall 2008/Spring 2009
Honors Calculus IV	Spring 2010
Honors Calculus III	Fall 2009
Honors Calculus II	Spring 2020, Fall 2012, Spring 2009
Honors Calculus I	Fall 2008
New Graduate Student Summer Seminar	Summer 2002
Linear Algebra	Spring 2012, Spring 2005, Spring 2003
Introduction to Probability and Statistics	Summer 2001
Calculus III	Fall 2007, Winter 2003, Spring 2002
Calculus II	Fall 2017, Winter 2002, Spring 2001
Calculus I	Spring 2013, 2011, 2005, 2004, 2000, Fall 2015, 2001
Business Calculus II	Summer 1998
Business Calculus I	Fall 2003
Discrete Math III	Fall 2002, Summer 2000
Introduction to Mathematical Modeling	Fall 2004
Elementary Functions	Winter 2000, Summer 1998
College Algebra	Fall 2000, 1999, 1997, Winter 1999, 1998, Spring 1999, 1998

Teaching Education

January 2004 – June 2005	Franklin Teaching Fellow Program, University of Georgia. A selective university-wide program to foster excellence in university teaching.
Winter 2000	Seminar on College Science Teaching, University of Oregon. An interdisciplinary seminar on teaching methods in university science courses.
Fall 1997	Seminar on Teaching Mathematics, University of Oregon. A weekly seminar on teaching mathematics in a university setting.

Advising and Mentoring (Undergraduate)

Fall 2019 – present	LSAMP Scholars Mentor, Samuel Heard, University of Oklahoma.
Summer 2016	Reading Course on Algebraic Geometry, Haley Smith, Phillip Bretz, University of Oklahoma.
Fall 2010 – present	Undergraduate Honors Thesis Advisor, Timothy Rhyker Benavidez, University of Oklahoma (2011-2014). Teresa Whitelaw, University of Oklahoma (2012-2014). William Goldenberg, University of Oklahoma (2012-2013). Lauren Lajos, University of Oklahoma (2011-2013). Patrick Orchard, University of Oklahoma (2010-2011).
Spring 2009 – present	Vertical (Undergraduate + Graduate) Research Group, Univ. of Oklahoma.
Fall 2012 – Spring 2014	McNair Scholars Mentor, Timothy Rhyker Benavidez, University of Oklahoma.

Advising and Mentoring (Graduate)

- 2019 – present Ph.D. advisor,
Erin Hausmann, University of Oklahoma.
SMART Fellowship Recipient.
- 2018 – present Ph.D. advisor,
Joseph Randich, University of Oklahoma.
- 2018 – present Ph.D. advisor,
Ryan Reynolds, University of Oklahoma.
- 2014 – 2018 Ph.D. advisor,
Jieru Zhu, University of Oklahoma.
Bullard Dissertation Completion Award Recipient.
Now a postdoctoral fellow at University of Buffalo, NY.
- 2014 – 2017 Ph.D. advisor,
Gordon Brown, University of Oklahoma.
Now at Lockheed-Martin.
- 2013 – 2017 Ph.D. advisor,
Benjiman Tharp, University of Oklahoma.
Bullard Dissertation Completion Award Recipient.
Now tenure track at University of Quincy.
- 2010 – 2014 Ph.D. advisor,
Houssein El Turkey, University of Oklahoma.
Now tenure track at University of New Haven.
- 2008 – present Ph.D. committee member,
Jordan Danser , University of Oklahoma (2019-present).
Dustin Gaskins, University of Oklahoma (2019-present).
Jessica Lajos, University of Oklahoma (2018-present).
Matthew Holtfrerich, University of Oklahoma (Physics, 2016-present).
Thomas Morgan, University of Oklahoma (2016-2019).
Elizabeth Pacheco, University of Oklahoma (2013-2019).
Colin Vernooy, University of Oklahoma (2014-2019).
Kevin Haghi, University of Oklahoma (Meteorology, 2013-2017).
William Carter, University of Oklahoma (2012-2015).
Salam Turki, University of Oklahoma (2012-2015).
Thomas Madsen, University of Oklahoma (2008-2014).
Catherine Hall, University of Oklahoma (2008-2012).
Kumar Balasubramanian, University of Oklahoma (2008-2012).
- 2005 – 2009 Secondary Ph.D. thesis advisor,
Irfan Bağcı, University of Georgia.
Now tenured at University of North Georgia.
- 2005 – 2007 Ph.D. committee member,
Kenyon Platt, University of Georgia.

Advising and Mentoring (Postdoctoral)

- 2016 – 2019 Postdoctoral Mentor,
Nick Davidson, University of Oklahoma.
Now at Reed College.
- 2010 – 2012 Postdoctoral Mentor,
Lei Zhao, University of Oklahoma.
Now at CITIC Securities, Beijing.

Outreach

- Spring 2014 – present Author of a bi-monthly column on mathematics for 3 Quarks Daily.
 Fall 2007 – present High School Math Day Co-Organizer, Univ. of Oklahoma.
 August 2010 – August 2015 Faculty Panelist for Career Recruiter Day, Univ. of Oklahoma.
 Fall 2008 – Spring 2013 Principal author of the OU Math Club blog.
 Fall 2008 – Spring 2012 Advisor to the undergraduate OU Math Club
 Winter 2004, Winter 2005 Mathematician, Barrow Elementary Career Day, Athens, GA.

Service Within the Mathematical Community

- Fall 2003 – present Referee for Publ. of IHES, Compositio Math., Duke Math J., Proc. LMS, Proc. AMS, Comm. Math. Physics, Trans. Groups, Ann. Inst. Fourier, J. of Algebra, J. of Alg. Comb., Comm. in Algebra, J. Pure Appl. Algebra, J. of Comb. Theory-A, Acta Math. Sinica, Proc. Symp. of Pure Math. Glasgow Math. J., Quaestiones Math., Canadian J. of Math., Alg. Comb., etc.
 Fall 2003 – present Reviewer for Mathematical Reviews.
 Fall 2018 – present MSRI Academic Sponsors Day Committee member; Chair for 2020 Sponsors Day. Invited grant panelist for the National Science Foundation (twice).
 Spring 2019 External PhD thesis examiner, Jyotirmoy Ganguly, IISER Pune, Pune, India.
 Spring 2019 Co-organizer, AMS Special Session, Honolulu, Hawaii. Invited grant reviewer for the U.S.-Israel Binational Science Foundation.
 Fall 2018 Co-organizer, AMS Special Session, San Francisco, California.
 Fall 2014 – Fall 2018 MSRI Academic Sponsors Executive Committee member.
 Fall 2017 Co-organizer, AMS Special Session, Orlando, Florida.
 Spring 2011 – 2015 Invited grant reviewer for the National Security Agency.
 Fall 2014 Co-organizer of Algebraic Lie Theory Conference, ICMS, Edinburgh, Scotland.
 Fall 2011 Co-organizer, AMS Special Session, Lincoln, Nebraska.

Service Within the University

- Spring 2016 – present Associate Chair, Dept. of Mathematics, Univ. of Oklahoma.
 Fall 2019 – present Retirement Plans Management Committee Member, Univ. of Oklahoma.
 Fall 2019 – Spring 2020 Search Committee Member, Univ. of Oklahoma, AMO/CM Search, Physics Department.
 Fall 2015 – Fall 2016 Search Committee Chair, Univ. of Oklahoma, First Year Mathematics Director Position.
 Fall 2012 – Fall 2013 Math Dept. Executive Committee (Committee A), Univ. of Oklahoma.
 Fall 2011 – Spring 2012 Search Committee Chair, Univ. of Oklahoma, Math Education Faculty Position.
 Fall 2010 – Spring 2011 Search Committee Member, Univ. of Oklahoma, Math Education Faculty Position.
 Fall 2009 – Spring 2010 Search Committee Member, Univ. of Oklahoma, Postdoctoral Faculty Position.
 Fall 2004 – Spring 2007 Algebra Seminar Coordinator, Univ. of Georgia.
 Winter 2003 – Spring 2007 VIGRE Algebra Group Member, Univ. of Georgia.
 Winter 2003 – Spring 2005 Lie Theory Seminar Coordinator, Univ. of Georgia.

References Available Upon Request