Chelsea Walton

CONTACT

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DEPARTMENT OF MATHEMATICS

Rice University

P.O. Box 1892

Houston, TX 77005-1892

EMPLOYMENT

Rice University

Houston, Texas.

Full Professor (with tenure) July 2023 - present

Associate Professor (with tenure) July 2020 - June 2023

The University of Illinois at Urbana-Champaign

Urbana-Champaign, Illinois.

Associate Professor (with tenure), Smith Prof. Scholar Aug. 2018 - June 2020

Temple University

Philadelphia, Pennsylvania.

Selma Lee Bloch Brown Early Career Assistant Professor

Massachusetts Institute of Technology

Cambridge, Massachusetts.

C.L.E. Moore Instructor / NSF Postdoctoral Fellow

University of Washington

Seattle, Washington.

NSF Postdoctoral Fellow

Visiting Positions

University of Hamburg

Hamburg, Germany.

Humboldt Research Fellowship Programme for Experienced Researchers

Mathematical Sciences Research Institute (MSRI)

Berkeley, California.

Program Co-organizer and Member: Quantum Symmetries

Mathematical Sciences Research Institute (MSRI)

Berkeley, California.

(NSF) Postdoctoral Fellow

Education

University of Michigan

Aug. 2011

Ph.D in Mathematics, Rackham Graduate School, Ann Arbor, Michigan.

Advisor: Professor J. Tobias Stafford; Co-Advisor: Professor Karen E. Smith.

University of Manchester

Sept. 2007 - Aug. 2008, Jan. - Aug. 2009 - 2011

Visiting Student, Mathematics Department, Manchester, England.

University of Michigan

June 2007

M.S in Pure Mathematics, Rackham Graduate School, Ann Arbor, Michigan.

Michigan State University

May 2005

B.S. with High Honors in Mathematics, Honors College, East Lansing, Michigan.

Research Interests

Noncommutative Algebra, Quantum Symmetries, Hopf algebras and their variants/

Quantum Groups, and Representation Theory.
### Grants and Fellowships

**NSF Algebra and Number Theory grants**

(Conference grants listed under “Conferences, Workshops co-organized”)

National Science Foundation, USA.

- Grant No. DMS-2348833 $350,000.00 USD May 2024 - Apr. 2027
- Grant No. DMS-2100756 $225,000.00 USD Apr. 2021 - Mar. 2024
- Grant No. DMS-1663775 $161,973.00 USD Aug. 2017 - Sept. 2020
  - Transferred to U. Illinois Urbana-Champaign Grant No. DMS-1903192.
- Grant No. DMS-1410207, $148,445.00 USD Sept. 2014 - Aug. 2017
  - Undergraduate Research, Supplement No. DMS-1519286, $5,000.00 USD
  - Transferred to Temple U. Grant No. DMS-1550306.

**Banff International Research Station grant, senior personnel**

- National Science Foundation, Grant No. DMS-2201974.

**University of Illinois Urbana-Champaign Campus Research Board**

- Grant No. RB19132 $29,987 USD Apr. 2019 - June 2020

**Sloan Research Fellowship**

Alfred P. Sloan Foundation, New York, NY, USA.

- $60,000.00 USD (+1 yr ext’n)

**NSF Math. Sciences Postdoctoral Fellowship**

National Science Foundation, USA.

- Grant No. DMS-1102548, $135,000.00 USD

### Honors and Awards

**AMS Claytor-Gilmer Fellowship**

American Mathematical Society, Providence, Rhode Island.

Jan. 2024

**Career Champion Award, Class of 2022**

Rice University Center for Career Development, Houston, Texas.

Aug. 2022

**Arnold O. Beckman Research Award**

UIUC Campus Research Board, Urbana, Illinois.

May 2019

**Andre Lichnerowicz Prize in Poisson geometry**

Int’l Conf. on Poisson Geometry in Mathematics and Physics, Toronto, Canada.

July 2018

**Real McCoy award for Mathematics**

Detroit Area Pre-College Engineering Program (DAPCEP), Detroit, Michigan.

Sept. 2017

**Recent Alumni Award**

College of Natural Science, Michigan State University, E. Lansing, Michigan.

Mar. 2016

**Infinite Kilometer (Infinite K) Award for outreach**

School of Science, Massachusetts Institute of Technology, Cambridge, Mass.

Jan. 2013

**Wirt and Mary Cornwell Prize in Mathematics**

University of Michigan, Ann Arbor, Michigan.

Apr. 2011

### Research Publications

40. R. Laugwitz and C. Walton, Constructing non-semisimple modular categories with local modules, *Commun. Math. Phys* 403(3) 1363-1409, 2023.

39. A. Hernandez, C. Walton, and H. Yadav, On non-counital Frobenius algebras, [https://arxiv.org/pdf/2204.14182](https://arxiv.org/pdf/2204.14182) to appear in *J. Algebra Appl*.

38. C. Walton and H. Yadav, Filtered Frobenius algebras in monoidal categories, *Int. Math. Res. Notices*, 2022, rnc314.
37. Y. Morales, M. Müller, J. Plavnik, A. Ros Camacho, A. Tabiri, C. Walton, Algebraic structures in group-theoretical fusion categories, *Algebras Represent. Theory* (2022), pp. 1-33.

36. H. Huang, C. Walton, E. Wicks and R. Won, Universal quantum semigroupoids, *J. Pure Appl. Algebra*, 227(2):107193, 2023.

35. F. Calderón and C. Walton, Algebraic properties of face algebras, *J. Algebra Appl.*, 2350076, 2022.

34. C. Walton, E. Wicks and R. Won, Algebraic structures in comodule categories over weak bialgebras. *Comm. Algebra*, 50(7):2877–2910, 2022.

33. C. Walton, X. Wang and M. Yakimov, Poisson geometry and representations of PI 4-dimensional Sklyanin algebras, *Selecta Math* 27:99 (2021).

32. R. Laugwitz and C. Walton, Constructing non-semisimple modular categories with relative monoidal centers, *Int. Math. Res. Notices*, 2021, rnab097.

31. R. Laugwitz and C. Walton, Braided commutative algebras over quantized enveloping algebras, *Transform. Groups* 26 (2021), pp. 957-993.

30. P. Etingof, R. Kinser and C. Walton, Tensor algebras in finite tensor categories, *Int. Math. Res. Notices*, 2021, rnz332.

29. A. Conner, E. Kirkman, W. F. Moore, and C. Walton, Noncommutative Knörrer periodicity and noncommutative Kleinian singularities, *J. Algebra* 540 (2019), pp. 234–273.

28. A. Chirvasitu, C. Walton, and X. Wang, Gelfand-Kirillov dimension of cosemisimple Hopf algebras, *Proc. Amer. Math. Soc.* 147 (2019), pp. 4665–4672.

27. C. Walton and J. Zhang, On the quadratic dual of the Fomin-Kirillov algebras, *Trans. Amer. Math. Soc.* 372 (2019), pp. 3921–3945.

26. C. Walton, X. Wang and M. Yakimov, Poisson geometry of PI three-dimensional Sklyanin algebras, *Proc. Lond. Math. Soc.* 118, no. 6, (2019), pp. 1471-1500.

25. Z. Cline, A. Estornell, C. Walton, and M. Wynne, PBW deformations of quadratic monomial algebras, *Comm. Algebra* 47, no. 7 (2019), pp. 2670-2688.

24. K. Chan, E. Kirkman, C. Walton, and J. Zhang, McKay correspondence for semisimple Hopf actions on regular graded algebras, I, *J. Algebra* 508 (2018), pp. 512–538.

23. C. Walton and S. Witherspoon, PBW deformations of braided products, *J. Algebra* 504 (2018), pp. 536–567.

22. A. Mejía Cañado, S. Montgomery, S. Natale, M. D. Vega, and C. Walton, Cocycle deformations and Galois objects for semisimple Hopf algebras of dimension $p^3$ and $pq^2$, *J. Pure Appl. Algebra* 222, no. 7, (2018) pp. 1643–1669.

21. K. Chan, E. Kirkman, C. Walton, and J. Zhang, McKay correspondence for semisimple Hopf actions on regular graded algebras, II, *J. Noncom. Geom.* 13, no. 1, (2019), pp. 87–114.

20. A. Chirvasitu, C. Walton, and X. Wang, On quantum groups associated to a pair of preregular forms, *J. Noncom. Geom.* 13, no. 1, (2019), pp. 115–159.
19. D. J. Reich and C. Walton, Explicit representations of 3-dimensional Sklyanin algebras associated to a point of order 2, *Involve, a Journal of Mathematics* 11-4 (2018), pp. 585–608.

18. P. Etingof and C. Walton, Finite dimensional Hopf actions on algebraic quantizations, *Algebra & Number Theory* 10, no. 10 (2016), pp. 2287–2310.

17. J. Cuadra, P. Etingof, and C. Walton, Finite dimensional Hopf actions on Weyl algebras, *Adv. Math.* 302 (2016), pp. 25–39.

16. P. Etingof and C. Walton, Finite dimensional Hopf actions on deformation quantizations, *Proc. Amer. Math. Soc.* 145 (2017), pp. 1917-1925.

15. S. J. Sierra and C. Walton, Maps from the enveloping algebra of the positive Witt algebra to regular algebras, *Pacific J. Math* 284, no. 2 (2016), pp. 475–509.

14. P. Etingof, D. Goswami, A. Mandal, and C. Walton, Hopf coactions on commutative algebras generated by a quadratically independent comodule, *Comm. Algebra* 45, no. 8 (2017), pp. 3410–3412.

13. C. Walton and X. Wang, On quantum groups associated to non-Noetherian regular algebras of dimension 2, *Math Z.* 284, no. 1, (2016), pp. 543–574.

12. K. Chan, E. Kirkman, C. Walton, and J. J. Zhang, Quantum binary polyhedral groups and their actions on quantum planes, *J. Reine Angew. Math* 2016, no. 719 (2016), pp. 211–252.

11. P. Etingof and C. Walton, Pointed Hopf actions on fields, II, *J. Algebra* 460 (2016), pp. 253–283.

10. R. Kinser and C. Walton, Actions of some pointed Hopf algebras on path algebras of quivers, *Algebra & Number Theory* 10, no. 1 (2016), pp. 117–154.

9. J. Cuadra, P. Etingof, and C. Walton, Semisimple Hopf actions on Weyl algebras, *Adv. Math.* 282 (2015), pp. 47–55.

8. P. Etingof and C. Walton, Pointed Hopf actions on fields, I, *Transform. Groups* 20, no. 4 (2015), pp 985–1013.

7. C. Walton and S. Witherspoon, Poincaré-Birkhoff-Witt deformations of smash product algebras from Hopf actions on Koszul algebras, *Algebra & Number Theory* 8, no. 7 (2014), pp. 1701–1731.

6. S. J. Sierra and C. Walton, The universal enveloping algebra of the Witt algebra is not noetherian, *Adv. Math.* 262 (2014), pp. 239–260.

5. K. Chan, C. Walton, and J. J. Zhang, Hopf actions and Nakayama automorphisms, *J. Algebra* 409 (2014), pp. 26–53.

4. P. Etingof and C. Walton, Semisimple Hopf actions on commutative domains, *Adv. Math.* 251C (2014), pp. 47–61.

3. K. Chan, C. Walton, Y. Wang, and J. J. Zhang, Hopf actions on filtered regular algebras, *J. Algebra* 397, no. 1 (2014), pp. 68–90.

2. C. Walton, Representation theory of three-dimensional Sklyanin algebras, *Nuclear Physics* 860, no. 1 (2012), pp. 167–185.

1. C. Walton, Degenerate Sklyanin algebras and generalized twisted homogeneous coordinate rings, *J. Algebra* 322, no. 7 (2009), pp. 2508–2527; Corrigendum, 356 , no. 1 (2012), pp. 275–282.
Expository Publications
1. C. Walton, An Invitation to Noncommutative Algebra, A Celebration of the EDGE Program’s Impact on the Mathematics Community and Beyond. Springer, Cham, 2019. pp. 339–366.

Preprints
2. F. Liu Lopez and C. Walton, Twists of graded algebras in monoidal categories, [https://arxiv.org/abs/2311.18105](https://arxiv.org/abs/2311.18105), submitted.
1. R. Laugwitz, C. Walton, and M. Yakimov, Reflective centers of module categories and quantum K-matrices, [https://arxiv.org/abs/2307.14764](https://arxiv.org/abs/2307.14764), submitted.

Textbooks
C. Walton, *Symmetries of Algebras, Vol. 1*. 619 Wreath Publishing, Oklahoma City, OK, 2024, ISBN 978-1-958469-20-0; 978-1-958469-21-7.
- Details found here: [https://math.rice.edu/~notlaw/symalgbook.html](https://math.rice.edu/~notlaw/symalgbook.html)

Distinguished Invited Lectures
Fields-Carleton Distinguished Lecture series
“Modernizing Modern Algebra”, Carleton U., Ottawa, Canada.

Invited Scientific Lecture, Blackwell-Tapia Conference
“Frobenius Algebras Galore”, MSRI/ IPAM/ IMSI/ IAS [online].

NAM Claytor-Woodard Lecture, Joint Mathematics Meeting
“An Invitation to Noncommutative Algebra”, Washington, DC [online].
Review: [https://bit.ly/3qDonWI](https://bit.ly/3qDonWI) (short url)

Declined: AMS Invited Address, Joint Mathematics Meeting
(Previously accepted to give MAA Invited Address, at most one allowed)

MAA Invited Address, Joint Mathematics Meeting
“Navigating Collaboration”, Washington, DC [online].

Plenary Lecture, AWM Symposium
“Quantum Symmetry...and more”, Rice U., Houston, Texas.

Plenary Lecture, AMS Western Section Meeting
“On Quantum Symmetry”, U. Denver, Denver, Colorado.

Invited and Contributed Research Talks
Reflective centers and quantum K-matrices
Rocky Mountain Representation Theory seminar [online].
Subfactors and 2-categories conference, BIRS, Banff, Canada.
Global Categorical Symmetries conference, Les Diablerets, Switzerland.

Constructing non-semisimple modular categories
Southeastern Lie Theory Workshop, North Carolina State U.
Algebra Seminar, U. Marburg, Germany.
Hopf algebras, monoidal cat, related topics, Bucharest, Rom. [online]
Math. Forschungsinstitut Oberwolfach, Oberwolfach, Germ. [online].
SIAM-AG21 Minisymposium [online].
Seattle Noncommutative Algebra Day, U. Washington [online].

Filtered Frobenius algebras in monoidal categories
Emmy Noether Seminar, U. Erlangen-Nürenburg, Germany.
Quantum Topology and Categorification Seminar, U. Hamburg, Germ.
Algebra Seminar, U. Edinburgh, UK.
Algebra Seminar, TU Dresden, Dresden, Germany [online].

5
Mathematical Congress of the Americas [online].

**Modernizing Modern Algebra: Category theory is coming...**
- Department Colloquium, U. Hamburg, Germany. Nov. 2022
- Giessen-Marburg Joint Colloquium, U. Giessen, Germany. Nov. 2022
- SFB Higher Invariants Colloquium, U. Regensburg, Germany. Oct. 2022

Department Colloquium, U. Edinburgh, UK. Oct. 2022

**Poisson geometry of PI Sklyanin algebras**
- Algebraic Geometry seminar, Stanford U. [online] Jan. 2022
- Math. Forschungsinstitut Oberwolfach, Oberwolfach, Germany. May 2018
- Noncommutative Algebra meeting, U. Washington, Seattle, Wash. Mar. 2018
- Joint Mathematics Meeting: Noncom. Alg. session, San Diego, Calif. Jan. 2018
- GAP XV: Quantization, Penn. State University, State College, Penn. Aug. 2017
- Linking noncom. rings and alg. geom. ICMS, Edinburgh, Scotland June 2017
- Gone Fishing conference, Notre Dame, Notre Dame, Indiana. May 2017

**Frobenius Algebras Galore**
- LAGOON seminar [online] July 2021
- Women in Comb. and Rep. Theory Workshop, UC Riverside [online] May 2021

**On Quantum Symmetry/ Hopf actions (survey)**
- Department Colloquium, U. Chicago [online]. May 2021
- Department Colloquium, Ohio State U. [online]. Apr. 2021
- Department Colloquium, Penn. State U. [online]. Mar. 2021
- Department Colloquium, Dalhousie U. [online]. Nov. 2020
- Department Colloquium, Rutgers U, [online]. Nov. 2020
- Department Colloquium, Indiana U., Bloomington, Indiana. Nov. 2019
- Department Colloquium, U. Michigan, Ann Arbor, Michigan. Oct. 2019
- Department Colloquium, Rice U., Houston, Texas. Oct. 2019
- Geom. and Categ. Aspects of CFTs CMO-BIRS, Oaxaca, Mexico Sept. 2018
- Department Colloquium, Northern Illinois U., Dekalb, Illinois. Apr. 2018
- Department Colloquium, Purdue U., West Lafayette, Indiana. Jan. 2018
- Annual Math Conference, Miami U., Oxford, Ohio. Sept. 2017
- Department Colloquium, U. Washington, Seattle, Wash. Mar. 2017
- Department Colloquium, DePaul U., Chicago, Ill. Feb. 2017
- Department Colloquium, Bryn Mawr, Bryn Mawr, Penn. Jan. 2017
- Department Colloquium, Emory U, Atlanta, Georgia. Jan. 2017
- Algebra Seminar, U. Illinois Urbana-Champaign, Urb.-Champ., Ill. Dec. 2016
- Department Colloquium, Louisiana State U., Baton Rouge, Louis. Nov. 2016
- Modular Categories: CMO-BIRS, Oaxaca, Mexico. Aug. 2016
- Department Colloquium, U. Iowa, Iowa City, Iowa. Dec. 2015
- Department Colloquium, UCSB, Santa Barbara, Calif. May 2015
- Grad. Student Conf. (GSCAGT), Temple U., Philadelphia, Penn. May 2015
- Expository Talk, Maurice Auslander Conference, Woods Hole, Mass. May 2015
- Algebra section, SACNAS, Los Angeles, California. Oct. 2014
- Math. Forschungsinstitut Oberwolfach, Oberwolfach, Germany. May 2014
- Algebra Seminar, Northeastern U., Boston, Massachusetts. Oct. 2013

**Universal Quantum Semigroupoids**
- Noncommutative Algebra seminar [online]. Mar. 2021
- Quantum Symmetries seminar [online]. Oct. 2020
- Quantum Groups seminar [online]. Aug. 2020
Algebraic structures in group-theoretical fusion categories
Aachen-Bochum-Cologne-Darstellungstheorie seminar [online]. July 2020
MSRI Quantum Symmetries seminar [online]. Apr. 2020
Seattle Noncommutative Algebra Day, U. Washington, Seattle, Wash. Feb. 2020

Tensor algebras in finite tensor categories
CIMPA school on Quantum Sym., U. Los Andes. Bogotá, Colombia June 2019
Quantum Symmetries summer school, Ohio State U., Columbus, Ohio. June 2019
Homotopy meets homology workshop, Trinity College, Dublin, Ireland. May 2019
Seattle Noncommutative Algebra Day, U. Washington, Seattle, Wash. Mar. 2019

On Morita equivalence
Department Colloquium, Indiana U., Bloomington, Indiana. Feb. 2019

On the quadratic dual of the Fomin-Kirillov algebras
Algebra seminar, U. Waterloo, Waterloo, Canada. Nov. 2018
AMS section meeting, Northeastern U., Boston, Mass. Apr. 2018

On braided commutative algebras
Mathematical Physics seminar, Perimeter Institute, Waterloo, Canada. Nov. 2018
AMS section meeting, San Francisco St. U., San Francisco, California. Oct. 2018

Cocycle deformations of semisimple Hopf algebras
Joint Mathematics Meeting: AWM workshop, San Diego, Calif. Jan. 2018
AMS section meeting, Washington St. U., Pullman, Wash. Apr. 2017
Deformation Theory seminar, U. Penn, Philadelphia, Penn. Feb. 2017

Universal enveloping algebra of the Witt algebra is not noetherian
AMS section meeting, U. Calif. Riverside, Riverside, Calif. Nov. 2017
Seattle Noncommutative Algebra Day, Seattle, Washington. Aug. 2015
AMS section meeting, Temple U., Philadelphia, Pennsylvania. Oct. 2013
Algebra seminar, U. California San Diego, San Diego, California. Apr. 2013
Algebra seminar, U. Oregon, Eugene, Oregon. Apr. 2013

Noncommutative McKay Correspondence
Quantum Symmetries: Subfactors and Planar Alg. conf., Maui, Hawaii. July 2017
Joint Mathematics Meeting: Noncom. Alg. session., Atlanta, Georgia. Jan. 2017
Generalized Geometry Conf., Clay Math Inst., Oxford, England. Dec. 2016

No Quantum Symmetry
Joint Mathematics Meeting: Quantum Groups session, Atlanta, Geor. Jan. 2017
Lie Theory seminar, National Univ. of Córdoba, Córdoba, Argentina. July 2016
US-Mexico conf. Rep. Theory, Categ., Noncom. Alg., USC, LA, Calif. June 2016

PBW deformations of braided products
Algebra Seminar, Louisiana State U., Baton Rouge, Louis. Nov. 2016
Joint Mathematics Meeting: Noncom. Alg. session, Seattle, Wash. Jan. 2016

On quantum groups associated to a pair of preregular forms
AMS section meeting, Bowdoin College, Bowdoin, Maine. Sept. 2016
Bridges between Noncom. Algebra and Alg. Geom., BIRS, Banff, Can. Sept. 2016
XXI Coloquio Latin. de Álgebra, U. Buenos Aires, Buenos Aires, Arg. July 2016

Finite dimensional Hopf actions on algebraic quantizations
Seattle Noncommutative Algebra Day, Seattle, Washington. Apr. 2016
Semisimple/ Finite dimensional Hopf actions on Weyl algebras
Nichols Algebras and applications, BIRS, Banff, Canada Sept. 2015
AMS section meeting, Michigan State U., East Lansing, Michigan. Mar. 2015
Noncommutative Alg. Geom. workshop, Fudan U., Shanghai, China. Aug. 2014

On quantum groups assoc. to non-Noetherian reg. algebras of dim. 2
Geometric Algebra Conference, Fields Institute, Toronto, Canada. July 2015
AMS section meeting, U. Nevada Las Vegas, Las Vegas, Nevada. Apr. 2015

Actions of some pointed Hopf algebras on path algebras of quivers
Joint Mathematics Meeting: Noncom. Alg. session, San Antonio, Tex. Jan. 2015
Hopf algebras and actions workshop, U. Washington, Seattle, Wash. Nov. 2014

Finite dimensional Hopf actions on commutative domains
Representation Theory seminar, Northeastern U., Boston, Mass. Nov. 2014
Poisson 2014, U. Illinois Urbana-Champaign, Urbana, Illinois. Aug. 2014
Math. Forschungsinstitut Oberwolfach, Oberwolfach, Germany. Apr. 2014
Algebra seminar, U. Washington, Seattle, Washington. Nov. 2013

Noncommutative Invariant Theory (survey)
Department Colloquium, Rice U., Houston, Texas. Sept. 2014
Department Colloquium, Sam Houston State U., Huntsville, Texas. Mar. 2014
Algebra Seminar, Texas A&M U., College Station, Texas. Mar. 2014
Department Colloquium, Syracuse U., Syracuse, New York. Feb. 2014
Department Colloquium, Temple U., Philadelphia, Pennsylvania. Jan. 2014
Department Colloquium, U. California San Diego, San Diego, Calif. Jan. 2014
Department Colloquium, U. Waterloo, Waterloo, Canada. Nov. 2013
AMS section meeting, Temple U., Philadelphia, Pennsylvania. Oct. 2013
Every Topic seminar, Brandeis U. Waltham, Massachusetts. Oct. 2013
Southern California Algebra Conference (UCLA) Apr. 2013
Department Colloquium, Iowa State University, Ames, Iowa. Apr. 2013

PBW deformations of smash product algebras from Hopf actions
CMS section meeting, U. Ottawa, Ottawa, Canada. Dec. 2013

Semisimple Hopf actions on commutative domains
Postdoctoral seminar, MSRI, Berkeley, California. Mar. 2013

Hopf actions and Nakayama automorphisms
New Trends in Noncom. Algebra and Alg. Geom., BIRS, Banff, Can. Oct. 2012

Quantum binary polyhedral groups and their actions on quantum planes
Algebra seminar, Syracuse University, Syracuse, New York. Oct. 2012
Noncommutative Invariant Theory conf., U. Washington, Seattle. May 2012
Comm. Alg. with Alg. Geom., Rep. Thy, CIMAT, Guanajuato, Mex. May 2012
AMS section meeting, U. Hawaii at Manoa, Honolulu, Hawaii. Mar. 2012

Representation theory of three-dimensional Sklyanin algebras
Noncom. Alg. Geom., D-branes, Simons Center, Stony Brook, N. York. Dec. 2011
Algebra seminar, U. California Santa Barbara, Santa Barbara, Calif. Nov. 2011
AMS section meeting, Wake Forest U., Winston-Salem, N. Carolina. Sept. 2011

Degenerate Sklyanin Algs. and Gen. Twisted Homog. Coord. Rings
Algebra Seminars, U. Stuttgart, Ger.; U. Newcastle, U. Leeds, UK. Feb. 2011
Department Colloquium, Wake Forest U., Winston-Salem, N. Carolina. Nov. 2010
Algebraic Geometry Seminar, U. Illinois U-C, Urbana, Illinois. Nov. 2010
| Event                                                                 | Date       |
|----------------------------------------------------------------------|------------|
| Algebra Seminar, Michigan State U., East Lansing, Michigan.          | Oct. 2010  |
| Kent Algebra Days, U. Kent, Canterbury, England.                     | June 2010  |
| Algebraic Geometry Seminar, U. Warwick, Warwick, England.            | Feb. 2010  |
| AMS Western section meeting, U. California, Riverside, California.   | Nov. 2009  |
| Algebra Seminar, Northeastern U., Boston, Massachusetts.             | Oct. 2009  |
| **Invited**                                                          |            |
| **Expository Talks (for Undergrads)**                                |            |
| Hamilton’s Quaternions                                                | Sept. 2021 |
| Undergraduate Math Club, Rice U., Houston, Texas.                    | Nov. 2016  |
| Undergraduate Math Club, Louisiana State U., Baton Rouge, Louis.     | Feb. 2016  |
| Undergraduate Math Club, Temple U., Philadelphia, Penn.              | Oct. 2015  |
| Undergraduate Mathematics Symposium, U. Illinois, Chicago, Illinois.  | June 2015, 2016 |
| MathROOTS (high school program), MIT, Cambridge, Mass.               |            |
| Symmetries in Algebra                                                | Oct. 2019  |
| Department Colloquium, Reed College, Portland, Oregon.               | Mar. 2018  |
| **An Introduction to Noncommutative Invariant Theory**               | Apr. 2015  |
| Undergraduate Math Club, MIT, Cambridge, Massachusetts.              | Apr. 2014  |
| Keynote address, AFRArith conference, Boston U. Boston, Mass.        | July 2013  |
| ADVANCE PRiME seminar series, Purdue U., West Lafayette, Indiana.    | June 2013  |
| EDGE symposium, New College of Florida, Sarasota, Florida.           |            |
| **Noncommutative Algebra?!**                                         | July 2015  |
| PURE REU, University of Hawaii, Hilo, Hawaii.                        |            |
| Department Colloquium, Smith College, Northampton, Massachusetts.    | Sept. 2014  |
| Department Colloquium, Medgar Evers College, New York, New York.     | Apr. 2014  |
| Department Seminar, Spelman College, Atlanta, Georgia.               | Sept. 2010  |
| Department Colloquium, Wellesley College, Wellesley, Massachusetts.  | Oct. 2009  |
| Undergraduate Math Club, U. of Michigan, Ann Arbor, Michigan.        | Oct. 2009  |
| **Introducing Noncommutative Projective Algebraic Geometry**         | May 2008   |
| Alg. and Rep. Thy (ARTIN) meeting, U. Glasgow, Scotland.              | May 2007   |
| Invited Professional Development Lectures                             |            |
| Beyond Abstract Algebra                                              | May 2021   |
| Women and Mathematics Program, Inst. for Advanced Study [online].    |            |
| Navigating Collaboration                                              | June 2019  |
| CIMPA school on Quantum Sym., U. Los Andes. Bogotá, Colombia          |            |
| Infinite Possibilities Conference, Howard U., Washington D.C.        | Apr. 2018  |
| **Math in the Age of Trump**                                         |            |
| USTARS conference, Amherst College, Amherst, Mass.                   | Apr. 2017  |
| Marjorie Lee Browne Colloquium, U. Michigan, Ann Arbor, Michigan.    | Jan. 2017  |
| Conference, Workshop co-organized Noncom. Geometry and Noncom. Invariant Thy workshop | Sept. 2022 |
| Banff International Research Station, Banff, Canada.                 |            |
| - Organizer, [https://www.birs.ca/events/2022/5-day-workshops/22w5084](https://www.birs.ca/events/2022/5-day-workshops/22w5084) |
| Women in Noncommutative Algebra and Representation Theory 3 (WINART3) workshop | Apr. 2022 |
| Banff International Research Station, Banff, Canada.                 |            |
| - Contact organizer, [https://bit.ly/3wDzj2](https://bit.ly/3wDzj2) (short url) |
| - Research Group co-leader (with Elizabeth Wicks)                    |            |
**Gulf Coast Undergraduate Research Symposium (GCURS)**  
Oct. 2021  
Mathematics section co-organizer, Rice University, Houston, Texas.

**AMS Meeting Special Sessions**  
(various)  
Hom'l aspects of quantum symmetries, Joint Math Meeting, Wash. DC. Jan. 2021  
New Dev. in NC Alg. & Rep. Thy, Joint Math Meeting, Atlanta, GA. Jan. 2017  
Quantum Algebra, Western Section Meeting, Denver, Colorado. Oct. 2016

**MSRI semester on Quantum Symmetry**  
Spring 2020  
Mathematical Sciences Research Institute, Berkeley, California.  
- Program Organizer, [http://www.msri.org/programs/312](http://www.msri.org/programs/312)  
- Contact organizer, Conn. for Women, [http://www.msri.org/workshops/905](http://www.msri.org/workshops/905)

**Quasy-Con: Midwest Quantum Symmetries conference**  
Nov. 2019  
- Contact organizer, [https://math.rice.edu/~notlaw/QuaSy-Con2019.html](https://math.rice.edu/~notlaw/QuaSy-Con2019.html)

**Women in Noncommutative Algebra and Representation Theory 2 (WINART2) workshop**  
May 2019  
University of Leeds, Leeds, UK.  
- Non-local Contact organizer, [https://bit.ly/2LTQJxy](https://bit.ly/2LTQJxy) (short url)  
- Research Group co-leader (with Julia Plavnik)  
- NSF conference grant DMS-1900575, $11,398.00 USD

**Kirkman & Lorenz: Algebra Extravaganza!**  
July 2017  
Conference in honor of Ellen Kirkman and Martin Lorenz  
Temple University, Philadelphia, Pennsylvania.  
- Contact organizer, [https://math.temple.edu/events/conferences/k-l/](https://math.temple.edu/events/conferences/k-l/)  
- NSF conference grant DMS-1712663 (co-PI with V. Dolgushev), $24,969 USD

**Graduate Student Conf in Algebra, Geometry, and Topology**  
May 2016  
Temple University, Philadelphia, Pennsylvania.  
- [https://math.temple.edu/events/conferences/gscagt/](https://math.temple.edu/events/conferences/gscagt/)  
- NSF conference grant DMS-1623003 (co-PI with D. Futer), $37,900 USD

**Women in Noncommutative Algebra and Representation Theory (WINART) workshop [16w5023]**  
April 2016  
Banff International Research Station, Banff, Canada.  
- Contact organizer, [https://bit.ly/2kNgNaq](https://bit.ly/2kNgNaq) (short url)

**Postdoctoral Advisees**

- **Hongdi Huang**, Rice University.  
  - Next position: Assistant Professor of Mathematics at Shanghai U.  
  - July 2020 - present

- **Xingting Wang**, Temple University.  
  - Next position: Assistant Professor of Mathematics at Howard U.  
  - Current position: Assistant Professor of Mathematics at Louisiana State U.  
  - July 2015 - June 2018

**Ph.D. Advisees**

- **Jacob Kesten**, Rice University. Ph.D candidate.  
  - Next position: Assistant Professor of Mathematics at Shanghai U.  
  - July 2023 - present

- **Fernando Liu Lopez**, Rice University. Ph.D candidate.  
  - Excellence in Teaching Award, Department of Mathematics, Rice U.  
  - Graduate Teaching Award for Independent Instruction, Rice U.  
  - June 2021 - present

- **Anh-Tuong Nguyen**, UIUC. Ph.D candidate.  
  - Thesis: Coend elements of a Hopf algebra in a braided rigid monoidal category.  
  - Next position: Trexquant Investment.  
  - June 2019 - Dec 2023
Fabio Alejandro Calderón Mateus, U.N.C.-Bogotá. Sep. 2020 - July 2023
- Co-advisor: Milton Armando Reyes Villamil, U.N.Colombia-Bogotá
- Thesis: Algebraic properties of weak quantum symmetries.
- Fulbright Fellowship to visit Rice U.
- Next position: Postdoctoral Fellowship at the Universidad de los Andes.

Harshit Yadav, (UIUC transfer to) Rice University. Jan. 2019 - Apr. 2023
- Thesis: Functorial constructions of Frobenius algebras in the Drinfeld center.
- Nettie S. Autrey Fellowship, Rice U.
- Next position: Max Wyman Assistant Professorship at U. Alberta.

Zachary Cline, Temple University. Dec 2015 - May 2019
- Thesis: Extending actions of Hopf algebras to actions of the Drinfel’d double.
- Next position: Visiting Assistant Professorship at Bucknell U.
- Current position: TREND Community.

Short-term Advisees

Vincent Thompson, Rice University. Houston, TX. Jan. 2022 - May 2023
- Topic: Frobenius structures.

Colleen Delaney, Indiana U., Bloomington, IN (Postdoc institution). Spr. 2020

Pablo Ocal, Texas A&M U., College Station, TX (Ph.D institution). Spring 2020

Hongdi Huang, U. Waterloo, Waterloo, Canada (Ph.D institution). Fall 2019

Undergraduate Research Advisees

Abiel Quinonez, Rice University June 2024 - present
- Topic: Frobenius structures.

Amanda Hernandez, Rice University Jan. 2021 - Apr 2022
- Topic: Non-counital Frobenius algebras.
- Next position: Mathematics Ph.D. program at Brown U.

Andrew Estornell, Matthew Wynne, Temple Univ. Apr. 2017 - May 2018
- Topic: Deformations of noncommutative algebras.
- AE’s Next position: Mathematics Ph.D. program at the U. Washington.
- MW’s Next position: Computer Science Ph.D. program at Washington U.

Dong Bin Choi, Temple University. Jan. - Dec. 2016
- Topic: Noncommutative Invariant Theory.
- Next position: Mathematics Ph.D. program at Temple U.

Daniel Reich, Temple University. June 2014 - Aug. 2015
- Topic: PI three-dimensional Sklyanin algebras.
- Next position: Applied Mathematics Ph.D. program at North Carolina State U.

Ph.D. Committee Member

Zachary Spaulding, Rice U., Houston, TX. May 2024
Austen James, Rice U., Houston, TX. Nov. 2022
Zhiyuan Wang, Rice U. (Physics), Houston, TX. July 2022
Helbert Javier Venegas Ramirez, U. N. Colombia, Bogotá, Colombia. June 2020

Teaching

Course Instructor
Rice University, Houston, Texas
- Topics in Algebra (Grad), Symmetries of Algebras, Math 466/566. Spring 2024
- Algebra 1 (Grad), Math 463/563. Fall 2023
- Algebra 2 (Grad), Math 464/564. Spring 2023
- Group Representation Theory (Undergrad), Math 374. Spring 2022
- Algebra 1 (Grad), Math 463/563. Fall 2021
- Algebra 2 (Undergrad), Math 357. Spring 2021
- Algebra 1 (Grad), Math 463/563. Fall 2020

University of Illinois, Urbana-Champaign, Illinois
- Algebra (Grad), Math 500. Fall 2019
- Abstract Algebra (Ugrad), Math 417 sections D13, E13. Spring 2019
- Abstract Algebra (Grad), reading course. Spring 2019
- Representation Theory (Grad), Math 506. Fall 2018

Temple University, Philadelphia, Pennsylvania
- Abstract Algebra (Grad), Math 8011. Fall 2017
- Homological Algebra (Grad), Math 9011. Spring 2017
- Modern Algebra (Ugrad), Math 3098. Fall 2016
- Calculus III (Ugrad), Math 2043, Section 008. Spring 2016

Massachusetts Institute of Technology, Cambridge, Massachusetts.
- Seminar in Algebra and Number Theory (Ugrad), Math 18.704. Spring 2015

**Learning Group Facilitator**

State sums models and Invariants of 3-Manifolds. Spring 2023
- Meusburger’s *State sum models with defects based on spherical fusion cat.* (2022).

2-dim’l Top’l Quantum Field Theories and Frob. algebras. Spring 2019, Fall 2022
- Kock’s *Frobenius Algs and 2D Top’l Quantum Field Theories* (2003) §1.1-3.3.
- Led by Fernando Liu Lopez in Fall 2022.

Algebraic Structures in Braided Tensor Categories [hybrid]. Fall 2021, Spring 2022
- Fröhlich-Fuchs-Runkel-Schweigert’s *Correspondences of ribbon categ.* (2006).

Hochschild cohomology [online]. Spring 2021
- Witherspoon’s *Hochschild Cohomology for Algebras* (2020).

3-dim’l Top’l Quantum Field Theories and Modular Categories [online]. Fall 2020
- (no text, a couple of talks, the rest of the slots are videos and discussion)

Braided Tensor Categories [online]. Summer 2020
- Etingof-Gelaki-Nikshych-Ostrik’s *Tensor Categories* (2015) Ch. 8.

Monoidal Categories. Fall 2019
- Turaev-Virelizier’s *Monoidal Categories and Top’l Field Theory* (2017) §1.1-6.7.

**Directed Reading Course Facilitator**

- Category Theory, (Ugrad, Rice), Math 490. Spring 2024
- Category Theory, (Grad, Rice), Math 690. Spring 2023
- Symmetries of Algebras, (Ugrad, Rice), Math 490. Fall 2022
- Group Rep. Theory, Spelman-Morehouse DRP Program. [online] Spring 2022
- Category Theory (Ugrad, Rice), unofficial. Summer 2021
- Alg. Structures in Monoidal Categories (Ugrad, Rice), Math 490. Spring 2021
- Group Representation Theory (Ugrad, Rice), Math 490. Fall 2020

**Advanced Short Course Instructor**

CIMPA summer school on Hopf algebra and Tensor Categories. Aug. 2019
- Location: National Univ. of Córdoba, Córdoba, Argentina.
- Course: Artin-Schelter regular algebras and their quantum symmetries.

**Instructor for Enhancing Diversity in Graduate Education program**

Course: Advanced Linear Algebra
Howard College, Washington D.C. June 2015
Harvey Mudd College, Claremont, California. June 2014
New College of Florida, Sarasota, Florida. June 2013
Pomona College, Claremont, California. June 2012

Recitation Leader
Massachusetts Institute of Technology, Cambridge, Massachusetts.
Calculus III, Math 18.02 section 1 & 18.02 Course Administrator Fall 2014
Calculus III, Math 18.02A sections 3 and 6 Jan. 2014
Calculus I-III, Math 18.01A/02A sections 2 and 3 Fall 2013
Calculus III, Math 18.02 sections 10 and 14 Fall 2012

Graduate Student Instructor (GSI)
University of Michigan, Ann Arbor, Michigan.
Calculus I (primary instructor), Math 115 section 18 Fall 2010
Differential Equations, Math 216 sections 41-44 Fall 2009
Calculus II (primary instructor), Math 116 section 36 Fall 2008
Calculus I (primary instructor), Math 115 section 42 Fall 2006

GSI, Michigan Math and Science Scholars July 2006
University of Michigan, Ann Arbor, Michigan.

GSI, Emerging Scholars Program Aug. 2004 - May 2005
Michigan State University, East Lansing, Michigan.

Selected Service and Outreach

DIVERSITY, INCLUSION, AND EQUITY SERVICE (INDIVIDUALIZED)
Tailored especially to underrepresented racial and gender minorities.
- Provides advice, advocacy work on transitional points in the academic career path.
- Aids in (academic) job offer negotiations.
- Assists with navigating the collaborative research process.
- Serves as unofficial liaison for mental health and family services.

Internal Service for Rice University
- University-Wide Promotion and Tenure Committee Fall 2023 - Spring 2025
- Physics/ Quantum Initiative Hiring Committee Fall 2022 - Spring 2023
- Mathematics Hiring Interviewer Fall 2021 - Spring 2023
- AGNT seminar organizer Fall 2021 - Spring 2023
- Graduate Admissions Committee (co-chair from F2021) Fall 2020 - Spring 2023
- Graduate Committee Fall 2020 - Spring 2023
- Diversity Committee (member-at-large) Fall 2020 - Spring 2023
- Appointments (Hiring) Committee Fall 2020 - Spring 2021

Internal Service for University of Illinois Urbana-Champaign
- Algebra seminar organizer Fall 2019
- Colloquium Committee Fall 2019
- Math 500 (Graduate Algebra) Committee Fall 2019
- Graduate Affairs Committee Fall 2018 - Spring 2019
- Graduate Recruit Application Screening Fall 2018 - Fall 2019

Internal Service for Temple University
- Colloquium organizer Fall 2016 - Fall 2017
- Graduate committee member Fall 2015 - Spr. 2018
- Algebra seminar organizer Fall 2015 - Fall 2017
EXTERNAL SERVICE ACTIVITIES

Referee. For various journals and international grants.

**BIRS Scientific Advisory Board**

**Journal Editor**
Proceedings of the AMS, Editor
Communications of the AMS, Associate Editor

**BIRS Scientific Advisory Board**
Aug. 2023 - Aug. 2025

(Various)

**WINART Steering Committee**
March 2022 - Feb. 2025
- Advisory role for the new leadership: D. Addabbo, M. Kulkarni, L. Martirosyan.

**Panel Member**

- Job Advice Panel, Southeastern Lie Theory workshop, NCSU. May 2023
- NAM Panel, Joint Mathematics Meetings, San Diego, Calif. Jan. 2018
- Connections for Women workshop, MSRI, Berkeley, Calif. Jan. 2013
- USTARS Symposium, U. Iowa, Iowa City, Iowa. Apr. 2012
- Diversity in Graduate Math workshop, MSRI, Berkeley, Calif. Oct. 2008
- IAS Women and Mathematics, IAS, Princeton, New Jersey. May 2007

**WINART Network lead**
July 2015 - Feb. 2022
- Created and managed site women-in-ncalg-repthy.org & email listserv for women and non-binary researchers in Noncommutative Algebra and Representation Theory.
- Lead organizer for the first, second, and third WINART workshops.
- Liaison to the AWM and other Women in Math Research Networks.

**NSF and NSA Grant Panels**
Disclosed dates 2015, 2018, 2020, 2021

**Scientific Advisory Committee**

Poison Geometry Summer School and Conference July 2022
CIMPA Research School on Quantum Symmetries, Bogotá, Colombia July 2019

**Instructor, Enhancing Diversity in Grad. Education (EDGE) program**

Howard College, Washington D.C. June 2015
Harvey Mudd College, Claremont, California. June 2014
New College of Florida, Sarasota, Florida. June 2013
Pomona College, Claremont, California. June 2012

**AMS-Simons Travel Grants Committee Member**
Feb. 2015 - Jan. 2018
American Mathematical Society, USA.

**Advisory Board Member, MIT PRIMES**
July 2014 - present
Massachusetts Institute of Technology, Cambridge, Massachusetts.

**Program Coordinator, MIT PRIMES Circle**
Aug. 2012 - July 2014
Massachusetts Institute of Technology, Cambridge, Massachusetts.

**Member, Mathematics Undergraduate Committee**
Aug. 2003 - May 2005
Michigan State University, East Lansing, Michigan USA.
- Initiated the development of course MTH 290: *Transition to Higher Mathematics*;
  Currently known as MTH 301: *Foundations of Higher Mathematics*.

- Updated: June 20, 2024 -