Yiqiang Li's CV
March 26, 2025

Yiqiang Li
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University at Buffalo
The State University of New York
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Employment

2021–	**Professor**	University at Buffalo
2017– 2021	**Associate Professor**	University at Buffalo
2011–2017	**Assistant Professor**	University at Buffalo
2009–2011	**Visiting Assistant Professor**	Virginia Tech
2006–2009	**Gibbs Assistant Professor**	Yale University

Education

2006	Ph.D.	Mathematics	Kansas State University
		Thesis title:	Affine Canonical Bases
		Thesis advisor:	Professor Zongzhu Lin
2002	M.S.	Mathematics	Kansas State University
1998	B.A.	Mathematics	Xiamen University, China

Research interest

Algebra, Representation Theory and Geometry

Publication

(a) Preprints

[44] *Geometry of a family of varieties associated with a quiver*, in preparation.

[43] *Geometry of a family of varieties associated with a cyclic quiver*
preprint, 2025.

[42] *Quasi-split symmetric pairs of $\mathfrak{sl}_n(\mathbb{C})$ and Steinberg varieties of classical type, II. Constructible functions*,
preprint 2025

[41] *q-Schur algebras of type D, II, Schur-Weyl-Hecke duality*
in preparation.
Joint with Jie Du and Zhaozhao Zhao

[40] *Critical cohomological Hall algebras and edge contractions*, arXiv:2401.04839
Joint with Jie Ren

[39] *Quantum groups and edge contractions*, arXiv:2308.1636

[38] *Langlands reciprocity for affine q-Schur algebras*
in preparation

(b) Peer-reviewed journals/books/proceedings

[37] *q-Schur algebras of type D, I, fundamental multiplication formulas*, arXiv:2406.09057
Joint with Jie Du and Zhaozhao Zhao
To appear in Journal of Algebra

[36] *Hecke algebras and edge contractions*, arXiv:2402.11407 to appear in JPAA. Vol. 228, Issue 12, 2024. DOI:2024.107768

[35] *Embeddings of quantum affine $\mathfrak{sl}_n$*
Acta Mathematica Sinica, English Series, 40(3), 792–805 (2024) https://rdcu.be/dfxu6

[34] *Affine Hecke algebras and quantum symmetric pairs*
Memoirs of the American Mathematical Society, Vol. 281; 2023.
Joint with Zhaobing Fan, Chun-Ju Lai, Li Luo and Weiqiang Wang
arXiv:1609.06199

[33] *On multiplication formulas of affine q-Schur algebras*
J. Pure Appl. Algebra 226 (2022), no. 7, Paper No. 106943
Joint with Andrew Samer

[32] *Quasi-split symmetric pairs of $U(\mathfrak{gl}_N)$ and their Schur algebras*
Nagoya Math. J. Vol. 245, 2022, 1–27. doi.org/10.1017/nmj.2020.16
Joint with Jieru Zhu
arXiv:1909.01240

[31] *Quasi-split symmetric pairs of $\mathfrak{sl}_n(\mathbb{C})$ and Steinberg varieties of classical type*
Represent. Theory 25 (2021), 903–934
arXiv:2002.04422

[30] *Longest Weyl group elements in action*
to appear in *Interactions of Quantum Affine Algebras with Cluster Algebras: Current Algebras and Categorification: In Honor of Vyjayanthi Chari on the Occasion of Her 60th Birthday.*
Birkhäuser, Progress in Mathematics Vol. 337, 2021
Joint with Yan Ling

[29] *Positivity of canonical bases under comultiplication*
International Mathematics Research Notices, Vol. 2021, Issue 9, 6871-6931. doi link
Joint with Zhaobing Fan
arXiv:1511.02434.

[28] *Affine flag varieties and quantum symmetric pairs*
Memoirs of the American Mathematical Society, 2020 Volume 265, Number 1285
Joint with Zhaobing Fan, Chun-Ju Lai, Li Luo and Weiqiang Wang
arXiv:1602.04383

[27] *On canonical bases for the Letzter algebra $\mathbf{U}^\imath(\mathfrak{sl}_2)$*
J. Pure Appl. Algebra 224 (2020), no.5, 106227, 4 pp. doi link
arXiv:1904.13340

[26] *Spaltenstein varieties of pure dimension*
Proceedings of the American Mathematical Society, **148** (2020) 133–144
arXiv:1901.00385

[25] *Quantum Schur duality of affine type C with three parameters*
Mathematical Research Letters, Vol. 27 (2020), 79–114
Joint with Zhaobing Fan, Chun-Ju Lai, Li Luo, Weiqiang Wang and Hideya Watanabe
arXiv:1802.01047

[24] *Affine flag varieties and quantum symmetric pairs, II. Multiplication formula*
Journal of Pure and Applied Algebra, **223** (2019), no. 10, 4311–4347

Joint with Zhaobing Fan
arXiv:1701.06348

[23] *Quiver varieties and symmetric pairs*
Representation Theory, **23** (2019), 1–56
arXiv:1801.06071

[22] *Positivity vs negativity of canonical bases*
Bull. Inst. Math. Acad. Sin. (N.S.) 13 (2018), no. 2, 143–198
Joint with Weiqiang Wang
arXiv:1501.00688

[21] *Geometric Schur duality of classical type*, with Appendix by Bao, Li and Wang
Transformation Groups. **23** (2018), 329-389
Joint with Huanchen Bao, Jonathan Kujawa and Weiqiang Wang
arXiv:1404.4000

[20] *A geometric realization of quantum modified algebras*
in *Categorification in geometry, topology, and physics*, 23–61, Contemp. Math., **684**, Amer. Math. Soc., Providence, RI, 2017
arXiv:1007.5384

[19] *Canonical bases of Borcherds-Cartan type, II, constructible functions on singular supports*
in *Lie algebras, Lie superalgebras, vertex algebras and related topics*, 167–179, Proc. Sympos. Pure Math., **92**, Amer. Math. Soc., Providence, RI, 2016. doi link

[18] *Geometric Schur duality of classical type, II*
Transactions of American Mathematical Society, Ser. B, **2** (2015), 51–92
Joint with Zhaobing Fan
arXiv:1408.6740

[17] *Two-parameter quantum algebras, canonical bases, and categorifications*
International Mathematical Research Notices, **16** (2015), 7016–7062
Joint with Zhaobing Fan
arXiv:1303.2429

[16] *A geometric setting for quantum $\mathfrak{osp}(1|2)$*
Transactions of American Mathematical Society, **367** (2015), no. 11, 7895–7916
Joint with Zhaobing Fan
arXiv:1305.0710

[15] *Quantum Supergroups III. Twistors*
Communications in Mathematical Physics, **332** (2014), 415–436
Joint with Sean Clark, Zhaobing Fan and Weiqiang Wang
arXiv:1307.7056

[14] *Tensor product varieties, perverse sheaves and stability conditions*
Selecta Mathematica, **20** (2014), no. 2, 359–401
arXiv:1109.4578

[13] *A geometric construction of generalized q-Schur algebras*
in *Recent advances in representation theory, quantum groups, algebraic geometry, and related topics*, 55–62, Contemporary Mathematics., **623**, Amer. Math. Soc., Providence, RI, 2014
Joint with Stephen Doty
arXiv:1303.3487

[12] *A class of perverse sheaves on framed representation varieties of the Jordan quiver*
Journal of Algebra, (2013), 113–130
arXiv.1209.3347

[11] *On quantum GL(n)*
Journal of Pure and Applied Algebra, **217** (2013), 1054–1068
arXiv:1112.3883

[10] *On projective modules of category $\mathcal{O}$ of quantum $\mathfrak{sl}_2$*
Algebra and Representation Theory, **16** (2013), no. 5, 1315–1332

[9] *A geometric realization of quantum groups of type D*
Advances in Mathematics, **224** (2010), 1071–1096

[8] *Semicanonical bases for Schur algebras*
Journal of Algebra, **324** (2010), no. 3, 347–369

[7] *A realization of quantum groups via product valued quivers*
Algebra and Representation Theory, **13** (2010), no. 4, 427–444
Joint with Zongzhu Lin
arXiv:0610447

[6] *Generalized Kac-Moody Lie algebras and product quivers*
Communications in Algebra, **38** (2010), 3045–3056
Joint with Zongzhu Lin
arXiv:0610448

[5] *Canonical bases of Borcherds-Cartan type*
Nagoya Mathematical Journal, **194** (2009), 169–193
Joint with Zongzhu Lin
arXiv:0812.1449

[4] *AR-quiver approach to affine canonical bases*
Journal of Algebra, **318** (2007), no. 2, 562–588
Joint with Zongzhu Lin
arXiv:0610032

(c) Unpublished papers

[3] *An identification of Lusztig's modified forms of quantum algebras and their analogues*
Joint with Zhaobing Fan and Zongzhu Lin
arXiv:1312.0838

[2] Affine quivers of type A and canonical bases
arXiv:math/050175

[1] Notes on affine canonical and monomial bases
arXiv:math/0610449

Grant support

2024–2029	**Simons Travel Support for Mathematicians**, MPS-TSM-00007565	
	Cartan decomposition of quiver varieties. Sole PI.	
2018–2023	**National Science Foundation Grant** # DMS 1801915:	
	Quiver varieties and symmetric pairs. Sole PI.	
2011–2014	**National Science Foundation Grant** # DMS 1160351:	
	Representation theory and varieties associated with quivers. Sole PI.	

Teaching at University at Buffalo

Spring 2026	MTH 309	Linear Algebra
	MTH 311	Higher Mathematics

Fall 2025   MTH 309   Linear Algebra

Spring 2025   Sabbatical

Fall 2024   MTH 311   Higher Mathematics
             MTH 131   Mathematical Analysis for Management
             Independent Study on Lattices   Gao Zhou

Spring 2024   MTH 819   Topics in representation theory

Fall 2023   MTH 461   Representations of finite groups
             Tuesday/Thursday, 9:30-10:50am
             MTH 719   Representations of quivers
             Tuesday/Thursday, 12:30-1:50pm, Room 235

Summer 2023   —   Meeting with Drew Meyer weekly

Spring 2023   MTH 520   Linear Algebra

Fall 2022   MTH 801   Abstract Algebra
             Independent Study   Lie algebras I
             Independent Study   Lie algebras II
             Independent Study   Quantum groups

Spring 2022   Independent Study   Introduction to Lie Algebras
               Independent study   Affine Grassmannian & Tits buildings

Fall 2021   MTH 561   Introduction to Representation Theory
                        Independent study on Lie algebras
                        Independent study on Coxeter groups

Spring 2021   MTH 620   Homological algebra
               MTH 801   Independent study on Lie algebras
                                    Independent study on Coxeter groups
Fall 2020   Independent study

Spring 2020   Math 309   Linear Algebra
               Math 311   Higher Math
Fall 2019   Math 819   Quiver varieties

Spring 2019   Math 719   Quiver varieties
               Math 419   Introduction to Abstract Algebra

Fall 2018	Research leave (Sabbatical)	
	Seminar	Geometric representation theory seminar
	Independent study	
Spring 2018	Math 620	Representation Theory of Lie Algebras
	Independent study	Baby geometric representation theory seminar
	Independent study	Introduction to quantum groups
	Independent study	Hall algebras
	Independent study	Lie algebras
Fall 2017	Math 619	Introduction to Lie Algebras
	Math 153	Honors Calculus
	Independent study	Introduction to representation theory
Spring 2017	Math 620	Abstract Algebra
	Math 309	Introduction to Linear Algebras
Fall 2016	Math 610	Abstract Algebra
Spring 2016	Math 419/519	Introduction to Abstract Algebra
	Math 620	Abstract Algebra II
Fall 2015	Math 619	Abstract Algebra I
Spring 2015	Math 142	Calculus II
	Math 419/519	Introduction to Abstract Algebra
Fall 2014	Research leave	
Spring 2014	Math 241	Calculus III
Fall 2013	Math 241	Calculus III
	Math 309	Introduction to Linear Algebra
Spring 2013	Math 419/519	Introduction to Abstract Algebra
Fall 2012	Math 309	Introduction to Linear Algebra
	Math 461	Topics in Algebra
Spring 2012	Math 309	Introduction to Linear Algebra
	Math 420/520	Advanced Linear Algebra
Fall 2011	Math 309	Introduction to Linear Algebra

Teaching at Virginia Tech

Spring 2011	Math 3134	Applied Combinatorics
Fall 2010	Math 2224	Calculus III
Spring 2010	Math 2224	Calculus III
Fall 2009	Math 2224	Calculus III

Teaching at Yale University

Summer 2009	Math 115	Calculus II
Spring 2009	Math 607	Linear Algebraic Groups
Fall 2008	Math 115	Calculus II
	Math 115	Calculus II
Spring 2008	Math 930	Recent Topics in Representation Theory
Fall 2007	Math 112	Calculus I
Spring 2007	Math 831	Representation Theory of Quivers
	Math 112	Calculus I
Fall 2006	Math 118	Calculus III
	Math 118	Calculus III

Teaching at Kansas State University

Fall 2005	Applied Matrix Theory (lab)
Spring 2005	Elementary Differential Equations (lab)

Invited talks

2024 **Generalized Schubert Calculus and Recent Progress**, Fall 2024 AMS Eastern Sectional Meeting, Albany, October 19-20, 2024.
Tentative Title: Quantum groups and edge contractions

2024 **Algebra Seminar,** Huaqiao University, July 17-26, 2024
Title: Lectures on geometric Schur-Weyl duality of classical type

2024 **Geometric Methods in Representation Theory,** AMS Sectional Meeting at the University of Wisconsin-Milwaukee, April 20-21, 2024
Title: Spaltenstein varieties of pure dimension

2024 **Tsinghua University Algebra and Representation Theory Seminar, online** April 6-7, 2024
Title: Representation theory under edge contractions

2023 **AMS special session on "Combinatorial and Categorical Techniques in Representation Theory",** Fall Eastern Sectional Meeting of the AMS, September 9-10, 2023
Title: Quantum groups and edge contractions

2023 **Algebra Seminar, University of New South Wales**, 07/09-07/31, 2023
Title: Quiver varieties and symmetric pairs (2 talks)

2022 **Seminar at Fudan University** September 2022
Title: "Quasi-split symmetric pairs of sl_n and Steinberg varieties of classical type"

2022 **Zhongshan University at Zhuhai** September 2022
Title: "*Embeddings of quantum affine $\mathfrak{sl}_n$ and beyond.*"

2022 **(Postponed) The 9th International Congress of Chinese Mathematicians**, Beijing, 07/31/2022 − 08/05/2022.
Title: TBA

2022 **UB Math Club**, March 31, 2022.
Title: Admission criteria in UB Math graduate program admission

2021 **Geometric and Algebraic Aspects of Quantum Groups and Related Topics**, AMS Fall Southeastern Sectional Meeting, November 20-21, 2021.
Title: "*Towards a Langlands reciprocity for affine q-Schur algebras.*"

2021 **Online mini-workshop on Algebra and Geometry of Homogeneous Spaces**, June 2-4, 2021.
Title: "*Langlands reciprocity for affine q-Schur algebras.*"

2021 **AMS special session on "Geometric and Categorical Methods in Representation Theory"** at the AMS Spring Western Sectional Meeting. (formerly at San Francisco State University) now meeting virtually, May 1-2, 2021.
Title: "*Langlands reciprocity for affine q-Schur algebras.*"

2021 **AMS special session on "Recent Advances on Schubert Calculus and Replated topics"**, Brown University, March 20-21, 2021.
Title: "*Quasi-split symmetric pairs of $\mathfrak{sl}_n$ and Steinberg varieties of classical type.*"

2020 **University of Toronto, algebra seminar**, Toronto, February 13-14, 2020.
Title: "*Spaltenstein varieties of pure dimension.*"

2020 **Ohio State University, Representations and Lie Theory seminar**, January 21-23, 2020.
Title: "*Geometric Schur duality ABC.*"

2019 **AMS special session "Geometric Methods in Representation Theory,"** UC Riverside, November 9-10, 2019.
Title: "*Towards a Springer theory for quasi-split symmetric pairs of $\mathfrak{gl}_n$.*"

2019 **AMS special session "Canonical bases, cluster structures and non-commutative birational geometry,"** UC Riverside, November 9-10, 2019.
Title: "*On canonical bases for the Letzter algebra $\mathbf{U}^\imath(\mathfrak{sl}_2)$.*"

2019 **Workshop on Quiver Varieties and Representation Theory**, CRM Montreal, Canada, August 12-16, 2019.
Title: "*Quiver varieties and symmetric pairs.*"

2019 **The Eighth International Conference on Representation Theory (ICRT8)**, Harbin, China, July 8-12, 2019.
Title: "*Spaltenstein varieties of pure dimension.*"

2019 **The 21st Workshop on Representations Theory of Algebras**, Beijing, China, June 26-30, 2019.
Title: "*Quiver varieties and representation theory.* Five lectures, joint with Fan Xu.

2018 **UC Riverside, Lie theory seminar**, November 07-09, 2018.
Title: "*Spaltenstein varieties of pure dimension.*"

2018 **Workshop on Representation Theory, Combinatorics, and Geometry**, University of Virginia, October 19-21, 2018.
Title: "*Quiver varieties and symmetric pairs.*"

2018 **University of North Carolina, algebra seminar** Chapel Hill, NC. Fall 2018.
Title: "*Quiver varieties and symmetric pairs.*"

2018 **Xiamen University**,July 9, 2018.
Title: "*Kostant-Sekiguchi correspondence and quiver varieties,*"

2018 **Huaqiao University**, July 5, 2018.
"*Geometric Schur duality ABC, and beyond.*"

2018 **Nankai University**, June 21, 2018.
"*Geometric Schur duality ABC, and beyond.*"

2018 **Tsinghua University**, June 20, 2018.
"*Quiver varieties and symmetric pairs.*"

2018 **East China Normal University, Shanghai, CHINA**, June 14, 2018.
Title: "*Geometric Schur duality ABC, and beyond,*"

2018 **New Interactions of quantum affine algebras with cluster algebras, current algebras and categorification**, Washington D.C., U.S.A. June 2-8, 2018.
Title: "*Quiver varieties and symmetric pairs.*"

2018 **Representation Theory Seminar at University of Massachusetts, Amherst**, March 19, 2018.
Title: "*Quiver varieties and symmetric pairs.*"

2018 **Algebra seminar at University at Albany**, March 1, 2018.
Title: "*Quiver varieties and symmetric pairs.*"

2017 **University of Virginia, algebra seminar**, November 17, 2017.
Title: "*Quiver varieties and symmetric pairs.*"

2017 **AMS Meeting**, Orlando, Florida, September 2017.
Title: "*σ-Quiver varieties and symmetric pairs.*"

2017 **Colloquium talk at Shanghai Jiaotong University, China**, July 25, 2017.
Title: "*Quiver varieties and symmetric pairs.*"

2017 **Colloquium talk at Xiamen University, China**, July 19, 2017.
Title: "*Quiver varieties and symmetric pairs.*"

2017 **Taipei workshop on representation theory of Lie superalgebras and related topics**, Taipei, July 01-07, 2017.
Title: "*Quiver varieties and symmetric pairs.*"

2017 **AMS Meeting**, Charleston, NC, March 2017.
Title: "*σ-Quiver varieties.*"

2016 **International Conference on Representation of Algebra, Syracuse University**, August 2016.
Title: "*Affine flag varieties and quantum symmetric pairs.*"

2016 **7th International Conference on Representation Theory, Xiamen, Fujian Province, China**, July 18 - 23, 2016.
Title: "*σ-quiver varieties.*"

2016 **Tshinghua University**, July 2016.
Title: "*Affine flag varieties and quantum symmetric pairs.*"

2016 **Brock University**, Canada, Colloquium, April 2016.
Title: "*Geometric Schur duality* ABC,"

2015 **AMS Meeting**, Washington DC, March 2015.
Title: "*Positivity vs negativity of canonical bases,*"

2014 **University of Virginia**, Algebra Seminar, October 2014.
Title: "*Transfer maps for quantum Schur algebras of classical type.*"

2014 **NSF/CBMS Regional Conference on Higher Representation Theory**, North Carolina, July 2014.
Title:"*Geometric Schur duality of classical type.*"

2013 **AMS Meeting**, Riverside, California, November 2013.
Title: "*A geometric setting for quantum* $\mathfrak{osp}(1|2)$.*"

2013 **AMS Meeting**, Philadelphia, Pennsylvania, October 2013.
Title: "*Two-parameter quantum algebras, canonical bases and categorifications,*"

2012 **AMS Meeting**, New Orleans, Louisiana, October 2012.
Title: "*A geometric realization of modified quantum algebras.*"

2012 **AMS Meeting**, New Orleans, Louisiana, October 2012.
Title: "*On quantum matrix algebras.*"

2012 **Southeastern Lie Theory workshop on categorification of quantum groups and representation theory**, April 2012.
Title: "*Geometric realization of representations of quantum groups.*"

2012 **AMS Meeting**, Lawrence, Kansas, March 2012.
Title: "*On quantum $GL(n)$.*"

2012 **Virginia Tech**, Algebra Seminar, February 2012.
Title: "*A generalization of Springer resolution of type A and Fock space.*"

2011 **AMS Meeting**, Lincoln, Nebraska, October 2011.
Title: "*Tensor product varieties, perverse sheaves, and stability conditions.*"

2011 **Workshop on Lie Groups, Lie Algebras and their Representations**, UC, Riverside, May 2011.
Title: "*Tensor product varieties, perverse sheaves and localization conditions.*"

2010 **Columbia University**, Columbia Symplectic Geometry, Gauge Theory, and Categorification Seminar, October 2010.
Title: "*Geometric realizations of quantum groups.*"

2010 **University of Bonn**, Seminar, November 2010.
Title: "*Geometric constructions of quantum groups.*"

2010 **University of Oklahoma**, Algebra Seminar, September 2010.
Title: "*Geometric realizations of quantum modified algebras.*"

2010 **CBMS Conference on Quiver Varieties and Quantum Affine Algebras**, May, 2010.
Title: "*On geometric realizations of q-Schur algebras of type A.*"

2010 **University of Virginia**, February 2010.
Title: "*A geometric realization of quantum groups of type D, and beyond.*"

2008 **Xiamen University, China**, Seminar, June 2008.
Title: "*Canonical bases of Borcherds-Cartan type.*"

2008 **University of California, Riverside**, Algebra Seminar, March 2008.
Title: "*Geometric realization of irreducible modules of quantum groups.*"

2007 **Kansas State University**, Algebra Seminar, December 2007.
Title: "*Geometric realization of irreducible representations of quantum groups.*"

2006 **Yale University**, Physics and Symmetry Seminar, December 2006.
Title: "*A characterization of affine canonical bases elements.*"

2005 **AMS Meeting**, Eugene, Oregon, November 2005.
Title: "*Algebras arising from quivers with loops.*"

2005 **Conference in Honor of Robert L. Wilson and James Lepowsky**, May 2005.
Title: "*Affine canonical basis elements.*"

Other talks

2023 **UB algebra seminar** Title: "*Quantum groups and edge contractions*"

2017 **Univeristy at Buffalo**, Graduate Mentoring Seminar, February 2017.
Title: "*Dynkin diagram stampede.*"

2013 **University at Buffalo**, Algebra Seminar, September 2013.
Title: "*A geometric setting for quantum $\mathfrak{osp}(1|2)$.*"

2012 **University at Buffalo**, Algebra Seminar, September 2012.
Title: "*Beyond Springer correspondence of type A.*"

2011 **University at Buffalo**, Algebra Seminar, University at Buffalo, September, 2011. (3 talks).
Title: "*Three different geometric realizations of irreducible representations of GL_n.*"

2010 **Virginia Tech**, Representation Theory Seminar, Fall 2009, Spring 2010. (multiple talks).
Title: "*Geometric realizations of quantum algebras.*"

2006 **Joint Mathematics Meeting**, San Antonio, Texas, January 2006.
Title: "*A realization of quantum groups via product valued quivers.*"

2005 **Kansas State University**, Algebra Seminar, October 2005.
Title: "*Lusztig's geometric realization of quantum groups.*"

Professional service
Service as an advisor for undergraduate research
2023 Honors thesis: Sahojar Khan (Topics in Homological Algebra)

2023 Summer UPRC program

2022 Summer UPRC program

2012 Taka Molson, UB LSAMP Summer Research Program

Service as a PhD thesis advisor
2022– Drew Meyer

2022– Adhish Rele

2021–2024 Amy Heron (co-advisor Johanna Mangahas)

2017– 2022 Renda Ma
Thesis Title: Primitive elements in the Hall algebra of a cyclic quiver

2017–2022 Raymond Jones
Thesis Title: An algebraic study of cloaking elements

2016–2021 Dustin Deutsch
Thesis title: Affine Schur algebras and affine generalized Steinberg varieties

2016–2021 Andrew Samer
Thesis title: On multiplication formulas for affine q-Schur algebras

2016–2020 Pasquale Raico
Thesis title: Geometric Schur duality over the complex numbers

Service as a mentor
2022- Jeff Koch

2024- Deshmukh

Service as a postdoctoral advisor
2022-2024 Jie Ren, Visiting Assistant Professor, University at Buffalo

2018–2020 Jieru Zhu, Visiting Assistant Professor, University at Buffalo

2012–2014 Zhaobing Fan, postdoc associate, University at Buffalo

Service as a reviewer

2024 External Reviewer for the Department of Mathematics at the University of Rochester, February 20-22, 2024

2023 New Cornerstone Investigator Program, Peer Reviewer

2022 Outside evaluator for a promotion to assistant professor with tenure

2019 NSF grant proposals/panel

2011–present Mathscinet of AMS

2011–present Zentralblatt MATH

Service as a referee for the following journals

Advances in Math

Algebra Colloquium

Algebras and Representation Theory

AMS Conference Proceedings

Bulletin of the Institute of Mathematics Academia Sinica

Bulletin of the London Mathematical Society

Communications in Algebra

Communications in Mathematical Physics

Duke Mathematical Journal

International Mathematics Research Notices

Journal of Algebra

Journal of the London Mathematical Society

Journal of Pure and Applied Algebra

Mathematical Research Letters

Mathematische Zeitschrift

Pure and Applied Mathematics Quarterly

Proceedings of the American Mathematical Society

Proceedings of the London Mathematical Society

Representation Theory

Science China Mathematics

Transformation Groups

Transactions of AMS

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Service as a conference/seminar organizer

2024 AMS special session on Cluster algebras, Hall algebras and representation theory, April 2024, Joint with X. Chen

2023 AMS special session on Representation Theory and Flag Varieties, September 2023, Joint with C. Zhong

2019 AMS special session on Hall algebras, cluster algebras and representation theory, the University of Wisconsin-Madison, September 14-15, 2019.
Joint with X. Chen.

2019 AMS special session on geometric methods in representation theory, Auburn, March 17-19, 2019.
Joint with J. Hong and S. Kumar.

2018 American Mathematical Society-Chinese Mathematical Society Joint Meeting, special session on geometric representation theory and categorification, June 11-14, 2018.
Joint with D. Jiang, P. Shan and B. Sun.

2017 AMS special session on recent advancements in representation theory, September 16-17, 2017.
Joint with G. Zhao.

2012 AMS special session on geometric and combinatorial representation theory in 2012.
Joint with D. Hemmer.

2011–2016 UB Algebra Seminar

2021- UB Algebra Seminar

2009 Lang's Luncheon on Teaching at Yale University.

2006 Graduate Student Research Conference at Kansas State University.

Membership

American Mathematical Society (AMS)

United University Professions (UUP)

University service at University at Buffalo

2024 Chair of the UB Math AI committee

2023 Committee member of the ad-hoc committee for Dr. Srinivas's promotion to Full Professor

2023 Committee member of the ad-hoc committee for Dr. Trivedi's promotion to Full Professor

2023 Chair of the ad-hoc committee for Dr. Sage's promotion to Full Professor

2023 Advocate for Dr. Sage's promotion to Full Professor

2023 Committee member of the ad-hoc committee for Dr. Sikora's promotion to Full Professor

2023 Internal evaluator of Dr. Sikora's promotion to Full Professor

2023 Postdoc search committee

2023 Chair search committee

2023 Member of the ad-hoc committee of Department DE plan

2022-2023 Chair for the ad-hoc committee for Dr. Chirvasitu's promotion to Associate Professor with tenure

2023 Advocate for Dr. Chirvasitu's promotion to associate professor with tenure

2020–2022 **UB Faculty Senator**

2020–2022 **Director of Graduate Studies**

- Monitor ICE policy on international students
- Submit annual AAPAR assessment
- Handle inquiries from prospective students
- Organize the new graduate students orientation
- Initiate a mentoring program for incoming graduate students
- Organize graduate student mentoring seminar

- Monitor students in struggle
- Monitor deferral international students
- Regular student advising
- Coordinate in academic integrity cases
- MSRI summer programs nomination
- University Teaching Award nomination
- Presidential/Schomburg nomination
- Initiate the Award Committee of the Committee of Graduate Studies
- Member of the Award Committee
- Attend monthly DGS meetings
- Attend weekly department cabinet meetings
- Prepare Diversity and Inclusion policy in graduate recruitment
- Attend regularly various meetings and conferences on Diversity and Inclusion
- Collect and study data of URM from past years
- Create English Corner for international students
- Organize and proctor teaching demonstrations with Keith Otto
- Coordinate oral exams for the first-year qualifying exams
- Coordinate graduate course offerings from 700 level and above
- Create and monitor the Discord virtual commons room
- Petition to the graduate school to make the GRE requirement optional
- Preside the fall 2021 admission and the fall 2022 admission
- Prepare for virtual recruitment week this coming March
- Update minimal residency requirement for PhD students
- Address TA line allocation saga
- Coordinate petition to the dean on CAS TA line allocation
- Collecting data related to PEI algorithm
- Meetings with the PEI committee
- Overseeing PhD thesis defenses
- Preside weekly CGS meeting
- Initiate "Lunch with Yiqiang" program
- Initiate an awards committee for the UB Excellence in Teaching Award
- Committee member of the 2022 Council of Graduate Schools/ProQuest Distinguished Dissertation Award

Conferences participated as the DGS of UB math department

2020 TPSE Graduate Education Forum, July 10, 2020

2020 TPSE Graduate Education Forum #2, August 20, 2020

2020 TPSE Workshop working with alumni and partnering with industry, the Erdos institute

2020 paraDIGMS Fall Conference Diversity in Graduate Mathematical Sciences, November 20-23, 2020. Monthly meetings.

2020 "Understanding and Disrupting Implicit Bias" training, UB, December 11, 2020.

2021	2021 Joint Mathematics Meetings (JMM) Grad School Fair -Judge of the 2021 MAA Undergraduate Student Posters
2022	paraDIGMS monthly meeting
2022	Holistic Graduate Admissions — the use of the GRE in a holistic admissions process — workshop
2022	Equity in Graduate Education Workshops

2016–2017	**Communication Committee, chair**
2016–present	**Communication Committee**
2016–2019	**Committee of Undergraduate Studies**
2015	**Committee of Graduate Studies**
2019–present	**Committee of Graduate Studies**
2023	Chair of the admission committee for Pure Mathematics
2023-2024	Awards committee
2014	**Tenure-track position search committee**
2011–present	**Algebra Committee**
2018-	Chair
2019–2023	**Math Department Executive Committee**
2020- 2023	**Ad-hoc Committee of Diversity, Equity and Inclusion**
	Thesis committee member
2012	Craig Dodge
2016	Michael Rosas
2017	Ellyn Sanger
2018	Kelly Dougan
2018	Tara Hudson
2018	Yin Su
-	Naijiang Zeng
-	Tom Cheuk
2021	Aparna Upadhyay
-	Ning Ma
	Committee member for the second qualifying exam
2023	Amy Heron
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University service at Yale University

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