Ryan Kinser — Curriculum Vitae

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EDUCATIONAL AND PROFESSIONAL HISTORY

Higher Education

Ph.D. Mathematics, University of Michigan, August 2009

B.S. Mathematics (minors in Physics and Philosophy), University of Kansas, May 2003

Professional and Academic Positions

Associate Professor of Mathematics, University of Iowa, 2019–present

Assistant Professor of Mathematics, University of Iowa, 2013–2019

Research Instructor, Northeastern University, 2011–2014

Postdoctoral Fellow, University Connecticut, 2009–2011

Invited Research Visits

Bielefeld University, 2 months, June–July 2013

Syracuse University, 2 weeks, August 2010

Mathematisches Forschungsinstitut Oberwolfach, Germany, 2014, 2017, 2020

Banff International Research Station, Canada, 2019

PUBLICATIONS AND OTHER MANUSCRIPTS

Refereed Articles

(with Amrei Oswald) Actions of $U_q(\mathfrak{sl}_2)$ and related Hopf algebras on quiver path algebras.

Linear total stability conditions for type $\mathbb{A}$ quivers (under going total revision)

(with Pavel Etingof and Chelsea Walton) Tensor algebras in finite tensor categories. To appear in *International Mathematics Research Notices*.

(with Jenna Rajchgot). Type D quiver representation varieties, double Grassmannians, and symmetric varieties. To appear in *Advances in Mathematics*.

(with András C. Lőrincz). Representation varieties of algebras with nodes.

(with Thorsten Weist). Tree normal forms for quiver representations. *Documenta Mathematica*, 24, 1245-1294 (2019)

(with Andrew T. Carroll, Calin Chindris, and Jerzy Weyman). Moduli spaces of representations of special biserial algebras. *International Mathematics Research Notices*, 2020(2):403-421, 2020

(with Allen Knutson and Jenna Rajchgot). Three combinatorial formulas for type *A* quiver polynomials and *K*-polynomials. *Duke Mathematical Journal*, 168(4):505-551, 2019

(with Calin Chindris). Decomposing moduli of representations of finite-dimensional algebras. *Mathematische Annalen* 372(1–2): 555–580, 2018

K-polynomials of type A quiver orbit closures and lacing diagrams. In *Representations of Algebras, Contemporary Mathematics*, 705: 99–114, 2018

(with Chelsea Walton). Actions of some pointed Hopf algebras on path algebras of quivers. *Algebra & Number Theory*, 10(1): 117–154, 2016

(with Jenna Rajchgot). Type *A* quiver loci and Schubert varieties. *Journal of Commutative Algebra*, 7(2):265–301, 2015

(with Calin Chindris and Jerzy Weyman). Module varieties and representation type of finite-dimensional algebras. *International Mathematics Research Notices*, 2015(3):631–650, 2015

Tree modules and counting polynomials, *Algebras and Representation Theory*, 16(5):1333–1347, 2013

(with Ralf Schiffler). Idempotents in representation rings of quivers, *Algebra & Number Theory*, 6(5):967–994, 2012

New inequalities for subspace arrangements, *Journal of Combinatorial Theory Series A*, 118(1):152–161, 2011

Rank functions on rooted tree quivers, *Duke Mathematical Journal*, 152(1):27–92, 2010

The rank of a quiver representation, *Journal of Algebra* 320(6):2363–2387, 2008

Non-refereed Manuscripts

Tensor algebras in finite tensor categories, to appear in *Oberwolfach Reports*.

A decomposition theorem for moduli of representations of algebras, with application to moduli of special biserial algebras, in Representation Theory of Quivers and Finite Dimensional Algebras, *Oberwolfach Reports*, 14(1):622–624, 2017

(with Jerzy Weyman). Irreducible components of some module varieties via the Springer resolution, in Representation Theory of Quivers and Finite Dimensional Algebras, *Oberwolfach Reports*, 11(1):475–477, 2014

Rank loci in representation spaces of quivers. Manuscript, 14 pp.
http://arxiv.org/abs/1004.1981

Refereed Article Related to Undergraduate Physics Lab Research at U. of Kansas, 2000–2003

N. Beasley, J. Jantzi, R. Kinser, and J. S. Olafsen, "Dilation, compression, and convection in granular shear experiments," *AIP Conference Proceedings*, vol. 1542, 2013, pp.449–452

Professional Service and Mentorship

Graduate student supervision

Ana Berrizbeitia, Ph.D. 2018

Danny Lara, Ph.D. 2019

Amrei Oswald, Ph.D. in progress

Yariana Diaz, Ph.D. in progress

Cody Gilbert, Ph.D. in progress

International conference and seminar organization

Co-organizer of FD Seminar, weekly online seminar, 60–100+ participants per week, Summer 2020–present. https://www.fd-seminar.xyz/ Supported by the Hausdorff Center for Mathematics.

Organizing committee of Homological Methods and Tilting Theory of Finite Dimensional Algebras, University of Iowa, 2019. Supported by NSF.

Co-organizer of annual Geometric Methods in Representation Theory conferences hosted at University of Iowa and University of Missouri, 2016–present (Chair, 2017, 2018). Supported by NSF.

Diversity, Equity, and Inclusion (DEI) activities

Director of Diversity, Equity, and Inclusion in Mathematics at U. Iowa, Fall 2018–present.
⋆ Coordination of faculty mentors and direct mentoring of underrepresented PhD students (15–20 per year); coordination with admissions committee on DEI aspects; annual prospective student engagement trips; organization of local university-wide events celebrating diversity in mathematics and STEM.

Prospective Ph.D. student engagement at annual Math Alliance Field of Dreams conference, 2017 – Present.

Breakout session facilitator: "Taking our place in graduate school" Math Alliance event for undergraduates, 2020

Panelist: "How to prepare for your first professional position", Field of Dreams conference, 2018

Prospective Ph.D. student engagement trips to Puerto Rico, 2016, 2020

Design and leadership of Early Career Faculty Workshop session: "Creating and supporting an inclusive mathematical community through our professional environment", USTARS Conference, 2019

Fellowship Mentor for 4 Lulu Merle Johnson Fellows (U. Iowa Graduate College), 2019–present

Facilitated Graduate Admissions Process mentor for 2 undergraduate Math Alliance scholars (at UC-Santa Barbara and The Ohio State University), 2019–present

U. Iowa College of Liberal Arts & Sciences Diversity, Equity, and Inclusion Committee, 2020 – Present

Building University of Iowa Leadership for Diversity (BUILD) Certificate, University of Iowa. Completed Fall 2019 (6 courses required). Currently 9 total courses completed.

GRANTS FUNDED

(as PI) Quiver representations across geometry and algebra: equivariant K-theory, moduli spaces, and tensor categories, Simons Foundation Award ID: 636534, $42,000

(as PI, Co-PI Frauke Bleher) Conference on Geometric Methods in Representation Theory 2018 and 2019, NSF DMS-1839720, $11,836, 2018–2021

(as PI, Co-PI Frauke Bleher) Conference on Geometric Methods in Representation Theory 2016 and 2017, NSF DMS-1644393, $11,285, 2016–2019

(as PI) NSA Young Investigator Grant H98230-12-1-0244, $39,399, 2012– 2014

Selected presentations in past 5 years

Short course on "Geometry of representations of algebras" at CIMPA-supported international summer school, Medellín, Colombia, 2017

Abstract selected for presentation at Oberwolfach Mathematics Research Institute workshops on Representation Theory of Quivers and Dimensional Algebras, 2014, 2017, 2020

US–Mexico Conference on Representation Theory, Categorification, and Noncommutative Algebra, Universidad Nacional Autónoma de México, Mexico City, 2017

Algebra Extravaganza!, Temple University, 2017

Plenary talk at International Conference on Representations of Algebras, Syracuse University, 2016

Maurice Auslander Distinguished Lectures and International Conference, Woods Hole, 2016