Curriculum Vitae — Anne Dranowski

www.annedranowski.com

Education

University of Toronto, St George Ph.D., Mathematics, July 2020
Thesis: Comparing two perfect bases
Advisor: Joel Kamnitzer

University of Toronto, St George M.Sc. in Mathematics, June 2014
Thesis: Maslov cycles as wavefront sets
Advisor: Eckhard Meinrenken

University of Toronto, St George B.Sc. in Mathematics, June 2013
Thesis: Steiner symmetrization and random folding
Advisor: Almut Burchard

Employment

University of Southern California, Assistant Professor of Mathematics (Research-track), August 2021–present. Held concurrently with:

— NSERC postdoctoral fellowship, 2022–2024

— Visiting researcher position at Sydney Math Research Institute, July–August 2023

— NSF-AWM Mentoring Travel Grant at LaCIM-UQAM, May–June 2023

Institute for Advanced Study, Founders' Circle Member, September 2020–July 2021

Thesis

Dranowski, A., "Comparing two perfect bases", University of Toronto (2020) arXiv:2105.14420

Mailing address

Anne Dranowski
Department of Mathematics
University of Southern California
3620 S. Vermont Ave, KAP 444C
Los Angeles, CA 90089-2532

Citizenship

Canadian

Manuscripts in preparation

Dranowski, A., Guo, M., Lauda, A., and Manion, A. "A stable homotopy refinement of the Blanchet–Khovanov algebra"

Dranowski, A., and Yacobi, O. "Shift of argument subalgebras and the Kazhdan–Lusztig basis"

Dranowski, A., and Leroux-Lapierre, A. "Asymptotic characters for truncated shifted Yangian and equivariant multiplicities"

Dranowski, A. "Derived equivariant multiplicities and universal centralizers"

Dranowski, A. "BZ data provides a coarsening of the g-vector fan of a Grassmannian"

Submitted

Dranowski, A., Elek, B., Kamnitzer, J., and Morton-Ferguson, C. "Minuscule heaps as a model for Demazure crystals via tensor product quiver varieties". Submitted to Selecta (2023) arXiv:2202.02490

Accepted

Assaf, S., Dranowski, A., and Gonzalez, N. "Extremal tensor products of Demazure crystals". Algebras and Representation Theory, 1-12. (2023) arXiv:2210.10236

   + Extended Abstract for Séminaire Lotharingien de Combinatoire 89B (2023)

Bai, R., Dranowski, A., and Kamnitzer, J. "Computing fusion products of MV cycles using the Mirković–Vybornov isomorphism", Journal of Combinatorial Algebra. (2023) arXiv:2106.07101

Baumann, P., Kamnitzer, J., and Knutson, A. "The Mirković–Vilonen basis and Duistermaat–Heckman measures" with an Appendix by Dranowski, A., Kamnitzer, J., and Morton-Ferguson, C. Acta Mathematica (2021) arXiv:1905.08460

Dranowski, A. "Generalized orbital varieties for Mirkovic–Vybornov slices as affinizations of Mirkovic–Vilonen cycles", Transformation Groups (2020) arXiv:1905.08174

Burchard, A., Chambers, G., and Dranowski, A. "Ergodic properties of folding maps on spheres", Discrete and Continuous Dynamical Systems-Series A (2015) arXiv:1509.02454

Reviewing, refereeing & quick opinions

The Electronic Journal of Combinatorics, Algebraic Combinatorics, MathSciNet reviews, Annals of Combinatorics, zbMath Reviews, Expositiones Math, Representation Theory, JEMS, Crelle

Seminar talks

The Duistermaat-Heckmann measure in representation theory, University of Sydney (August 2023)

What is...the Jones polynomial?, University of Sydney What is... Seminar (August 2023)

From higher representation theory to Khovanov stable homotopy type, University of Melbourne (July 2023)

Perfect bases and cluster algebras, LaCIM (June 2023)

Canonical bases in representation theory and mathematical physics, Mathematical Physics and Representation Theory Seminar at LSU (May 2023)

Tensor products of Demazure modules, Lie Theory seminar at UCR (March 2023)

Minuscule Multiples and Tensor Products of Demazure Crystals, USC Combinatorics Seminar (November 2022)

Computing fusion products of MV cycles using the Mirkovic–Vybornov isomorphism, PIMS Geometry, Algebra and Physics Seminar at USask. (March 2022)

Quiver Grassmannians and heaps, USC. (November 2021)

How to compute the fusion product of MV cycles in type A, UNC. (March 2021)

A Mirković–Vybornov isomorphism for the Beilinson–Drinfeld Grassmannian, in action, UMass. (February 2021)

From tensor product quiver varieties to reverse plane partitions, Columbia Informal Math Physics Seminar. (December 2020)

Reverse plane partitions and Lusztig's dual semicanonical basis, Séminaire du LaCIM. (November 2020)

The glass bead game, UConn Algebra Seminar. (November 2020)

A tale of two bases, IAS Postdoc Talks. (September 2020)

Measuring bases, Algebraic Geometry Seminar, UC Davis. (February 2020)

Duistermaat–Heckman measure on a perfect basis, Representation Theory and Mathematical Physics Seminar, UC Berkeley. (February 2020)

Generalized orbital varieties and MV modules, Geometry and Representation Theory Seminar, Queens University. (November 2019)

MV cycles from generalized orbital varieties, Symplectic Geometry Seminar, Toronto. (April 2019)

Affinizations of MV cycles, Geometric Representation Theory Seminar, Toronto. (April 2019)

Conference talks

TBA, Gone Fishing (April 2024)

TBA, Geometric Methods in Representation Theory at the AMS Spring Central Sectional Meeting (April 2024)

Exchanging Bases, Representation Theory, Geometry and Mathematical Physics at the AMS Spring Central Sectional Meeting (April 2023)

Minuscule multiples and reverse plane partitions, CMO-BIRS Workshop on Bases for Cluster Algebras (September 2022)

Just an algebra of tableaux, SoCalDM (May 2022)

Fusion versus mutation, Fourth Canada-Mexico-USA Conference in Representation Theory, Noncommutative Algebra, and Categorification (June 2022)

From q to $\hbar$; *How do I lower thee? Let me count the ways*; and *Fusing MV cycles*, AMS Special Sessions in Categorical and Combinatorial Methods in Representation Theory; Diagrammatic and Combinatorial Methods in Representation Theory; and Geometric and Categorical Methods in Representation Theory. (May 2021)

Reverse Plane Partitions and Preprojective Algebra Modules, IAS Workshop on Recent Developments in Geometric Representation Theory. (November 2020)

Generalized orbital varieties for Mirković–Vybornov slices, Representation Theory Day at EPFL. (July 2019)

Lusztig Datum of an MV Cycle, Southeastern Lie Theory Workshop X, University of Georgia. (June 2018)

On Random Foldings, 8th Annual Ottawa Mathematics Conference, University of Ottawa. (June 2015)

Posters

Extremal tensor products of Demazure crystals, FPSAC (July 2023)

Equations of MV cycles in type A, Young Topologists Meeting, EPFL. (July 2019)

Flag Functions of Modules over Preprojective Algebras, Interactions between Representation Theory and Algebraic Geometry, University of Chicago. (August 2017)

Lecture series

Crystals and Preprojective Algebra Modules Mini-Course for the Preprojective Algebras and Calabi–Yau Algebras School, Osaka City University Advanced Mathematical Institute. (March 2022)

Recent Awards

2023	AWM Mentor Travel Grant
2022–23	USC WiSE Supplemental Faculty Support
2022–24	AMS-Simons Travel Grant
2022–24	NSERC PDF
2020	Martin Shubik Graduate Award in Mathematics
2018–20	Doctoral Completion Award
2018	Daniel B. DeLury Teaching Assistant Award
2017	Faculty of Arts and Sciences Program-Level Fellowship
2016	Coxeter Graduate Scholarship

Leadership & service

Mentor for Julia's Dream (2023). USC RTPC Faculty Evaluation Committee (2023). USC Career Panel (2021). Co-organizer of Celebration of Women in Mathematics Day at the Institute for Advanced Study (2021). University of Toronto (U of T) Mathematics Graduate Student Association (MGSA) President (2 years), U of T MGSA Vice-President (1 year), and U of T Graduate Student Union Representative (1 year).

Teaching experience

Select Teaching Appointments are listed below.

UNIVERSITY OF SOUTHERN CALIFORNIA

Fall 2023	Calculus (Math 125), Directed Reading in Math (Math 490)
Spring 2023	Math 225, Fundamental concepts of modern algebra (Math 410)
Fall 2022	Math 225
Summer 2022	Topics in Algebra: Canonical Bases and Cluster Algebras (Math 610)
Spring 2022	Math 225, Introduction to Number Theory (Math 430)
Fall 2021	Differential Equations and Linear Algebra (Math 225)

INSTITUTE FOR ADVANCED STUDY

Summer 2021	TA for IAS 2021 Women and Mathematics Summer School

UNIVERSITY OF TORONTO

Summer 2020	Linear Algebra I (MAT223), PUMP I (Precalc)
Fall 2019	Linear Algebra I (MAT223, two sections)
Summer 2019	Multivariable Calculus (MAT237)

Organization of conferences, workshops & seminars

Fall 2023 Caltech/USC Algebra and Geometry Seminar

Scientific Session on Cluster Algebras in Representation Theory at the 2023 Winter CMS Meeting

2023 LAWRGe on 3d Mirror Symmetry and 3d TQFT

2022 Los Angeles Workshop on Representation theory in Geometry (LAWRGe) on Schubert Calculus and Quantum Integrability

Fall 2022–Spring 2023 USC Combinatorics Seminar

Geometric Representation Theory and Equivariant Elliptic Cohomology MRC Special Session at JMM 2020

Professional development

2024	Symmetric Tensor Categories and Representation Theory @ IPAM
2023	Collaboration on Low-Dimensional Topology Annual Meeting @ Simons Foundation, Machine Assisted Proofs @ IPAM, Geometry of Double Affine Hecke Algebras and Coulomb Branches @ ICMS
2022	Open Problems in Algebraic Combinatorics @ University of Minnesota, MSRI Connections & Introductory Workshops: Floer Homotopy Theory, CMO Bases for Cluster Algebras Workshop
2019	Integrability Combinatorics and Representations, Quiver Varieties and Representation Theory @ CRM, Young Topologists Meeting @ Lausanne, AMS Math Research Community on Elliptic Cohomology @ Whispering Pines, Symplectic Representation Theory @ CIRM, Free Computational Mathematics @ CIRM
2018	SageDays on Combinatorics and Representation Theory @ ICERM, Lie Theory X @ UGA, Bertram Kostant Legacy Conference @ MIT
2017	Symplectic duality (the Abelian case) @ WARTHOG, Interactions between Representation Theory and Algebraic Geometry @ UChicago
2016	Knot homologies, Hilbert schemes, and Cherednik algebras @ WARTHOG, Combinatorial Algebraic Geometry and Apprenticeship Weeks @ Fields
2015	Geometric and Categorical Representation Theory @ Mooloolaba, Geometry of Moduli Spaces and Representation Theory @ PCMI, Ottawa Math Conference
2014	Geometric Representation Theory Introductory Workshop @ MSRI, Algebraic Topology Workshop @ CIMAT

Skills

Magma, SageMath, GAP, Macaulay2, Singular, LaTeX, Pandoc, Git, Python, 11ty...