

Curriculum Vitae

Henry Kvinge

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Education

- 2011- **Ph.D. in Mathematics**, University of California, Davis (expected June 2017).
Advisor: Monica Vazirani.
Thesis: *The representation theory of KLR algebras and Kirillov-Reshetikhin crystals*
- 2004-2010 **B.S. in Mathematics, B.A. in Biochemistry**, University of Washington,
Magna Cum Laude
Advisor: Sara Billey.

Research interests

Representation theory, categorification, algebraic combinatorics, Lie theory, Heisenberg categories, symmetric groups and their generalizations, symmetric functions, noncommutative probability theory.

Languages: Python, C++, Sage, Matlab, R

Grants and fellowships

- 2016 Travel grant to present poster at Formal Power Series and Algebraic Combinatorics (FPSAC) Conference.
- 2015 Travel Grant to speak at AMS Fall Sectional at Loyola University
- 2013 Graduate Assistance in Areas of National Need Fellowship (summer)
- 2012 NSF VIGRE Fellowship (summer)

Publications and preprints

- *Khovanov's Heisenberg category, moments in free probability, and shifted symmetric functions* (with Anthony Licata, Stuart Mitchell), arXiv:1610.04571 (2016).
- *Categorifying the tensor product of the Kirillov-Reshetikhin crystal $B^{1,1}$ and a fundamental crystal* (with Monica Vazirani), arXiv:1508.04182 (2015).

Extended abstract in Proceedings of the 28th International Conference on Formal Power Series and Algebraic Combinatorics, Discrete Math. Theor. Comput. Sci. Proc. (2016), pp. 719-730.

Selected talks

- 2016 October, AMS Sectional - University of St. Thomas, Minneapolis (invited talk)
Special Session on Combinatorial Representation Theory
A surprising connection between Khovanov's Heisenberg category and the asymptotic representation theory of symmetric groups.
- 2016 September, Arizona State University Discrete Math Seminar
A graphical calculus for the shifted symmetric functions.
- 2016 March, University of Oregon, Algebra Seminar
The influence of the Kirillov-Reshetikhin crystal $B^{1,1}$ on the structure of simple cyclotomic KLR modules.
- 2016 February, University of Washington, Algebra and Algebraic Geometry Seminar
The influence of the KR crystal $B^{1,1}$ on the structure of simple cyclotomic KLR modules.

- 2016 January, UC Berkeley (invited talk)
 Berkeley/Davis Combinatorics Gathering
The influence of the KR crystal $B^{1,1}$ on the structure of simple cyclotomic KLR modules.
- 2015 October, AMS Sectional - Loyola University, Chicago (invited talk)
 Special Session on Combinatorial and Geometric Representation Theory
The influence of the KR crystal $B^{1,1}$ on the structure of simple cyclotomic KLR modules.
- 2015 October, UC Davis Algebra and Discrete Math Seminar
The influence of the KR crystal $B^{1,1}$ on the structure of simple cyclotomic KLR modules.
- 2013 September, Arizona State University Discrete Math Seminar
The Okounkov-Vershik approach to the representation theory of the symmetric group

Poster presentations

- 2016 July, Formal Power Series and Algebraic Combinatorics Conference (FPSAC), UBC
Categorifying the tensor product of the KR crystal $B^{1,1}$ and a fundamental crystal
- 2016 June, US-Mexico Conference on Representation Theory, Categorification, and Noncommutative Algebra, USC
Khovanov's Heisenberg category and the asymptotic representation theory of symmetric groups

Professional activities

Workshops and mini-courses attended

- 2014 Sept. Algebraic Lie Theory and Rep. Theory Workshop, ICM, Edinburgh
 2014 Aug. Algebraic Lie Theory and Rep. Theory Summer School, University of Glasgow
 2014 Aug. Kazhdan-Lusztig Theory and Soergel Bimodules Workshop, University of Oregon
 2014 Jan. New Directions in Lie Theory Winter School I, CRM, Montreal

Seminars organized

- 2013 UC Davis Student-run Algebra and Discrete Math Seminar (with F. Castillo)

Teaching activities

Courses taught at UC Davis

- 2016 Summer Combinatorics (Math 145)
 2015 Winter Calculus for Biology and Medicine (Math 17B)

Discussion sections led at UC Davis as a teaching assistant

- 2016 Fall Calculus (Math 21A)
 2016 Spring Calculus (Math 21C)
 2016 Winter Calculus (Math 21A)
 2015 Fall Calculus (Math 21A)
 2015 Spring Euclidean Geometry (Math 141)
 2014 Fall Vector Analysis (Math 21D)
 2012 Spring Calculus (Math 21C)
 2012 Winter Calculus (Math 21B)
 2011 Fall Linear Algebra (Math 22A)
 2011 Fall Calculus for Biology and Medicine (Math 17A)

Management Positions

- 2012 – 2014 Managed the UC Davis Calculus Rooms. This involved staffing the rooms with the ~30 teaching assistants who worked there, handling student feedback, acting as a liaison between teaching assistants and the department staff, and generally finding ways to make this resource more useful to students.

Service

- 2013 – 2016 Graduate mentor for the Women in Science and Engineering (WISE) Mentoring Program. WISE Mentoring Program aims to further gender equity in the fields of science, technology, engineering, and mathematics (STEM) by providing a supportive, gender positive environment in which students work together with mentors to achieve their academic and professional goals.
- 2011– 2016 Volunteer math tutor for STEM Café (formally known as Math Café), a tutoring center that serves women and other underrepresented groups in math. STEM Café provides a supportive and non-competitive study environment for women in the STEM fields. It involves weekly evening meetings, two hours in length, where members gather to study and do homework in groups.