# Curriculum Vitae
# Henry Kvinge


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| Office Address: | Mathematics Department<br>Colorado State University<br>Fort Collins, CO 80523-1874 | Email Address:<br>Homepage:<br>Date of CV: | henry.kvinge@colostate.edu<br>https://hkvinge.github.io<br>December 2017 |


## Education/Employment

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| 2017 – | **Postdoctoral Fellow**, Colorado State University |
| 2011-2017 | **Ph.D. in Mathematics,** University of California, Davis.<br>Advisor: Monica Vazirani.<br>Thesis: *A Categorification of the Crystal Isomorphism* $B^{1,1} \otimes B(\Lambda_i) \cong B(\Lambda_{\sigma(i)})$ *and a Graphical Calculus for the Shifted Symmetric Functions* |
| 2004-2010 | **B.S. in Mathematics, B.A. in Biochemistry,** University of Washington,<br>*Magna Cum Laude*<br>Advisor: Sara Billey. |

## Research interests

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

## Grants and fellowships

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| 2017 | Travel grant to give talk at Formal Power Series and Algebraic Combinatorics (FPSAC) Conference. |
| 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).

  Extended abstract in Proceedings of the 29th International Conference on Formal Power Series and Algebraic Combinatorics, Sminaire Lotharingien de Combinatoire, 78B.63 (2017), 12 pp.

- *Categorifying the tensor product of the Kirillov-Reshetikhin crystal* $B^{1,1}$ *and a fundamental crystal* (with Monica Vazirani), Algebras and representation theory (2017) pp. 1-55.

  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

2017 October, University of Colorado Algebraic Lie Theory Seminar
*The Kirillov-Reshetikhin crystal* $B^{1,1}$ *and cyclotomic quiver Hecke algebras*

2017 September, University of Virginia Algebra Seminar
*Khovanov's Heisenberg category, the asymptotic representation theory of symmetric groups, and shifted symmetric functions*

2017 September, Rocky Mountain Combinatorics Seminar - Colorado State University
*Khovanovs Heisenberg category, moments in free probability, and shifted symmetric functions*

2017 July, Formal Power Series and Algebraic Combinatorics Conference (FPSAC), London
*Khovanov's Heisenberg category, moments in free probability, and shifted symmetric functions*
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**

2017 July, Future Directions in Representation Theory, University of Sydney
*The center of the twisted Heisenberg category, factorial P-Schur functions, and up/down transition functions on the Schur graph*
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*

**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

2017 Spring Calculus (Math 21A)
2017 Winter Calculus (Math 21A)
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.