

- Education**
- **Harvard University**, Ph.D., 2001–2006,
Advisor: Joe Harris.
 - **University of Waterloo**, BMath. (Hons), mathematics, 1997–2001.
- Positions**
- **Columbia University** J.F. Ritt Assistant Professor, Fall 2009 - Present.
 - **Mathematical Sciences Research Institute** Postdoctoral Fellowship, Spring 2009.
 - **Rice University** G.C. Evans Instructor, Fall 2006 - Winter 2008.
 - **Mittag-Leffler Institute** Visiting Scholar, Spring 2007.
- Areas of Interest**
- algebraic geometry, geometric representation theory, knot invariants, categorification, combinatorics.
- Grants**
- National Science Foundation grant DMS-0801939 and DMS-0964439, 2008-2011
 - National Science Foundation grant DMS-1101439, 2011-2014
- Awards**
- Alfred P. Sloan Fellowship, 2011-2013
 - Harvard Putnam Fellowship, 2003-2006
 - NSERC PGSD2 Research Scholarship, 2004-2006
 - NSERC PGSA Research Scholarship, 2001-2003
 - Putnam Fellow and member of winning Putnam team, 1999
 - Ranked top 10 in the Putnam Competition, 1997-1999
 - Canadian Mathematics Olympiad 1st place, 1997
 - International Mathematics Olympiad Bronze medal, 1996-1997
- Publications**
19. S. Cautis.
Clasp Technology to Knot Homology via the Affine Grassmannian,
(in preparation)
 18. S. Cautis, A. Licata.
Vertex Operators and 2-Representations of Quantum Affine Algebras,
arXiv:1112.6189
 17. S. Cautis, A. Licata.
Loop Realizations of Quantum Affine Algebras,
arXiv:1112.6188
 16. S. Cautis. *Flops and About: a Guide*,
arXiv:1111.0688
 15. S. Cautis, A. Lauda.
Implicit Structure in 2-representations of Quantum Groups,
arXiv:1111.1431

14. S. Cautis, J. Kamnitzer, A. Licata.
Coherent Sheaves on Quiver Varieties and Categorification,
arXiv:1104.0352
13. S. Cautis, A. Licata.
Heisenberg Categorification and Hilbert Schemes,
Duke Math Journal (accepted). arXiv:1009.5147
12. S. Cautis, J. Kamnitzer.
Braid Groups and Geometric Categorical Lie Algebra Actions,
Compositio Math. (to appear). arXiv:1001.0619
11. S. Cautis. *Equivalences and Stratified Flops*,
Compositio Math. (to appear). arXiv:0909.0817
10. S. Cautis, J. Kamnitzer, A. Licata.
*Derived Equivalences for Cotangent Bundles of Grassmannians via
Categorical sl_2 Actions*,
J. Reine Angew. Math. (to appear). arXiv:0902.1797
9. S. Cautis, J. Kamnitzer, A. Licata.
Categorical Geometric Skew Howe Duality,
Inventiones Math. **180** (2010), no. 1, 111–159. arXiv:0902.1795
8. S. Cautis, J. Kamnitzer, A. Licata.
Coherent Sheaves and Categorical sl_2 Actions,
Duke Math Journal **154** (2010), no. 1, 135–179. arXiv:0902.1796
7. S. Cautis, J. Kamnitzer. *Knot Homology Via Derived Categories of
Coherent Sheaves II, $sl(m)$ Case*,
Inventiones Math. **174** (2008), no. 1, 165–232. arXiv:0710.3216
6. S. Cautis, T. Logvinenko.
Geometric McKay Correspondence in Dimension Three,
J. Reine Angew. Math. **636** (2009), 193–236. arXiv:0803.2990
5. S. Cautis, J. Kamnitzer. *Knot Homology Via Derived Categories of
Coherent Sheaves I, $sl(2)$ Case*,
Duke Math Journal **142** (2008), no. 3, 511–588. math.AG/0701194
4. S. Cautis.
The Abelian Monodromy Extension Property for Families of Curves,
Math. Annalen **344** (2009) no. 3, 717–747. arXiv:0709.3320
3. S. Cautis, D. M. Jackson. *On Tutte’s Chromatic Invariant*,
Trans. Amer. Math. Soc. **362** (2010), 509–535.
2. S. Cautis, D. M. Jackson.
The Matrix of Chromatic Joins and the Temperley-Lieb Algebra,
J. of Combinatorial Theory series B. **89** (2003), no. 1, 109–155.
1. S. Cautis, F. Mignosi, J. Shallit, M. Wang, S. Yazdani.
Periodicity, Morphisms, and Matrices,
Theoret. Comput. Sci. **295** (2003), no. 1-3, 107–121.

Teaching

<http://www.math.columbia.edu/~scautis/teaching.html>

Columbia University, Fall 2011

Math: Calculus IV (2 sections)

Columbia University, Fall 2010

Math: Calculus III (2 sections)

Columbia University, Fall 2009

Math: Calculus I (2 sections)

Rice University, Fall 2008

Math 102: Single Variable Calculus II

Rice University, Spring 2008

Math 212: Multivariable Calculus

Rice University, Fall 2007

Math 428: Topics in Complex Analysis – Several Complex Variables

Math 211: Ordinary Differential Equations and Linear Algebra

Rice University, Fall 2006

Math 381: Introduction to Partial Differential Equations

Math 101: Single Variable Calculus

Harvard: Tutorial Leader, Fall 2005

Holomorphic Vector Bundles on Riemann Surfaces

Harvard: Teaching Fellow, Fall 2003

Math 21A: Multivariable Calculus

Harvard: Teaching Assistant, Fall 2002

Math 260: Graduate Algebraic Geometry, Fall 2002

Workshop Talks

- **University of Ottawa**, Category Theoretic Methods in Representation Theory, October 2011.
- **Banff (BIRS)**, Derived categories workshop, June 2011.
- **Isaac Newton Institute for Mathematical Sciences**, Derived Categories and Moduli Spaces, April 2011.
- **University of Tokyo**, Derived Categories, January 2011.
- **Algarve University**, XIX Oporto Meeting, July 2010.
- **ICTP**, Hodge Theory and Applications, June 2010.
- **Stony Brook**, Categorification of Topological Invariants and Applications, June 2010.
- **MSRI**, Introductory Knot Homology workshop (2 talks), January 2010.
- **University of Michigan**, Michigan-Ohio State-UIC joint workshop, November 2009.
- **University of Glasgow**, Categorification and Geometrisation from Representation Theory (2 talks), April 2009.

- **University of Miami**, Workshop on Homological Mirror Symmetry and Related Topics, January 2009.
- **AMS meeting**, Categorification and Knot Homology, January 2009.
- **CMS Winter Meeting**, Infinite-Dimensional Lie Theory, December 2008.
- **University of Georgia**, Georgia Topology Conference, May 2008.
- **Banff (BIRS)**, Hodge Theory Workshop, April 2008.
- **Kyoto University (RIMS)**, Knot Homology Conference, May 2007.

Seminar Talks

- **University of Southern California**, Geometry and topology seminar, January 2012.
- **UBC**, Colloquium, January 2012.
- **UC Los Angeles**, Colloquium, December 2011.
- **University of Southern California**, Colloquium, November 2011.
- **CUNY**, Representation theory seminar, October 2011.
- **University of Zurich**, Talks in mathematical physics, May 2011.
- **University of British Columbia**, Algebraic Geometry Seminar, March 2011.
- **LSU**, Geometry Seminar, February 2011.
- **University of Toronto**, Algebra and Geometry Seminar, November 2010.
- **Yale University**, Algebraic Geometry Seminar, November 2010.
- **UIUC**, Algebraic Geometry Seminar, November 2010.
- **Columbia University**, Algebraic Geometry Seminar, October 2010.
- **UMass Amherst**, Valley Geometry Seminar, October 2010.
- **University of Chicago**, Algebraic Geometry seminar, October 2010.
- **UIC**, Algebraic Geometry Seminar, October 2010.
- **UPenn**, Geometry and Physics Seminar, September 2010.
- **University of Toronto**, Algebra and Geometry Seminar, March 2010.
- **UC Davis**, Algebra Seminar, February 2010.
- **Columbia University**, Algebraic Geometry Seminar, May 2009.
- **University of Wisconsin**, Algebraic Geometry Seminar, April 2009.
- **University of North Carolina**, Colloquium, February 2009.
- **University of Oregon**, Colloquium, January 2009.
- **UC Irvine**, Colloquium, January 2009.
- **UC Davis**, Colloquium, January 2009.
- **University of Ottawa**, Colloquium, December 2008.
- **UC San Diego**, Colloquium, December 2008.

- **Princeton University**, Algebraic Geometry Seminar, November 2008.
- **University of Southern California**, Colloquium, October 2008.
- **Stanford University**, Algebraic Geometry Seminar, October 2008.
- **Harvard University**, Algebraic Geometry Seminar, September 2008.
- **Rice University**, Algebraic Geometry Seminar, April 2008.
- **Texas A&M**, Geometry Seminar, March 2008.
- **UIUC**, Algebraic Geometry Seminar, March 2008.
- **Stanford University**, Algebraic Geometry Seminar, November 2007.
- **Rice University**, Algebraic Geometry Seminar, September 2007.
- **University of Bielefeld**, Geometry Seminar, February 2007.
- **Mittag-Leffler Institute**, Algebraic Geometry Seminar, February 2007.
- **Queens University**, Algebraic Geometry Seminar, January 2007.
- **UT Austin**, Algebraic Geometry Seminar, December 2006.
- **Rice University**, Geometry and Analysis Seminar, November 2006.
- **UC Berkeley**, Subfactor Seminar, October 2006.
- **MIT**, Algebraic Geometry Seminar, February 2006.
- **Rice University**, Algebraic Geometry Seminar, February 2006.
- **University of Michigan**, Algebraic Geometry Seminar, January 2006.
- **MIT**, Combinatorics Seminar, April 2004.

Professional Activities

- Organized weekly learning seminar at Columbia University (fall 2009).
- Co-organized research program for undergraduates, summer 2010.
- Co-organized TAGS 2008 (Texas algebraic geometry seminar) at Rice University.
- Coach of Putnam team at Rice University in 2007 and 2008 and Columbia University in 2009 and 2010.
- Organized Rice Undergraduate Mathematics Competition 2008.
- Co-organized Current Math and Teaching Seminars at Rice University.
- Reviewer for MathSciNet and various journals.

Personal

- Languages: fluent Romanian, medium level French, basic level Spanish and Hebrew.
- Canadian Citizen.