

Curriculum Vitae

BEN WEBSTER

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Employment/Education:

2010 – Assistant Professor, University of Oregon.
2008 – 2010 **C.L.E. Moore Instructor** and **NSF Postdoctoral Fellow**, M.I.T.
Sponsoring Scientist: R. Bezrukavnikov.
2007 – 2008 **Member** and **NSF Postdoctoral Fellow**, Institute for Advanced Study.
2002 – 2007 **Ph.D. in Mathematics**, University of California, Berkeley.
Supervisor: N. Reshetikhin.
Thesis: “Algebraic Poisson Geometry in Representation Theory and Combinatorics.”
1998 – 2002 **B.A. in Mathematics**, Simon’s Rock College, *summa cum laude*.
Supervisor: W. Dunbar

As visitor

2006 Fall Center for the Topology and Quantization of Moduli Spaces, (Århus, Denmark).
2001 Spring Budapest Semesters in Mathematics, (Budapest, Hungary).

Scientific/Academic Honors and Grants:

2007 – 2011 NSF Postdoctoral Research Fellowship
2007 June Clay Liftoff Fellowship
2003 – 2007 NSF Graduate Research Fellowship

Research Interests:

Knot theory and representation theory via algebraic geometry.

Publications and Preprints: available at <http://math.mit.edu/~bwebster/publications.html>

1. *The geometry of Markov traces* (with G. Williamson). In preparation.
2. *A geometric construction of colored HOMFLYPT homology* (with G. Williamson).
arXiv:0905.0486
3. *Goresky-MacPherson duality and deformations of Koszul algebras* (with T. Braden, A. Licata, C. Phan and N. Proudfoot). arXiv:0905.1335
4. *Gale duality and Koszul duality* (with T. Braden, A. Licata, and N. Proudfoot). arXiv:0806.3256
5. *2-block Springer fibers: convolution algebras and coherent sheaves* (with C. Stroppel). arXiv:0802.1943
- 2008 6. *A geometric model for the Hochschild homology of Soergel bimodules* (with G. Williamson).
Geometry and Topology, **12** (2008) 1243–1263. arXiv:0707.2003.
7. *Cramped subgroups and generalized Harish-Chandra modules*.
Proceedings of the AMS, **136** (2008), 3809–3814 arXiv:math.RT/0609846.
- 2007 8. *Small linearly equivalent G-sets and a construction of Beaulieu*.
Journal of Algebra, **317** (2007), no. 1, 306–323. arXiv:math.GR/0610205.
9. *Khovanov-Rozansky homology via a canopolis formalism*.
Algebraic and Geometric Topology, **7** (2007), 673–699. arXiv:math.GT/0610650.

10. *A Deodhar type stratification of the double flag variety* (with M. Yakimov).
Transformation Groups, **12** (2007), no. 4, 769–785. arXiv:math.SG/0607374.
11. *Intersection cohomology of hypertoric varieties* (with N. Proudfoot).
Journal of Algebraic Geometry **16** (2007), 39–63. arXiv:math.AG/0411350.
- 2006 12. *Stabilization phenomena in Kac-Moody algebras and quiver varieties*. arXiv:math.RT/0505619.
International Mathematics Research Notices, vol. 2006, Article ID 36856.

Selected Lectures:

- 2009 June **MIT** (Mirror Symmetry Workshop) *A S(trange) duality for symplectic varieties*.
Apr. **MIT** (Noncom. Algebra Seminar) *Knot homology and geometric representation theory*.
Apr. **Glasgow** (ARTIN [Alg. and Rep. Theory in the North]) *Representation theory and a duality for symplectic varieties*.
Apr. **Boston U.** (Geometry Seminar) *Representation theory and a duality for symplectic varieties*.
Mar. **Toronto** (Symplectic Seminar) *Representation theory and a duality for symplectic varieties*.
Mar. **Northeastern** (GASC Seminar) *Representation theory and a duality for symplectic varieties*.
Feb. **Northwestern** (Geometry Seminar) *Representation theory and a duality for symplectic varieties*.
Feb. **U. of Chicago** (Representation Theory Seminar) *Representation theory and a duality for symplectic varieties*.
Feb. **Oregon** (Colloquium) *Knot homology and a duality for symplectic varieties*.
Jan. **Max Planck Institute** (Special Lecture): *Categorification and knot homology*.
Jan. **U. Bonn** (Algebra Seminar): *Representation theory and a duality for symplectic varieties*.
Jan. **U. Michigan** (Algebraic Geometry Seminar): *A strange duality for symplectic varieties*.
Jan. **GWU** (Knots in Washington): *A geometric description of colored HOMFLYPT homology*.
Jan. **Joint Meetings**: *A categorification of quantum tangle invariants via quiver varieties*.
- 2008 Nov. **MIT** (Symplectic Geometry Seminar) *A strange duality for symplectic varieties and its consequences for knot homology*.
Nov. **Oregon** (Algebra Seminar) *How to generalize universal enveloping algebras*.
Oct. **USC** (UCLA/USC Topology Seminar): *A geometric model for HOMFLY homology*.
Oct. **WMU** (AMS Sectionals): *Categories coming from symplectic singularities*.
May **U. Georgia** (Georgia Topology Conference): *2-block Springer fibers and disorientations*.
Apr. **U. Mass.** (Valley Geometry Seminar): *2-block Springer fibers and Khovanov's arc algebra*.
Apr. **GWU** (Knots in Washington): *2-block Springer fibers and disoriented cobordisms*.
Apr. **IAS** (Special Lecture): *Hypertoric varieties and Koszul duality*.
- 2007 Dec. **Princeton** (Topology Seminar): *2-block Springer fibers and Khovanov's arc algebra*.
Nov. **Edinburgh** (Maxwell Colloquium): *A sheaf-theoretic approach to knot homology*.
Oct. **Berkeley** (RTCG Seminar): *2-block Springer fibers and category \mathcal{O}* .
Oct. **U. Oregon** (Algebra Seminar): *2-block Springer fibers and category \mathcal{O}* .
Aug. **Kahului** (Subfactors in Maui): *A categorification of the Hecke algebra and knot invariants*.
July **Freiburg** (Algebra Seminar): *Knot homology and geometric representation theory*.
July **Faro** (Oporto meeting on link homology): *The geometry of Soergel bimodules*.
June **Århus** (Conference on TQFT and Geometry): *The geometry of Soergel bimodules*.
May **Berkeley** (RTG Workshop on Representation Theory): *The geometry of Soergel bimodules*.
Mar. **AIM** (Representations of Surface Groups): *Fock-Goncharov coordinates*.
Feb. **Stanford** (Symplectic Geometry seminar): *Computation in Khovanov-Rozansky homology*.
- 2006 Nov. **Århus, Denmark** (Topology Seminar): *Computation in Khovanov-Rozansky homology*.
July **Reisenburg, Germany** (IRTG Summer School): *Stratifications à la Deodhar*.
Feb. **Columbia** (Gauge Theory seminar): *Computation in Khovanov-Rozansky homology*.

Professional Activities:

- Journals refereed:
 - Algebraic & Geometric Topology
 - Advances in Mathematics
 - Transactions of the AMS
 - International Mathematics Research Notices
 - Banach Center Publications
- *Math Reviews* reviewer.
- Association for Women in Mathematics mentor.
- Organizer (with N. Reshetikhin) for workshop “Representation Theory and Geometry” in Berkeley.
- Co-organizer of weekly graduate student seminar “Many Cheerful Facts” at Berkeley for 2003.

Teaching Activities:

- 2009 Spring Taught “Project Laboratory in Mathematics.” (18.821)
Supervised students working in groups on research-style problems. Provided instruction on preparing papers and presentations, and feedback on papers and presentations.
- 2008 Fall Section leader for multivariable calculus with Prof. Denis Auroux.
Taught section 4 hours a week, held office hours, graded exams.
- 2008 Sept. Attended MIT microteaching workshop.
- 2005 Fall Teaching assistant for multivariable calculus with Prof. Alan Weinstein.
Taught section 6 hours a week, held office hours, graded exams.
- 2002 Fall Teaching assistant for calculus (second of two semesters) with Prof. Hung-Hsi Wu.
Taught section 6 hours a week, held office hours, graded homework and exams.
- 2002 Fall Attended Berkeley Mathematics Department training course for teaching assistants.