Curriculum Vitae
Ben Webster

Office Address:	Department of Mathematics Massachusetts Institute of Technology Cambridge, MA 02139	Email: Website: Phone:	bwebster@math.mit.edu http://math.mit.edu/~bwebster 617-852-1387
Date of Birth:	December 6, 1981	Citizenship:	USA

Employment/Education:

2008 –	**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 –	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. *Categorifications of quantum tangle invariants via quiver varieties.* in preparation.
2. *A geometric construction of colored HOMFLYPT homology* (with G. Williamson). in preparation.
3. *Goresky-MacPherson duality and Koszul duality* (with T. Braden, A. Licata, C. Phan and N. Proudfoot). in preparation.
4. *Gale duality and Koszul duality* (with T. Braden, A. Licata, and N. Proudfoot). arXiv:0806.3256
5. *2-block Springer fibers: convolution algebras, coherent sheaves, and disoriented TQFT* (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.* Procedings 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 cohomolgy 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.* International Mathematics Research Notices, vol. 2006, Article ID 36856. arXiv:math.RT/0505619.

Selected Lectures:

2008 Oct. **USC** (UCLA/USC Geometry/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 disorientions.*
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** (Seminar in Arbeitsgruppe Algebra): *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 **Davis** (Quantum Algebra seminar): *Computation in Khovanov-Rozansky homology.*
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 Dec. **Sandbjerg, Denmark** (CTQM Retreat): *Computation in Khovanov-Rozansky homology.*
Nov. **Århus, Denmark** (Topology Seminar): *Computation in Khovanov-Rozansky homology.*
July **Reisenburg, Germany** (IRTG Summer School): *Stratifications á la Deodhar.*
Feb. **Columbia** (Gauge Theory seminar): *Computation in Khovanov-Rozansky homology.*
2005 Dec. **GWU** (Knots in Washington): *Khovanov-Rozansky homology and a graphical calculus for tensor products.*
Oct. **Oregon** (Lie Groups, Lie Algebras and their Representations): *Stabilization in Kac-Moody algebras and quiver varieties.*
May **Berkeley** (Workshop on Representation Theory and Geometry): *Stabilization in Kac-Moody algebras and quiver varieties.*
Apr. **Santa Barbara** (AMS Sectionals): *Kazhdan-Lusztig polynomials for hypertoric varieties.*
2003 Mar. **Baton Rouge** (AMS Sectionals): *Beaulieu's construction/Mackey functors and Sunada's theorem.*

Professional Activities:

- Journals refereed:
  Algebraic & Geometric Topology — Banach Center Publications
- *Math Reviews* reviewer

2005	May	Organizer (with N. Reshetikhin) for workshop "Representation Theory and Geometry" in Berkeley.
2004	June	Participant in "MRI Spring School on Lie Groups in Analysis, Geometry and Mechanics" in Utrecht, The Netherlands.
2003		Co-organizer of weekly graduate student seminar "Many Cheerful Facts" at Berkeley.
2001	Summer	Participant in "Research Experiences for Undergraduates" at Louisiana State University (supervisor: Robert Perlis)

Teaching Activities:

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.
2007	Feb.	Gave mini-course on "The geometry of category $\mathcal{O}$" in Berkeley.
2006	Fall	Tutor for graduate students as complement to course "Quantization of Moduli Spaces."
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	Sep.	Attended Berkeley Mathematics Department training course for teaching assistants.
1999 – 2002		Tutor for Simon's Rock Tutoring and Writing Center.

References:

Nicolai Reshetikhin
Department of Mathematics
University of California
Berkeley, CA 94720-3840
reshetik@math.berkeley.edu
510-643-6234

Mikhail Khovanov
Department of Mathematics
Columbia University
990 Broadway
New York, NY 10027
khovanov@columbia.edu
212-854-4186

Roman Bezrukavnikov
Department of Mathematics
Massachusetts Institute of Technology
77 Massachusetts Avenue
Cambridge, MA 02139
bezrukav@math.mit.edu
617-253-2684

Tom Braden
Department of Mathematics
University of Massachusetts
Amherst, MA 94720-3840
braden@math.umass.edu
413-545-1732