

## Curriculum Vitae

University of California at Riverside  
Department of Mathematics  
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Citizenship: USA

### Current Research Interests

Topological invariants and representation theory via categorification, higher category theory, topos theory and geometric representation theory.

### Education

- 2005 – 2010      **University of California at Riverside**, Riverside, CA, USA  
Ph.D. in Mathematics, expected June 2010  
Thesis Advisor: Professor John Baez  
M.S. in Mathematics, June 2007
- 2001 – 2005      **City University of New York, Brooklyn College**, Brooklyn, NY, USA  
B.Sci. in Mathematics, B.Sci. in Computer Science, June 2005  
*summa cum laude.*

### Teaching Experience

- 2005 – 2009      **Teaching Assistant** in Mathematics, University of California at Riverside  
College Algebra and Calculus courses  
Introduction to Topology  
History of Mathematics  
Introduction to Complex Variables
- 2006 – 2007      **Associate** in Mathematics, University of California at Riverside  
First Year Calculus
- 2005              **Adjunct Professor and Program Coordinator** in Mathematics, City University of New York, Brooklyn College  
Mathematics Immersion Program

## Scientific/Academic Awards and Grants

|             |  |
|-------------|--|
| 2009 – 2010 | UC Riverside Dissertation Year Fellowship  |
| 2008 – 2009 | UC Riverside Graduate Dean's Dissertation Research Grant   |
| 2005 – 2007 | UC Riverside Chancellor's Fellowship   |
| 2004 – 2005 | James Singer Mathematics Award, Milton Abramowitz Mathematics Award<br>Harry Rosenfeld-Berle and Ida Fischer Reade Mathematics Prize |
| 2001 – 2005 | Brooklyn College Foundation Presidential Scholarship   |

## Synergistic activities

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|-------------|---|
| 2008 – 2009 | Contribute both content and ideas to the <i>development</i> of the online mathematics workspace, the <i>nLab</i> .  |
| 2007 – 2009 | Contribute to widespread <i>dissemination</i> of ideas and facilitate largescale <i>collaboration</i> in research as a host of the mathematics, physics and philosophy blog, the <i>n-Category Cafe</i> . |

## Publications and Preprints

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|------|--|
| 2010 | <i>Coherent sheaves, integral transforms and the doctrine of algebraic geometry</i> , joint w. James Dolan, (in progress).   |
| 2010 | <i>The Hecke bicategory and the Zamolodchikov tetrahedron equation</i> , (in progress).  |
| 2010 | <i>HDA8: The Hecke Bicategory</i> , joint w. John Baez, (in progress).   |
| 2010 | <i>Nilpotency in type A cyclotomic quotients</i> , joint w. Aaron Lauda, arXiv:0903.2992 (to appear in <i>Journal of Algebraic Combinatorics</i> ).  |
| 2009 | <i>HDA7: Groupoidification</i> , joint w. John Baez and Christopher Walker, arXiv:0812.4864 (to appear in <i>Theory and Applications of Categories</i> ).  |
| 2008 | <i>Categorified Symplectic Geometry and the Classical String</i> , joint w. John Baez and Chris Rogers, <i>Commun. Math. Phys.</i> <b>293</b> , Issue 3 (2010), Page 701. Also available as arXiv:0808.0246. |
| 2008 | <i>Convenient Categories of Smooth Spaces</i> , joint w. John Baez, arXiv:0807.1704 (to appear in <i>Transactions of the American Mathematical Society</i> ).  |

## Selected Conference and Seminar Talks

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| January 27, 2010  | “The Hecke bicategory and the Zamolodchikov tetrahedron equation”, <i>Topology Seminar</i> , University of California, Berkeley, Berkeley, CA, USA.                                 |
| November 23, 2009 | “The Hecke bicategory and the Zamolodchikov tetrahedron equation”, <i>New York City Category Theory Seminar</i> , City University of New York - Graduate Center, New York, NY, USA. |

- November 7 – 8, 2009 “A categorification of the Hecke algebra and the Zamalodchikov tetrahedron equation”, *AMS 2009 Fall Western Section Meeting - Special Session on Homotopy Theory and Higher Algebraic Structures*, University of California at Riverside.
- June 15 – 27, 2009 “A Categorification of Hecke Algebras” (poster), *Summer School and Conference in Geometric Representation Theory and Extended Affine Lie Algebras*, University of Ottawa, Ontario, Canada.
- May 15, 2009 “Antigravity method for simply-laced cyclotomic quotients of Khovanov-Lauda algebras”, *Graduate Student Seminar*, University of California at Riverside.
- May 1 – 3, 2009 “From Smooth Spaces to Smooth Categories”, *Workshop on Smooth Structures in Logic, Category Theory and Physics*, University of Ottawa, Ontario, Canada.
- February 23, 2009 “Groupoidification: Techniques of Categorification”, *New York City Category Theory Seminar*, City University of New York - Graduate Center, New York, NY, USA.
- February 5 – 6, 2009 “Smooth Spaces: Convenient Categories for Differential Geometry”, *CRCG Workshop - Higher Structures in Topology and Geometry II*, Mathematisches Institut, Georg-August-Universität, Göttingen, Germany.
- February 4, 2009 “A Categorification of Hecke Algebras”, preconference seminar, Mathematisches Institut, Georg-August-Universität, Göttingen, Germany.
- January 9 – 11, 2009 “A Categorification of Hecke Algebras”, *Knots in Washington XXVII: 3rd Japan-USA Workshop in Knot Theory*, Washington D.C., USA.
- January 5 – 8, 2009 “A Categorification of Hecke Algebras”, *AMS Special Session on Categorification and Link Homology*, Washington D.C., USA.
- November 22 – 23, 2008 “A Categorification of Hecke Algebras”, *Groupoidfest 2008*, University of California at Riverside.
- November 11, 2008 “Multisymplectic Geometry”, Claremont Topology Seminar, Pitzer College, Claremont, CA, USA.
- November 11, 2008 “Groupoidification”, The Claremont Colleges Algebra/ Number Theory/ Combinatorics Seminar, Pomona College, Claremont, CA, USA.
- November 6, 2008 “Introduction to categorification”, Groupoids Seminar, University of California at Riverside.
- May 15, 2008 “Categorifying Hamiltonian Mechanics: Motivation and Theory”, Seminar in Mathematical Physics and Dynamical Systems, University of California at Riverside.

- April 18 – 20, 2008 “Smooth spaces: convenient categories for differential geometry”, *Knots in Washington XXVI; Interconnections between Khovanov, Khovanov-Rozansky and Ozvath-Szabo homology; categorification of skein modules*, George Washington University, Washington D.C., USA.
- Spring, 2008 “Quasitopoi and concrete sheaves”, Series of five talks in the Riverside Quantum Gravity Seminar, University of California at Riverside.

### Selected Conferences and Workshops

- May 18 – 22, 2009 *Representation Theory and Mathematical Physics Conference in honor of Gregg Zuckerman’s 60th birthday*, Yale University, New Haven, CT, USA.
- May 18 – 22, 2009 *Workshop on Topological Field Theories*, Northwestern University, Evanston, IL, USA.
- April 13 – 18, 2009 *ICMS - Categorification and Geometrisation from Representation Theory*, University of Glasgow, Glasgow, Scotland.
- January 5 – 8, 2009 *AMS Special Session on Homotopy Theory and Higher Categories*, Washington D.C., USA.
- June 30 – July 5, 2008 *Homotopy Structures in Geometry and Algebra; Derived Categories, Higher Categories*, Universitat Politècnica de Catalunya, Barcelona, Spain.
- March 24 – 27, 2008 *Young Person’s Workshop on String Topology and the Topology of Moduli Spaces*, Stanford University, Palo Alto, CA, USA.
- June 4 – 16, 2007 *Derived Categories Summer 2007 VIGRE Mini-course*, University of Utah, Salt Lake City, Utah, USA.
- March 16-17, 2007 *23rd Pacific Coast Gravity Meeting*, California Institute of Technology, Pasadena, CA, USA.