

ERIC C. ROWELL

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Curriculum Vitae

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ACADEMIC EMPLOYMENT

- Assistant Professor, Texas A&M University: 2006-present
- NSF funded Postdoctoral Fellow FRG 0354772, Indiana University: 2006
- VIGRE Postdoctoral Fellow, Indiana University: 2003-2005
- Graduate Teaching Assistant, University of California, San Diego: 1997-2003
- Research Assistant, University of California, San Diego:
 - with Hans Wenzl 2000-2002
 - with J. William Helton 1996-1999

EDUCATION

- **Ph.D. Mathematics** University of California, San Diego: June 2003
 Advisor: Hans Wenzl
 Thesis Title: *Tensor categories arising from quantum groups and BMW-algebras at odd roots of unity.*
- **B.A. Mathematics** University of California, San Diego: June 1997
summa cum laude (GPA 4.0)
 Phi Beta Kappa

RESEARCH INTERESTS

- Representation theory of quantum groups, braid groups, Kac-Moody algebras.
- Topological quantum computation: quantum algorithms, 2-dimensional many-body systems.
- Categories with structure: fusion, braided, ribbon and modular categories.
- Low-dimensional topology: link invariants.

TEACHING EXPERIENCE

Texas A & M University

- Fall 2009, Spring 2010: Graduate Algebra (M653-M654)
- Fall 2006, 2008, Spring 2009: Topics in Applied Mathematics (M311)
- Spring 2008, Fall 2009: Differential Equations (M308)
- Fall 2007: Engineering Calculus (M151)
- Spring 2007: Foundations of Discrete Mathematics (M220)

PUBLICATIONS AND PREPRINTS

- (1) A finiteness property for braided fusion categories (with D. Naidu).
- (2) From extraspecial two-groups to GHZ states (with Y. Zhang, Y.-S. Wu, and M.-L. Ge).
- (3) On the classification of non-self-dual modular categories (with S.-M. Hong).
- (4) Finite linear quotients of \mathcal{B}_3 of low dimension, to appear in *J. Knot Theory Ramifications* (with I. Tuba).
- (5) On classification of modular tensor categories, *Comm. Math. Phys.* **292** (2009) no. 2, 343–389. (with R. Stong and Z. Wang).
- (6) Two paradigms for topological quantum computation, in Advances in Quantum Computation, *Contemp. Math.* **482**, 165-178, Amer. Math. Soc. Providence, RI 2009.
- (7) Unitary braid group representations with finite image, *Algebr. Geom. Topol.* **8** (2008), no. 4, 2063–2079 (with M. Larsen).
- (8) On exotic modular tensor categories, *Commun. Contemp. Math.* **10** (2008), no. Suppl. 1, 1049–1074. (with S.-M. Hong and Z. Wang).
- (9) Unitarizability of pre-modular categories, *J. Pure Appl. Algebra* **212** (2008) no. 8, 1878–1887.
- (10) An algebra-level version of a link-polynomial identity of Lickorish, *Math. Proc. Cambridge Philos. Soc.* **144** (2008) no. 3, 623-638 (with M. Larsen).
- (11) Braid group representations from quantum doubles of finite groups, *Pacific J. Math.* **234** (2008) no. 1, 33-41. (with P. Etingof and S. Witherspoon).
- (12) From quantum groups to unitary modular tensor categories, in Representations of Algebraic Groups, Quantum Groups and Lie Algebras (Snowbird, UT, 2004). *Contemp. Math.* **413**, 215-230, Amer. Math. Soc. Providence, RI 2006.
- (13) Extraspecial 2-groups and images of braid group representations, *J. Knot Theory Ramifications* **15** (2006) no. 4, 1-15. (with J. Franko and Z. Wang).
- (14) The N -eigenvalue problem and two applications, *Int. Math. Res. Not.* **2005** no. 64, 3987–4018. (with M. Larsen and Z. Wang).
- (15) On a family of non-unitarizable ribbon categories, *Math. Z.* **250** (2005) no. 4, 745–774.
- (16) A note on tensor categories of Lie type E_9 , *J. Algebra* **284** (2005) no. 1, 296–309.

GRANTS

- NSA grant H98230-08-1-0020: April 2008-March 2010 \$30,000
- NSA Young Investigator’s grant: April 2010-March 2012 \$30,000

SELECTED CONFERENCE TALKS

- Representation Theory, Quantum Field Theory, etc., UT Tyler, October 2009.
- Colloquium on Hopf Algebras, Quantum Groups and Tensor Categories, La Falda, Argentina, September 2009.
- NSF-CBMS: Knots and Topological Quantum Computing, Edmond, OK, July 2008.
- Classical and Quantum Information Theory, Santa Fe, NM, March 2008.
- Topics in von Neumann Algebras, Banff Research Center, Canada, March 2008.
- Workshop on Knot Theory and Quantum Computing, UT Dallas, December 2007.
- Conference on Representation Theory, Quantum Field Theory, Category Theory, Mathematical Physics and Quantum Information Theory, UT Tyler, September 2007.
- XVII Coloquio Latinoamericano de Álgebra, Medellín, Colombia, July 2007.
- Topics on von Neumann Algebras, Banff Research Center, Canada, October 2006.
- XVI Coloquio Latinoamericano de Álgebra, Colonia, Uruguay, August 2005.
- AMS-IMS-SIAM, Quantum Topology—Contemporary Issues and Perspectives, Snowbird, UT, June 2005.
- Lie Algebras, VOAs and their Applications, North Carolina State University, May 2005.
- Representations of Algebraic Groups, Quantum Groups, and Lie Algebras, Snowbird, UT, July 2004.
- Wabash Extramural Modern Analysis Seminar, Wabash College, February 2004.

COLLOQUIA AND INVITED TALKS

- Invited Talks: UT Austin, January 2008 and October 2008; UC San Diego, July 2005.
- Colloquia: University of South Alabama, November 2009; Texas A & M University, March 2006; University of Houston, March 2006; University of South Florida, February 2006; Virginia Tech, March 2004; Eastern Washington University, May 2003; University of Maine, March 2003.

PROFESSIONAL ACTIVITIES AND SERVICE

- Conference Co-organization:
 - Modular Categories and Applications, Indiana University, March 2009.
 - Fusion Categories and Applications, AMS Special Session, Waco TX, October 2009.
 - Quantum Invariants of 3-Manifolds and Modular Categories, AMS Special Session, St. Paul MN, April 2010.
- Reviewer for *Math Reviews* (15 reviews).
- Thesis committees:
 - Tobias Hagge, Mathematics Ph.D., Indiana University (2008)
 - Angad Kamat, Computer Science Masters, Texas A&M (2008) (substitute)
 - M. Valentina Vega, Mathematics Ph.D., Texas A&M (2009) (substitute)
 - Jeanette Shakalli, Mathematics Ph.D., Texas A&M (current)
 - Piyush Shroff, Mathematics Ph.D., Texas A&M (current)