JULIA BERGNER

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Employment

Associate Professor, University of California, Riverside, July 2014-

Assistant Professor, University of California, Riverside, July 2008-June 2014

Postdoctoral Instructor, Kansas State University, August 2005-June 2008

Visiting Positions

Hausdorff Institute for Mathematics, Bonn, Trimester Program on Homotopy Theory, Manifolds, and Field Theories, July 2015

Centre de Recerca Matemàtica, Barcelona, IRTATCA program, 2 weeks, March and June 2015

Mathematical Sciences Research Institute, Research Member, Algebraic Topology program, January-May 2014

Centre de Recerca Matemàtica, Barcelona, HOCAT program, April 2008

Fields Institute, Toronto, Homotopy Theory program, January and May 2007

Education

Ph.D. in Mathematics, University of Notre Dame, May 2005
Dissertation: Three models for the homotopy theory of homotopy theories
Advisor: William Dwyer.

M.S. in Mathematics, University of Notre Dame, January 2002.

B.S. in Mathematics, B.A. in English, Gonzaga University, May 2000.

Areas of Interest

Homotopy Theory and Algebraic Topology, applications to Representation Theory

Publications

Rigidification of algebras over multi-sorted theories, *Algebr. Geom. Topol.* 6 (2006) 1925-1955.

A model category structure on the category of simplicial categories, *Trans. Amer. Math. Soc.* 359 (2007), 2043–2058.

Three models for the homotopy theory of homotopy theories, *Topology* 46 (2007), 397–436.

Simplicial monoids and Segal categories, *Contemp. Math.* 431 (2007) 59–83.

A characterization of fibrant Segal categories, *Proc. Amer. Math. Soc.* 135 (2007) 4031–4037.

Adding inverses to diagrams encoding algebraic structures, *Homology, Homotopy Appl.* 10(2), 2008, 149–174.

Adding inverses to diagrams II: Invertible homotopy theories are spaces, *Homology, Homotopy Appl.* 10(2), 2008, 175–193.

Complete Segal spaces arising from simplicial categories, *Trans. Amer. Math. Soc.* 361 (2009), 525–546.

A survey of $(\infty, 1)$-categories, in *Towards Higher Categories*, The IMA Volumes in Mathematics and its Applications, Springer, 2010

Publications, continued	Homotopy fiber products of homotopy theories, *Israel J. Math.* , 185 (2011), 389-411.

Models for (∞, n)-categories and the cobordism hypothesis, in H. Sati and U. Schreiber, ed., *Mathematical Foundations of Quantum Field Theory and Perturbative String Theory*, *Proc. Sympos. Pure Math.* 83 (2011) 17–30.

(with C. Walker) Groupoid cardinality and Egyptian fractions, *College Math. J.* 46 (2015) 122–129.

Homotopy limits of model categories and more general homotopy theories, *Bull. Lond. Math. Soc.* 44 (2012), no. 2, 311-322.

Derived Hall algebras for stable homotopy theories, *Cah. Topol. Gom. Diffr. Catg.* 54 (2013), no. 1, 28–55.

(with C. Rezk) Reedy categories and the Θ-construction, *Math. Z.* 274 (1), 2013, 499–514.

(with C. Rezk) Comparison of models for (∞, n)-categories, I. *Geom. Topol.* 17 (2013) 2163–2202.

(with P. Hackney) Reedy categories which encode the notion of category actions, *Fund. Math.* 228 (2015), no. 3, 193-222.

(with P. Hackney) Group actions on Segal operads, *Israel J. Math.* 202 (2014), no. 1, 423-460.

Homotopy colimits of model categories, *An alpine expedition through algebraic topology*, 31-37, *Contemp. Math.*, 617, Amer. Math. Soc., Providence, RI, 2014.

(with M. Robertson) Cluster categories for topologists, *Stacks and Categories in Geometry, Topology and Algebra, Contemp. Math.* 643 (2015) 25–35.

(with R. Joachimi, K. Lesh, V. Stojanoska, and K. Wickelgren) Fixed points of *p*-toral groups acting on partition complexes, *Women in Topology: Collaborations in Homotopy Theory, Contemp. Math.* 641 (2015), 83–96.

Equivalence of models for equivariant $(\infty, 1)$-categories, to appear in *Glasg. Math. J.*, preprint available at math.AT/1408.0038.

Equivariant complete Segal spaces (with S.G. Chadwick), to appear in *Homology Homotopy Appl.*, preprint available at math.AT/1502.06637.

Action graphs and Catalan numbers (with G. Alvarez and R. Lopez), *J. Integer Seq.* 18 (2015), Article 15.7.2.

Teaching Experience	**University of California, Riverside:**

First-Year Calculus I, II, and III; Multivariable Calculus II; Geometry; Set Theory; Introduction to Topology I and II; Advanced Calculus I; Graduate Topology I, II, and III; Algebraic Topology II; Topics in Homotopy Theory

Kansas State University:

Contemporary Mathematics; Mathematics for Elementary School Teachers; History of Mathematics; Foundations of Geometry; Topics in Homotopy Theory; Algebraic Topology; Three summer professional development courses for teachers (Number Patterns; Connections between Algebra and Geometry; Mathematics of Finance, Probability, and Statistics)

University of Notre Dame:

Calculus B (for pre-medicine students); Calculus II for Business; Calculus I (for math, science, and engineering students); Elements of Calculus I (for business and arts and letters students)

Selected Invited Talks	"Homotopical higher categories and complete Segal objects," Clay Research Conference, University of Oxford (October 2015)

"Introduction to homotopical categories (4 lectures) MSRI Summer School on Algebraic Topology, CIMAT, Guanajuato, Mexico (July 2014)

Selected Invited Talks, continued	"Models for homotopical higher categories, Introductory Workshop, Algebraic Topology Program, MSRI (January 2014)
	"Diagrams encoding group actions," Algebraic Topology, Applications and New Directions, Stanford University (July 2012)
	"To $(\infty, 1)$-categories and beyond" (3 lectures), Higher Structures VI, Göttingen (July 2012)
	"Comparing models for (∞, n)-categories," CATS4 - Higher Categorical Structures in Algebraic Geometry, Luminy (July 2012)
	"Homotopy theoretic approaches to higher categories," Workshop on Homotopy Theory, Mathematisches Forschungsinstitut Oberwolfach (September 2011)
	"Homotopy theories and higher categories," Union College Conference (April 2011)
	"Generalized classifying space constructions," Cascade Topology Seminar, University of Washington (November 2010)
	Six talks, Workshop on the Homotopy Theory of Homotopy Theories, Caesarea, Israel (May 2010)
	"To $(\infty, 1)$-categories and beyond," New Contexts in Homotopy Theory, Conference in honor of Peter May's 70th birthday, University of Chicago (October 2009)
	"Homotopy fiber products of homotopy theories in quantum algebra," Conference on Topological Field Theories and Related Geometry and Topology, Northwestern University (May 2009)
	"Hall algebras associated to stable complete Segal spaces," Homotopy Theory and Applications, University of Nebraska, Lincoln (April 2009)
	"Diagrams of simplicial sets inducing algebraic structures," SECA V, Pontevedra, Spain (September 2008)
	"Algebraic applications of the homotopy theory of homotopy theories," HOCAT 2008 - Homotopy Structures in Geometry and Algebra; Derived Categories, Higher Categories, Centre de Recerca Matemàtica, Barcelona, Spain (July 2008)
	"Model categories equivalent to the quasi-category model structure," Workshop on Higher Categories and Applications, Fields Institute, Toronto (January 2007)
	"Model categories, dg categories, and derived Hall algebras," Mac Lane Memorial Conference, University of Chicago (April 2006)
	"Using Segal categories to understand simplicial monoids and simplicial categories," Conference on Categories in Algebra, Geometry and Mathematical Physics, Macquarie University, Australia (July 2005)
Awards and Grants	NSF CAREER Award DMS-1352298 (2014-19)
	NSF Topology Awards DMS-1105766 (2011-15) and DMS-0805951 (2008-13)
	UCR Regents Faculty Fellowship/Faculty Development grant (2011-12)
	Kansas Mathematics and Science Partnership Grant, Winter 2007
	Project NExT Fellow, 2006-07.
	Outstanding Graduate Student Teacher Award, Kaneb Center for Teaching and Learning, University of Notre Dame, Spring 2003
	Clare Boothe Luce Foundation Fellowship, August 2000–May 2005.

Conferences and Sessions Organized, continued	Special Session on Homotopy Theory (with A. Osorno), AMS Sectional Meeting, San Francisco State University (October 2014)
	Topical Workshop: Reimagining the Foundations of Algebraic Topology (with V. Angeltveit, M. Behrens, and A. Blumberg), MSRI (April 2014)
	Connections for Women Workshop (with T. Gerhardt and B. Shipley), MSRI (January 2014)
	Special Session on Homotopy Theory and K-Theory (with C. Haesemeyer), AMS Sectional Meeting, University of California, Riverside (November 2013)
	Special Session on Geometric Applications of Homotopy Theory (with A. Angel and M. Robertson), Mathematical Congress of the Americas, Guanajuato, Mexico (August 2013)
	Special Session on Homotopy Theory and Commutative Algebra (with P. Hackney and I. Henriques), Joint Mathematics Meetings, San Diego (January 2013)
	Special Session on Homotopy Theory and K-Theory (with C. Haesemeyer), AMS Sectional Meeting, University of California, Los Angeles (October 2010)
	Special Session on Homotopy Theory and Higher Algebraic Structures (with J. Baez), AMS Sectional Meeting, University of California, Riverside (November 2009)
	Graduate Student Topology Conference, University of Notre Dame (April 2003)
Other Professional Activities	Editor for *Algebraic and Geometric Topology* (since October 2015)
	Graduate Advisor for Current Students, UC Riverside (since Fall 2014)
	Student Chapters Coordinator, Southern California Nevada MAA Section (since Fall 2014)
	Panelist, "Retention of Women Mathematics Professors," Joint Mathematics Meetings, San Diego, January 2013
	Instructor for the George Washington University Summer Program for Women in Mathematics (June-July 2009 and 2010)
	Panelist, "What I Wish I Knew When Looking for a Job," Joint Mathematics Meetings, San Francisco, January 2010
	Reviewer for Mathematical Reviews (since 2006) and for Zentralblatt Math (since 2010)
	Fellow of the Center for Quantitative Education at Kansas State University, working with the KSU-PDS Partnership Project (June 2005-June 2008)
PhD Advisees	Jacob West, "Higher Auslander-Reiten theory," 2015 (co-advised with Wee Liang Gan)
	Matthew Barber, current student
	Christina Osborne, current student
	Alex Sherbetjian, current student
Undergraduate Research Advisees	Preston Smith (Homotopies and modeling, Fall 2010)
	Elvia Nidia Gonzalez (Lengths of Engel series decompositions, Summer 2011)
	Brett Bolla (Embedded cobordism categories, 2011-12)
	Andrés Vindas Meléndez (Groupoids and the greedy odd algorithm, Summer 2013)
	Gerardo Alvarez and Ruben Lopez (Action graphs and Catalan numbers, Summer 2013)
	Coral Chaney (Simplicial multisets, Summer-Fall 2013)
	Sarah Belknap and Alanah Evans (Groupoids and the greedy prime algorithm, Spring 2015)
Professional Memberships	American Mathematical Society
	Mathematics Association of America
	Association for Women in Mathematics