DANIEL CICALA

Department of Mathematics ⋄ University of California, Riverside

danielmichaelcicala.github.io

EDUCATION

UNIVERSITY OF CALIFORNIA, RIVERSIDE   2019
Ph.D. in Mathematics   *Riverside, California*
Supervisor: Dr. John Baez
Thesis: Rewriting open cospans: a syntax for open systems

UNIVERSITY OF OTTAWA   2014
Masters of Science in Mathematics   *Ottawa, Ontario*
Co-supervisors: Dr. Richard Blute and Dr. Alistair Savage
Thesis: Matrix Problems and their Relation to the Representation Theory of Quivers and Posets

NEW JERSEY INSTITUTE OF TECHNOLOGY   2008
Bachelor of Science in Mathematics   *Newark, New Jersey*

PUBLICATIONS & PREPRINTS

Published

Categorifying the ZX-calculus. *Proceedings 14th International Conference on Quantum Physics and Logic*, 294–314, Electron. Proc. Theor. Comput. Sci. (EPTCS), 266, EPTCS, 2018.

(with Kenny Courser) Spans of cospans in a topos. *Theory Appl. Categ.*, Vol. 33, No. 1, pp 1-22. 2018

Spans of cospans. *Theory Appl. Categ.*, Vol. 33, 2018, No. 6, pp 131-147.

In preparation

Inductive rewriting for compositional models of abstract networks.

TALKS

BORSUK-ULAM IN REAL-COHESIVE HOMOTOPY TYPE THEORY   (Carnegie Mellon, August 2019)
Symposium on Compositional Structures 4

REWRITING STRUCTURED COSPANS   (Chapman University, May 2019)
Symposium on Compositional Structures 4

GLOBAL CASCADES ON SOCIAL NETWORKS   (Riverside, Jan. 2019)
UC Riverside Network Theory Seminar

SYNTAX AND INDUCTIVE REWRITING FOR OPEN NETWORKS   (Baltimore, Jan. 2019)
Joint Mathematics Meetings, special session in Network Science

A CATEGORICAL SYNTAX WITH STRUCTURAL REWRITING FOR NETWORKS   (Scripps, Oct. 2018)
SoCal-Nevada MAA Section

A LOW-KEY INTRODUCTION TO SYNTHETIC DIFFERENTIAL GEOMETRY   (UC Riverside, May. 2018)
Math Connections

A SYNTAX FOR PURE STATE QUBIT QUANTUM MECHANICS   (UC Riverside, Nov. 2017)
AMS Western Sectional

OPEN GRAPHS IN BICATEGORIES OF SPANS AND COSPANS   (U. British Columbia, July 2017)
Category Theory 2017

GENERALIZING LAWVERE THEORIES	(U. British Columbia, July 2017)

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Category Theory 2017

CATEGORIFYING THE ZX-CALCULUS   (Radboud University, July 2017)
Quantum Physics & Logic 2017

UNIVERSAL ALGEBRA AND FUNCTORIAL SEMANTICS   (UC Riverside, April 2017)
UCR Graduate Student Seminar

NOTIONS OF LAWVERE THEORIES   (Virtual, April 2017)
Kan Extension II

SPAN OF COSPANS   (UC Riverside, Sept. 2016)
UCR Graduate Student Seminar

QUASI-CATEGORIES   (UC Riverside, Febr. 2016)
Dr. Julie Bergner's Homotopy Theory Seminar

PROFESSIONAL EXPERIENCE

Instructor of Record

UNIVERSITY OF CALIFORNIA, RIVERSIDE
Multi-variable calculus; Machine learning (undergraduate research project); Topology Ph.D. qualifying exam seminar

RIVERSIDE CITY COLLEGE
Statistics; Precalculus; Intermediate Algebra

MT. SAN JACINTO COLLEGE
Precalculus; Intermediate Algebra

CITY COLLEGE OF NEW YORK
Precalculus

Teaching Assistant

UNIVERSITY OF CALIFORNIA, RIVERSIDE
College Mathematics; Precalculus; Calculus I, II, & III; Differential Equations; (computational) Linear Algebra; (proof-based) Linear Algebra; Introduction to Topology; Intermediate Analysis; Multi-variable Calculus; Mathematical Modeling

UNIVERSITY OF OTTAWA
Functions; Calculus I, II, & III; Introduction to Analysis; Introduction to Linear Algebra

Other

RCHAIN/PYROFEX (May 2018 – current)
Making precise and writing on process calculi and category theory relevant to blockchain technology.

INSURANCES SERVICE OFFICE (2008 – 2009)
Junior level actuary

PROFESSIONAL SERVICE

APPLIED CATEGORY THEORY 2019   Spring 2019
Oxford University
I am organizing a workshop for 20 grad students and 5 professional researchers. There is a five month online portion for students to gain background by presenting papers assigned by the researchers followed by a one week in-person workshop at Oxford University to prove conjectures made by the researchers.

ARTICLE REVIEWER
AMS
Write article reviews for the the AMS's Mathematical Reviews (MR) Database.

MATHEMATICS GRADUATE STUDENT ASSOCIATION
UC Riverside
Formed a chapter of the UCR Graduate Student Union and served as president for its first year.

PROFESSIONAL DEVELOPMENT

SECOND STATEBOX SUMMIT 2018   September 2018
Schoorl, Netherlands
Summit organized by Statebox to advance mathematical methods useful in blockchain technology.

APPLIED CATEGORY THEORY 2018   Spring 2018
Leiden, Netherlands
Workshop organized by Bob Coecke, Brendan Fong, Aleks Kissinger, Martha Lewis, Joshua Tan.

KAN EXTENSION SEMINAR   Spring 2017
Worldwide via video calls
Seminar organized by Emily Riehl, Brendan Fong, and Alexander Campbell.

MRC IN HOMOTOPY TYPE THEORY   Summer 2017
Snowbird, Utah
Working group led by Mike Shulman and Dan Licata focused on applications of cohesive HoTT.

AARMS   Summer 2016
Halifax, Nova Scotia
Courses:
- Categorical Logic and Higher Category Theory by Mike Shulman and Peter Lumsdaine
- Categories, Quantum Computation, and Topology by Jamie Vicary

AWARDS AND HONORS

Dissertation Year Fellowship   2018
University of California, Riverside

Early Promise in the Graduate Career Prize   2015
University of California, Riverside

Chancellor's Distinguished Fellowship   2014
University of California, Riverside

Magna Cum Laude   2008
New Jersey Institute of Technology