

DANIEL CICALA

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EDUCATION

UNIVERSITY OF CALIFORNIA, RIVERSIDE

Ph.D. in Mathematics

Supervisor: Dr. John Baez

Expected May 2019

Riverside, California

UNIVERSITY OF OTTAWA

Masters of Science in Mathematics

Co-supervisors: Dr. Richard Blute and Dr. Alistair Savage

Thesis: Matrix Problems and their Relation to the Representation Theory of Quivers and Posets

2014

Ottawa, Ontario

NEW JERSEY INSTITUTE OF TECHNOLOGY

Bachelor of Science in Mathematics

2008

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

SYNTAX AND INDUCTIVE REWRITING FOR OPEN NETWORKS

Joint Mathematics Meetings, special session in Network Science

(Baltimore, Jan. 2019)

A CATEGORICAL SYNTAX WITH STRUCTURAL REWRITING FOR NETWORKS

SoCal-Nevada MAA Section

(Scripps, Oct. 2018)

A LOW-KEY INTRODUCTION TO SYNTHETIC DIFFERENTIAL GEOMETRY

Math Connections

(UC Riverside, May. 2018)

A SYNTAX FOR PURE STATE QUBIT QUANTUM MECHANICS

AMS Western Sectional

(UC Riverside, Nov. 2017)

OPEN GRAPHS IN BICATEGORIES OF SPANS AND COSPANS

Category Theory 2017

(U. British Columbia, July 2017)

GENERALIZING LAWVERE THEORIES

Category Theory 2017

(U. British Columbia, July 2017)

CATEGORIFYING THE ZX-CALCULUS

Quantum Physics & Logic 2017

(Radboud University, July 2017)

UNIVERSAL ALGEBRA AND FUNCTORIAL SEMANTICS

UCR Graduate Student Seminar

(UC Riverside, April 2017)

NOTIONS OF LAWVERE THEORIES
Kan Extension II

(Virtual, April 2017)

SPAN OF COSPANS
UCR Graduate Student Seminar

(UC Riverside, Sept. 2016)

QUASI-CATEGORIES
Dr. Julie Bergner's Homotopy Theory Seminar

(UC Riverside, Febr. 2016)

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