

# DANIEL CICALA

Department of Mathematics  $\diamond$  University of California, Riverside  
danielmichaelcicala.github.io

## EDUCATION

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UNIVERSITY OF CALIFORNIA, RIVERSIDE	Expected May 2019
<i>Ph.D. in Mathematics</i>	<i>Riverside, California</i>
Supervisor: Dr. John Baez	
Thesis: Categorical syntax for rewriting open networks.	
UNIVERSITY OF OTTAWA	2014
<i>Masters of Science in Mathematics</i>	<i>Ottawa, Ontario</i>
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
<i>Bachelor of Science in Mathematics</i>	<i>Newark, New Jersey</i>

## PUBLICATIONS & PREPRINTS

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### 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

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

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### 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

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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

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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

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**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*