

# MICHAEL JAMES LAMBERT

Personal Site: <https://michaeljlambert.github.io/>

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## EMPLOYMENT

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<b>Champlain College</b> Adjunct Instructor	<i>Aug. 2023-ongoing</i>
<b>University of Massachusetts-Boston</b> Associate Lecturer of Mathematics	<i>Sept. 2020-ongoing</i>
<b>Topos Institute</b> Research Associate	<i>June-Aug. 2022</i>
<b>Mount Allison University</b> Postdoctoral Research Associate	<i>Sept. 2021-April 2022</i>
<b>Dalhousie University</b> Graduate Student	<i>Sept. 2014-Oct. 2019</i>
<b>University of Missouri-Columbia</b> Graduate Student Instructor	<i>Aug. 2011-May 2014</i>

## EDUCATION

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<b>Dalhousie University</b> PhD Mathematics Thesis: “An Elementary Account of Flat 2-Functors”	<i>2014-2019</i>
<b>University of Missouri-Columbia</b> MA Mathematics	<i>2011-2014</i>
<b>University of Vermont</b> MS Mathematics	<i>2009-2011</i>
<b>Dartmouth College</b> BA English Literature, Philosophy	<i>2004-2007</i>

## PAPERS AND PREPRINTS

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- Discrete 2-Fibrations  
To appear in *Higher Structures*  
2020 preprint: [arxiv.org/abs/2001.11477](https://arxiv.org/abs/2001.11477)
  - Cartesian double theories: A double-categorical framework for categorical doctrines,  
with Evan Patterson, *Advances in Mathematics*, 444, May 2024.
  - Double Fibrations with Geoff Cruttwell, Dorette Pronk, and Martin Szyld  
*Theory and Applications of Categories*, 38(35), 2022
  - Double Categories of Relations  
*Theory and Applications of Categories*, 38(33), 2022.
  - Discrete Double Fibrations  
*Theory and Applications of Categories*, 37(22), 2021.
- Other Preprints:*

- A Topos View of Blockchain Consensus Protocols  
2021 preprint: [arxiv.org/abs/2111.07461](https://arxiv.org/abs/2111.07461)
- Representation Embeddings of Cartesian Theories  
2019 preprint: [arxiv.org/abs/1612.02497](https://arxiv.org/abs/1612.02497)
- A 2-Site for Continuous 2-Group Actions  
2019 preprint: [arxiv.org/abs/1911.05141](https://arxiv.org/abs/1911.05141)
- Computing Weighted Pseudo-Colimits  
2019 preprint: [arxiv.org/abs/1711.05903](https://arxiv.org/abs/1711.05903)
- An Elementary Account of Flat 2-Functors  
2019 Dalhousie University, PhD Thesis  
DalSpace Link: [dalspace.library.dal.ca/handle/10222/75671](https://dalspace.library.dal.ca/handle/10222/75671)
- Undecidability of the Theory of  $k\langle X, Y \rangle$ -Modules  
2014 University of Missouri-Columbia, MA Thesis

## TALKS

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### **A cartesian equipment bestiary**

FMCS, 9-10 June 2023.

### **Double Categories of Relations**

Virtual Double Categories Workshop, 2 December 2022.

### **Cartesian Equipments as Databases**

AtCat Seminar, Dalhousie University, 18 October 2022

### **Regular Logic in a ‘Double Category of Relations’**

Peripatetic Seminar, University of Calgary, 17 March, 2022.

### **Improvements to ‘Double Categories of Relations’**

AtCat Seminar, Dalhousie University, 8 February 2022

### **Blockchain Safety in a Topos**

Ottawa Logic Seminar, University of Ottawa, 2 December, 2021

### **A Topos View of Blockchain Safety**

AtCat Seminar, Dalhousie University, 16 November, 2021

### **Discrete Double Fibrations**

CT20→21, University of Genoa, 30 August, 2021

### **Characterizing Double Categories of Relations**

Applied Category Theory 2021, Cambridge University, 16 July 2021

### **Discrete Double Fibrations**

Peripatetic Seminar, University of Calgary, 12 February 2021

### **A 2-Site for Continuous 2-Group Actions**

CMS Summer Meeting, University of Regina, 10 June 2019

### **A Site for Continuous Group Actions**

AtCat Seminar, Dalhousie University, 5 March 2019

### **Exactness of an Internal Colimit Functor for 2-Categories**

AtCat Seminar, Dalhousie University, 20 November 2018

### **The Calculus of Fractions in a Cosmos of Internal Categories**

Octoberfest 2018, City College CUNY, 28 October 2018

### **Diaconescu's Theorem for 2-Toposes of Stacks**

Category Theory 2018, University of Azores, 13 July 2018

### **A Tensor Product of Fibrations as a Codescent Object**

CMS Summer Meeting 2018, University of New Brunswick, 4 June 2018

### **Flat Category-Valued Pseudo-Functors**

AtCat Seminar, Dalhousie University, 30 January 2018

### **Principal Bundles and Torsors as Flat Functors**

AtCat Seminar, Dalhousie University, 28 November 2017

### **Pseudo-Functors, Generalized Principal Bundles, and Torsors**

Octoberfest 2017, Carnegie Mellon University, 28 October 2017

### **Generalizing Principal Bundles**

Category Theory 2017, University of British Columbia, 18 July 2017

### **Wild Algebras in Cartesian Categorical Logic**

TACL 2017, Prague, Czech Republic, 30 June 2017

### **Representation Embeddings of Cartesian Theories**

AtCat Seminar, Dalhousie University, 10 Jan 2017

### **Representation Embeddings of Algebraic Theories**

Union College Mathematics Conference, Union College, 3 December 2016

## **TEACHING**

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### *As Instructor*

**Math 125: Precalculus**, Champlain College

**Math 230: Calculus I**, Champlain College

**Math 240: Calculus II**, Champlain College

**Math 115: College Algebra**, University of Massachusetts-Boston

**Math 125: Introductory Statistics**, University of Massachusetts-Boston

**Math 129: Precalculus for Management**, University of Massachusetts-Boston

**Math 130: Precalculus**, University of Massachusetts-Boston

**Math 134: Calculus for Management**, University of Massachusetts-Boston

**Math 140: Calculus I**, University of Massachusetts-Boston

**Math 141: Calculus II**, University of Massachusetts-Boston

**Math 2002: Intermediate Calculus II**, Dalhousie University

**Math 1100: College Algebra**, University of Missouri-Columbia

### *As Teaching Assistant*

**Math 1000: Calculus I**, Dalhousie University

**Math 1010: Calculus II**, Dalhousie University

**Math 1290: Engineering Mathematics II**, Dalhousie University,

**Math 1280: Engineering Mathematics I**, Dalhousie University

**Math 1500: Calculus I**, University of Missouri-Columbia

## **AWARDS**

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**Nova Scotia Graduate Scholarship**

2014-2017

\$30,000 CAD, Dalhousie University

**AARMS Student Travel Award** Homotopy Type Theory Workshop

June 2016

The Fields Institute, University of Toronto \$1,000 CAD

**AARMS Student Travel Award**

AARMS Summer School 2014, Dalhousie University, \$650 CAD

July 2014

**Excellence in Teaching Award 2013-2014**

Mathematics Department  
University of Missouri-Columbia

April 2014