

ELLIOT KAPLAN

Fields Institute Room 410 \diamond 222 College Street \diamond Toronto, Ontario M5T 3J1
kaplae2@mcmaster.ca \diamond elliotakaplan.github.io

EMPLOYMENT

McMaster University

July 2021 - June 2024

- NSF Postdoctoral Fellow
- Postdoctoral Fellow at the Fields Institute July 2021 - June 2022

EDUCATION

University Illinois at Urbana-Champaign

- Doctorate in mathematics, May 2021
- Dissertation: *Derivations on o-minimal fields*, advised by Lou van den Dries

Ohio University

- Bachelor of science, Honors Tutorial College, May 2015
- Undergraduate thesis: *Initial embeddings in the surreal number tree*, advised by Philip Ehrlich

RESEARCH INTERESTS

Model theory and its applications. Especially o-minimal fields, valued fields, and differential fields.

PUBLICATIONS

Surreal ordered exponential fields 2021

With Philip Ehrlich

J. Symb. Log., 86(3), 1066–1115, 2021. [↗](#) [📄](#)

Generic derivations on o-minimal structures 2021

With Antongiulio Fornasiero

J. Math. Log., 21(2):2150007, 45, 2021. [↗](#) [📄](#)

Pairs of theories satisfying a Mordell-Lang condition 2020

With Alexi Block Gorman and Philipp Hieronymi

Fund. Math., 251(2):131–160, 2020. [↗](#) [📄](#)

Distality for the asymptotic couple of the field of logarithmic transseries 2020

With Allen Gehret

Notre Dame J. Form. Log., 61(2):341–361, 2020. [↗](#) [📄](#)

Continuous regular functions 2020

With Alexi Block Gorman, Philipp Hieronymi, Ruoyu Meng, Erik Walsberg, Zihe Wang, Ziqin Xiong, and Hongru Yang

Log. Methods Comput. Sci., 16(1):Paper No. 17, 24, 2020. [↗](#) [📄](#)

Logarithmic hyperseries 2019



With Lou van den Dries and Joris van der Hoeven

Trans. Amer. Math. Soc., 372(7):5199–5241, 2019. [↗](#) [📄](#)

Number systems with simplicity hierarchies II 2018

With Philip Ehrlich

J. Symb. Log., 83(2):617–633, 2018. [↗](#) [📄](#)

Resolution depth of positive braids 2015
 With David Krcatovich and Patricia O'Brien
J. Knot Theory Ramifications, 24(14):1550075, 12, 2015.  

PREPRINTS

***T*-convex *T*-differential fields and their immediate extensions** 2021
Submitted.  

Hyperserial fields 2021
 With Vincent Bagayoko and Joris van der Hoeven
Submitted.  

AWARDS AND ACHIEVEMENTS

NSF Mathematical Sciences Postdoctoral Research Fellowship (MSPRF) 2021 - 2024
List of Teachers Ranked as Excellent by Their Students 2015, 2017 - 2020
Kuo-Tsai Chen Prize in Mathematics 2019
Waldemar J., Barbara G., and Juliette Alexandra Trjitzinsky Fellowship 2019
Honorable mention, Graduate Research Fellowship Program 2016
Graduate College Conference Travel Award 2016
U.S. Junior Oberwolfach Fellows NSF Grant (DMS-1641185) 2016

INVITED TALKS

AMS Spring Central Sectional Meeting at Purdue University April 2020
 Model Theory and its Applications Special Session, canceled due to COVID-19.
North American meeting of the Association of Symbolic Logic at UC Irvine March 2020
 Model Theory Special Session, canceled due to COVID-19.
Summer Illinois Mathematics Camp at UIUC July 2018
 A discussion of the basics of knot theory aimed at a high school audience.
Mathematical Research Institute of Oberwolfach, Germany December 2016
 Mini-Workshop on Surreal Numbers, Surreal Analysis, Hahn Fields and Derivations.
Joint Math Meetings in Seattle, WA January 2016
 Surreal Numbers Special Session.

SEMINAR TALKS

Fields Postdoc Colloquium April 2022
Kolchin Seminar in Differential Algebra October 2021
Model Theory Seminar at the Fields Institute August 2021
Topological and Differential Expansions of O-minimal Structures Seminar February 2021
Manchester Logic Seminar June 2020
Notre Dame Logic Seminar June 2020
Lyon-Paris Logic Seminar May 2020
Caltech-UCLA Logic Seminar February 2020

Logic Seminar at The Ohio State University

November 2019

Graduate Model Theory Seminar at UCLA

January 2018

CONTRIBUTED TALKS

Joint Math Meetings in Denver, CO

January 2020

North American meeting of the Association of Symbolic Logic at CUNY

May 2019

XIX Graduate Student Conference in Logic at UW-Madison

April 2018

XVIII Graduate Student Conference in Logic at UIUC

April 2017

North American meeting of the Association of Symbolic Logic at UIUC

March 2015

Undergraduate Mathematics Symposium at UIC

October 2014

Young Mathematicians Conference at Ohio State University

August 2014

MathFest in Portland, OR

August 2014

WORK EXPERIENCE

Teaching Assistant

2015-2021

University of Illinois at Urbana-Champaign

- Led discussion sections for Calculus II (Fall 2015, Summer 2020), Calculus III (Fall 2016, Spring 2017, Fall 2018, Fall 2019), and Applied Linear Algebra (Spring 2018, Fall 2020).
- Head teaching assistant for Elementary Linear Algebra (Fall 2017) and Applied Linear Algebra (Spring 2018, Fall 2020).
- Grader for Mathematical Logic (Fall 2016, Fall 2017) and General Topology (Fall 2017)
- Facilitated group work, helped students prepare for exams, helped write worksheets and exams.

Workshop Leader

Summer 2019

University of Illinois at Urbana-Champaign

- Led a three day workshop on advanced linear algebra topics for graduate students.
- Part of the Program for Interdisciplinary and Industrial Internships at Illinois, an NSF funded research program.

Summer Intern

Summer 2016

Wolfram Research

- Helped develop a way to code theorems from general topology in the Wolfram language.

Program for Interdisciplinary and Industrial Internships at Illinois

Summer 2015

University of Illinois at Urbana-Champaign

- NSF funded research program.
- Researched random matrix pencils for seven weeks, supervised by a visiting professor.

Lead Mathematics Tutor

August 2014 - May 2015

Ohio University Tutoring Services

CRLA Certified Mathematics Tutor

February 2012 - May 2015

Ohio University Tutoring Services

Summer Undergraduate Research Institute in Experimental Mathematics

Summer 2014

Michigan State University

MENTORSHIP AND PROFESSIONAL SERVICE

Co-organizer

Spring 2017, Spring 2021

Graduate Student Conference in Logic XVIII and XXII

Graduate Student Member

Fall 2019 - Spring 2020

UIUC Math Department Undergraduate Affairs Committee

Graduate Team Leader

Summer 2019

Illinois Geometry Lab

Led a group of three undergraduate students in a project about three-player combinatorial games.

Graduate Mentor

Spring 2018

Illinois Geometry Lab

Helped lead a group of four undergraduate students in a research project studying functions recognizable by Büchi automata.