ELLIOT KAPLAN

Fields Institute Room 410 ⋄ 222 College Street ⋄ Toronto, Ontario M5T 3J1

kaplae2@mcmaster.ca ⋄ 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

Liouville closed H_T-fields   2022
Submitted. ⬀ 🗎

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
Geometry and Model Theory Seminar at the Fields Institute	January 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.