Patrick Lutz

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INTERESTS

Mathematical logic, especially computability theory and descriptive set theory.

EMPLOYMENT

University of California, Los Angeles   2021 – present
Hedrick Assistant Adjunct Professor

EDUCATION

University of California, Berkeley   2016 – 2021
PhD in Mathematics
Advisor: Ted Slaman

University of California, Berkeley   2012 – 2016
BA in Mathematics

AWARDS AND FELLOWSHIPS

NSF Mathematical Sciences Postdoctoral Fellowship   2022

Sacks Prize   2022
Awarded annually by the ASL for the most outstanding doctoral dissertation in mathematical logic

Outstanding Graduate Student Instructor Award   2018 (Math), 2022 (EECS)
Awarded for outstanding work in teaching on the Berkeley campus

PAPERS

Published/Accepted

Incompleteness and Jump Hierarchies with James Walsh   2020
Proceedings of the American Mathematical Society

Formalizing Galois Theory with Thomas Browning   2021
Experimental Mathematics

Coding Information into All Infinite Subsets of a Dense Set with Matthew Harrison-Trainor and Lu Liu   2023
To appear in *Israel Journal of Mathematics*

Conway and Doyle Can Divide by Three, But I Can't   2023
To appear in *Mathematical Intelligencer*

Submitted

Part 1 of Martin's Conjecture for Order-Preserving and Measure-Preserving Functions with Benjamin Siskind   2023
Submitted to *Journal of the American Mathematical Society*

Martin's Conjecture for Regressive Functions on the Hyperarithmetic Degrees   2023
Submitted to *Journal of Mathematical Logic*

The Solecki Dichotomy and the Posner-Robinson Theorem Are Almost Equivalent   2023
Submitted to *Bulletin of Symbolic Logic*

A Note on a Conjecture of Sacks with Kojiro Higuchi   2023
Submitted to *Advances in Mathematics*

A Theory Satisfying a Strong Version of Tennenbaum's Theorem with James Walsh 2023
Submitted to *Journal of Mathematical Logic*

In Preparation

Local Martin's Conjecture, Revisited with Vittorio Bard 2020

Hausdorff Dimension and Continuous Images with Joseph Miller 2022

INVITED TALKS

Part 1 of Martin's Conjecture
Second Workshop on Digitalization and Computable Models (WDCM-2020) 2020
Midwest Computability Seminar 2020
UCLA-Caltech Logic Seminar 2020
JMM ASL/AMS special session on Computability Theory and Effective Mathematics 2021
New England Recursion and Definability Seminar (NERDS 19.0) 2021

Formalizing Galois Theory
Lean Together 2021 2021

Sacks Conjecture and Borel Quasi-Orders
Southeastern Logic Symposium (SEALS 2021) 2021
Caltech Logic Seminar 2021

Hausdorff Dimension and Continuous Images
AIM Workshop on Effective Methods in Measure and Dimension 2022
Very Informal Gathering of Logicians 2023

The Solecki Dichotomy and the Posner-Robinson Theorem
Michigan Logic Seminar 2022
Online Logic Seminar 2023
Berkeley Logic Colloquium 2023
Caltech Logic Seminar 2023

Coding Information into Dense Sets
Southeastern Logic Symposium (SEALS 2023) 2023
ASL North American Annual Meeting 2023
Notre Dame Logic Seminar 2023

Martin's Conjecture Past the Hyperjump
Cornell Logic Seminar 2023
IMS Workshop "Form omega to Omega" 2023

A Theory Which *Really* Doesn't Have a Computable Model
Penn State Logic Seminar 2023

TEACHING

UCLA (as main instructor)

Algorithms (Math 182)	Fall 2021, Winter 2022
Introduction to Set Theory (Math 114S)	Winter 2022
Graduate Seminar in Logic (Math 285D)	Spring 2022
Mathematical Game Theory (Math 167)	Fall 2023

UC Berkeley (as main instructor)

Linear Algebra & Differential Equations (Math 54)	Summer 2017
Discrete Mathematics and Probability Theory (CS 70)	Summer 2021

UC Berkeley Directed Reading Program (as mentor)

Randomized algorithms	Fall 2017
Computability	Spring 2018, Fall 2019
Model theory and transfinite recursion	Spring 2020
Axiomatic set theory and independence proofs	Summer 2020
Forcing	Fall 2021
Determinacy	Spring 2021

UC Berkeley (as graduate student instructor)

Linear Algebra & Differential Equations (Math 54)	Fall 2016, Spring 2021
Math for Biology Majors (Math 10B)	Spring 2017, Spring 2018
Introduction to Mathematical Logic (Math 125A)	Fall 2018
Incompleteness and Undecidability (Math 136)	Fall 2018
Berkeley Connect in Mathematics (as graduate mentor)	Fall 2019, Spring 2020

UC Berkeley (as undergraduate student instructor)

Data Structures (CS 61B)	Summer 2014, Fall 2014, Spring 2015, Fall 2015
Algorithms (CS 170)	Spring 2016

Service

Referee

Information and Computation, Fundamenta Mathematicae, Journal of Symbolic Logic

Seminars organized/co-organized

UCLA Logic Colloquium	2022 – present
Various learning seminars at UCLA	2021 – 2023
Berkeley Lean Seminar	Summer 2020
Berkeley Student Logic Colloquium	2018 – 2020