

Patrick Lutz

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INTERESTS

Mathematical logic, especially computability theory and descriptive set theory.

EMPLOYMENT

University of California, Los Angeles 2021 – 2023
Hedrick Assistant Adjunct Professor

University of California, Berkeley 2024 – present
NSF Postdoc

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-Trainer 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*

Martin's Conjecture for Regressive Functions on the Hyperarithmetical Degrees 2024
To appear in *Journal of Mathematical Logic*

Part 1 of Martin's Conjecture for Order-Preserving and Measure-Preserving Functions with Benjamin Siskind 2024
To appear in *Journal of the American Mathematical Society*

Submitted

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

AMS Midwest Spring Sectional Meeting 2024

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, Computability in Europe

Seminars organized/co-organized

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