

Miha E. Habič

Bard College at Simon's Rock – 84 Alford Rd – Great Barrington, MA 01230

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Employment

Bard College at Simon's Rock

Assistant professor in Mathematics

July 2019–present

Czech Technical University in Prague

Postdoctoral researcher

September 2018–May 2019

Charles University

Postdoctoral researcher

August 2017–June 2019

Hunter College, CUNY

Graduate teaching fellow

2014–2017

Education

The Graduate Center, CUNY

PhD in Mathematics

2017

Thesis title: *Joint Laver diamonds and grounded forcing axioms*

Advisor: Joel David Hamkins

University of Ljubljana

MSc in Mathematics

2012

University of Ljubljana

BSc in Mathematics

2010

Research interests

Mathematical logic and set theory, particularly large cardinals, their interaction with forcing, and forcing axioms; the structure of forcing extensions of countable models of set theory; computability theory; writing in the Math (and STEM) curriculum.

Publications

Miha E. Habič and Kaethe Minden. Writing in the zones for the reading of proofs in the mathematics classroom: A how-to guide. *Early College Folio*, 3(1):49–58, 2024.

Miha E. Habič, Charles Weng, and Cathy Zhang. More nonamalgamable forcing extensions. In preparation, 2024.

Miha E. Habič and Radek Honzík. Capturing sets of ordinals by normal ultrapowers. *Annals of Pure and Applied Logic*, 174(6):Paper No. 103261, 24, 2023.

Erin Carmody, Victoria Gitman, and Miha E. Habič. A Mitchell-like order for Ramsey and Ramsey-like cardinals. *Fundamenta Mathematicae*, 248(1):1–32, 2020.

Miha E. Habič, Joel David Hamkins, Lukas Daniel Klausner, Jonathan Verner, and Kameryn J. Williams. Set-theoretic blockchains. *Archive for Mathematical Logic*, 58(7-8):965–997, 2019.

Miha E. Habič. Joint diamonds and Laver diamonds. *The Journal of Symbolic Logic*, 84(3):895–928, 2019.

Miha E. Habič. The grounded Martin's axiom. *MLQ. Mathematical Logic Quarterly*, 63(5):437–453, 2017.

Miha E. Habič. *Joint Laver diamonds and grounded forcing axioms*. PhD thesis, The Graduate Center, CUNY, 2017.

Miha E. Habič. Cardinal-recognizing infinite time Turing machines. In *The nature of computation*, volume 7921 of *Lecture Notes in Comput. Sci.*, pages 231–240. Springer, Heidelberg, 2013.

Teaching experience

Bard College at Simon's Rock:

- o MATH 01/02 *Algebra I/II*
- o MATH 099 *Algebra Workshop*
- o MATH 105 *Math of Games & Puzzles*
- o MATH 107 *Logic*
- o MATH 109 *Elementary Functions*
- o MATH 210 *Calculus I*
- o MATH 217 *Intro to Mathematical Proof*
- o MATH 220 *Linear Algebra*
- o MATH 221 *Vector Calculus*
- o MATH 320 *Group Theory*
- o MATH 330 *Probability Theory*
- o CS 320 *Theory of Computation*
- o Tutorials in Set Theory and Topics in Cryptography

Hunter College:

- o MATH 125 *Precalculus*
- o MATH 156 *Introduction to Mathematical Proofs*

Professional service

Mentoring

Undergraduate research lead

Bard College at Simon's Rock 2022

Supervised two undergraduate research interns (Charles Weng & Catchy Zhang) on summer research project in set theory

Undergraduate theses:

Thesis advisor

Jenny Yang (2024): *Zero-knowledge Proofs*

Committee member

Maya Saraya (2023): $M_a \times M_u$: *Calculating Composition Technique*

Ethan Xu (2022): *Heat Equation*

Putnam exam coach

Bard College at Simon's Rock 2021–2023

Scholarly service

Referee/reviewer: *Ars Mathematica Contemporanea*; *Computability*; *Theoretical Computer Science*; *Fundamenta Mathematicae*; *Mathematical Logic Quarterly*; *Cambridge University Press*; *Lecture Notes in Computer Science*; *MathSciNet/Mathematical Reviews*; *zbMATH*

Coorganizer (with V. Gitman)

CUNY Set Theory seminar 2015–2017

Coorganizer (with K. Minden and J. Williams)

CUNY Student Set Theory seminar 2013–2017

Campus service

Chair of Code of Conduct hearing panels

Bard College at Simon's Rock 2020–2023

Member of International Student Support Team

Bard College at Simon's Rock 2019–present

Math placement coordinator

Bard College at Simon's Rock 2020–present

Selected conference talks

- Some results on ultrapower capturing:** Winter School in Abstract Analysis, Hejnice, January 2019
- Embedding posets into the set-generic multiverse:** Forcing Project Networking Conference, Konstanz, September 2018
- Nonamalgamation in the generic multiverse:** Novi Sad Conference in Set Theory and General Topology, Novi Sad, July 2018
- Surgery and nonamalgability for Cohen reals:** Winter School in Abstract Analysis, Hejnice, January 2018
- Restricting forcing axioms to ground models:** European Set Theory Conference, Budapest, July 2017
- A Mitchell-like order for Ramsey cardinals:** Joint Mathematics Meetings, Atlanta, January 2017
- The grounded Martin's axiom:** NY Graduate Student Logic Conference, The Graduate Center, CUNY, May 2016
- Joint Laver diamonds:** Set Theory Day, The Graduate Center, CUNY, March 2016
- Joint Laver diamonds:** BEST, San Francisco State University, June 2015
- Restricting Martin's axiom to a ccc ground model:** ASL Logic Colloquium, Vienna University of Technology, July 2014
- Restricting Martin's axiom to a ccc ground model:** Joint Mathematics Meetings, Baltimore, January 2014
- Cardinal-recognizing infinite time Turing machines:** Computability in Europe, Milan, July 2013

Selected seminar talks

- Some old and new results on nonamalgamable forcing extensions:** CUNY Set Theory seminar, May 2023
- Hiding information in generic sequences:** Simon's Rock/BHSEC Math seminar, November 2021
- Normal ultrapowers with many sets of ordinals:** CUNY Set Theory seminar, August 2020
- Capturing powersets by normal ultrapowers:** CUNY Logic Workshop, October 2019
- The generic multiverse, amalgamability, and blockchains:** University of Ljubljana, May 2019
- Capturing powersets by ultrapowers:** Kurt Gödel Research Center, March 2019
- The ultrapower capturing property (parts I & II):** Charles University Set Theory seminar, January 2019
- Surgery and generic coding:** CUNY Set Theory seminar, October 2018
- Surgery and generic coding:** Charles University Set Theory seminar, October 2018
- Tukey classes of complete ultrafilters:** CUNY Set Theory seminar, May 2018
- Amalgamability between Cohen extensions:** Charles University Set Theory seminar, March 2018
- Joint guessing principles:** Charles University Set Theory seminar, November 2017
- The grounded Martin's axiom:** Charles University Set Theory seminar, September 2017
- Bukovský's theorem on forcing extensions:** CUNY Set Theory seminar, November 2016
- The grounded Martin's axiom:** Rutgers University, April 2016
- Some guessing principles in set theory:** Virginia Commonwealth University, April 2016
- The Mitchell order for Ramsey cardinals:** CUNY Set Theory seminar, October 2015
- Cardinal-recognizing infinite time Turing machines:** Virginia Commonwealth University, March 2014
- Infinite time Turing machines:** University of Ljubljana, December 2012