

Tom Benhamou

HILL ASSISTANT PROFESSOR · DEPARTMENT OF MATHEMATICS

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Primary Research Interest: Logic & Foundations, Set Theory, Ultrafilters Combinatorics, Cardinal Arithmetics, Infinite Combinatorics and Ramsey Theory, Topology.

Professional Experience

Aug. 2023 - Present **Hill Assistant Professor**, Department of Mathematics. *Rutgers University*

Aug. 2022-Aug. 2023 **Research Assistant Professor**, Department of Mathematics, Statistics, and Computer Science. *University of Illinois at Chicago (UIC)*

Education

Sept. 2017-Sept. 2022 **Ph.D. in Mathematics**, *Tel-Aviv University (TAU)*

- Advisor: Prof. Moti Gitik
- Dissertation title: *Intermediate Models of Prikry-type Forcings*

Sept. 2015-Sept. 2017 **M.Sc. in Mathematics**, *TAU*

- Advisor: Prof. Moti Gitik
- *Summa cum lauda*

Sept. 2012-Sept. 2015 **B.Sc. in Mathematics**, *TAU*

- *Cum lauda*

Publications

PUBLISHED

Benhamou, T., Goldberg G. 2024, The Galvin property under the Ultrapower Axiom, Canadian Journal of Mathematics, to appear.

Benhamou, T., Zhang, J. 2024, Transferring Compatsness, Journal of the London Mathematical Society, 109(6): e12940.

Benhamou, T., Dobrinen N. 2024, Cofinal types of ultrafilters over measurable cardinals, The Journal of Symbolic Logic: to appear.

Benhamou, T., Garti S., Gitik M., Poveda A. 2023. Non-Galvin filters, Journal of Mathematical Logic, to appear

Benhamou, T., Garti S., Shelah S. 2023, Kurepa trees and the failure of the Galvin property, Proceedings of the American Mathematical Society, 151: 1301-1309.

Benhamou, T., Gitik M. 2023, On Cohen and Prikry forcing notions, The Journal of Symbolic Logic, 89(2): 858-904

Benhamou, T., Garti S., Poveda A. 2023, Negating the Galvin property, Journal of the London Mathematical Society, 108(1): 190-237.

Benhamou, T., Jirattikansakul, S. 2023, Small Ultrafilter number at every singular cardinal, Acta Mathematica Hungaria, 171: 12-38

Benhamou, T., Garti S., Poveda A. 2023, Galvin's property at large cardinals and an application to partition calculus, Israel Journal of Mathematics, to appear

Benhamou, T., Gitik M., Hayut Y. 2023, The variety of projections of a tree-Prikry forcing, Journal of Mathematical Logic, 2(1): to appear

Benhamou, T., Gitik M. 2022, Intermediate models of Magidor-Radin forcing- Part II, Annals of Pure and Applied Logic, 173(6): 103107.

- Benhamou, T.**, Gitik, M. 2022, Intermediate models of Magidor-Radin forcing- part I, Israel Journal of Mathematics, 262(1): 47-94.
- Benhamou, T.**, Gitik, M. 2021, Title of our fancy paper, Sets In Prikry and Magidor generic extesions Annals of Pure and Applied Logic, 172(4): 102926
- Benhamou, T.** 2019, Prikry forcing and tree Prikry forcing of various filters. Archive if Mathematical Logic, 58: 787-817.

IN REVIEW

- Benhamou, T.** 2024, On ultrapowers and cohesive ultrafilters.
- Benhamou, T.**, Poveda, A. 2024, Non-normal Magidor-Radin types of forcings.
- Benhamou, T.**, Wu F. 2024, Diamond principles and Tukey-top ultrafilters on a countable set.
- Benhamou, T.** 2024, commutativity of cofinal types.
- Benhamou, T.**, Dobrinen, N. 2023, On the Tukey types of Fubini products.
- Benhamou, T.** 2022, Saturation Properties in Canonical Inner Models.

Awards, Fellowships, & Grants

- 2023-2026 **NSF Research Grant, PI on DMS -2346680**, National Science Foundation
- 2024-2026 **AIM SQuaRE with Cummings, Goldberg, Hayut, Poveda and Rinot**, American Institute of Mathematics
- 2018 **Raymond and Beverly Sackler Award and Scholarship for Research Students**, Faculty of Exact Sciences, TAU
- 2016 **Excellence honor of the** , Achool of Mathematics, TAU
- 2014-2016 **Excellence Scholarship**, TAU
- 2014-15 **Dean's honor list**, TAU
- 2013-14 **Dean's honor list**, TAU

Invited Talks

- (upcoming) Arctic Set Theory Workshop, Kittilä, Finland
- (upcoming) JMM Meating, Seattle, WA
- (upcoming) Oberwolfach Set Theory Workshop, Oberwolfach, Germany
- Summer 2024. *Commutativity of Cofinal types*. AMS-UMI International Joint Meeting, Palermo, Sicily, Italy
- Spring 2024. *Cofinal types of ultrafilters on measurable and non-measurable cardinals*. ASL annual meeting, Ames, IW
- Spring 2024. *Commutativity of cofinal types of ultrafilters*. Cornell Logic Seminar , Ithaca, NY
- Winter 2024. *Commutativity of cofinal types of ultrafilters*. UC Berkeley Logic Colloquium , Berkeley, CA
- Winter 2024. *Commutativity of cofinal types*. CUNY Logic Workshop, Manhattan, NY
- Winter 2024. *Tukey-top ultrafilters under UA*. CUNY Set Theory Seminar, Manhattan, NY
- Fall 2023. *Cofinal types of ultrafilters on measurable and non-measurable cardinals*. VCU ALPS, Richmond, VA
- Summer 2023. *Galvin property*. HUJI Set Theory Seminar, Jerusalem, Israel
- Summer 2023. *New results about the Tukey order on sigma complete ultrafilters*. TAU Set Theory Seminar, Tel-Aviv, Israel
- Spring 2023. *Galvin's Property and its applications*. UCLA Logic Colloquium, Los Angeles, CA
- Spring 2023. *Saturation properties of ultrafilters*. CMU Set Thoery Seminar, Pittsburgh, PA
- Winter 2023. *Saturation properties of ultrafilters*. JMM Meeting, Boston, MS
- Fall 2022. *Intermediate models of Prikry-Type forcing*. Rutgers Logic Seminar, New Brunswick, NJ

Fall 2022. *The Galvin Property*. Notre Dame Logic Seminar, South Band, IN
 Summer 2022. *The Galvin property at successors of singulars*. Advances in Set Theory, Jerusalem, Israel
 Spring 2022. *Intermediate models, quotients and the Galvin property*. CUNY Set Theory Seminar, Manhattan, NY
 Spring 2020. *Intermediate Models of Prikry-Type Forcing*. Prikry Forcing Workshop online, Leeds, UK
 Fall 2020. *The Forcing Method and Prikry-Type Forcing*. IMU conference, Online, Israel
 Spring 2019. *Projections of Tree-Prikry forcing*. HUJI Set Theory Seminar, Jerusalem, Israel
 Spring 2017. *The Tree Property at ω_2* . BIU Set Theory Seminar, Bar-Ilan, Israel

Teaching Experience

Fall 2024	Introduction to Linear Algebra , Instructor	<i>Rutgers</i>
Fall 2024	Introduction to Mathematical Reasoning , Instructor	<i>Rutgers</i>
Spring 2024	Mathematical Logic , Instructor	<i>Rutgers</i>
Spring 2024	Introduction to Mathematical Reasoning , Instructor	<i>Rutgers</i>
Fall 2023	Set Theory , Instructor	<i>Rutgers</i>
Spring 2023	Set Theory (Graduate Level) , Instructor	<i>UIC</i>
Fall 2022	Introduction to Advanced Mathematics , Instructor	<i>UIC</i>
Fall 2017-Spring 2022	Introduction to Set Theory , Instructor	<i>TAU</i>
Spring 2018-Spring 2022	Discrete Mathematics and Combinatorics for computer science , Instructor at Odyssey Program	<i>TAU</i>
Fall 2018- Spring 2022	Linear Algebra , Instructor at Odyssey Program	<i>TAU</i>
Spring 2019- Spring 2022	Advanced Linear Algebra , Instructor at Odyssey Program	<i>TAU</i>
Spring 2019- Spring 2022	Probability , Instructor at Odyssey Program	<i>TAU</i>
Spring 2016	Advanced Set Theory , Teaching Assistant	<i>TAU</i>
Fall 2015- Spring 2016	Differential equations for engineers , Teaching Assistant	<i>TAU</i>
Fall 2014- Spring 2016	Linear Algebra for engineers , Teaching Assistant	<i>TAU</i>
Spring 2014- Fall 2021	Linear Algebra, Discrete Mathematics, Calculus, Set Theory, Summer Preparations , Teaching Assistant at SAWA program	<i>TAU</i>

NON-ACADEMIC TEACHING

Fall 2015- Spring 2021	Discrete mathematics, Calculus, Linear algebra , Instructor	<i>Xtra student</i>
Dec. 2018- April 2021	Discrete Mathematics, Linear Algebra 1&2, Calculus 1&2 , Academic supervisor and advisor at Adva Program	<i>SNC</i>
Oct. 2017- Sept. 2021	Discrete Mathematics, Calculus, Linear algebra, Differential geometry, Probability , Academic Mentor and Leading Instructor	<i>Pituchim</i>

Outreach & Professional Development

SERVICE AND OUTREACH

2024	Qualification Exam- Ben-Zion Weltch , Committee Member	<i>Rutgers</i>
2023	Qualification Exam- Faxin Wu , Committee Member	<i>Rutgers</i>
2022	Qualification Exam at UIC , Committee Member	<i>UIC</i>

ORGANIZING

Present	Co-organizing the Rutgers Logic Seminar ,	<i>Rutgers</i>
2023	Co-organizing the UIC Logic Seminar ,	<i>UIC</i>

MENTORING

2024	Sean Le Clair , Undergraduate Summer Research	<i>Rutgers</i>
2023	Fanxin Wu , Graduate student, Diamond-like Principles on a Countable Set	<i>Rutgers</i>

DEVELOPMENT

- AIM workshop, from \aleph_2 to infinity**, San Jose (2023).
- (upcoming) Oberwolfach Set Theory Workshop**, Oberwolfach (2024).
- (upcoming) Arctic Set Theory Workshop, Kittilä, Finland (2024)

PEER REVIEW

National Science Foundation
 Advances In Mathematics
 Israel Journal of Mathematics
 The Journal of Symbolic Logic
 Annals of Pure and Applied Logic
 Mathematical Logic Quarterly

PROFESSIONAL MEMBERSHIPS

American Mathematical Society (AMS).
 Association of Symbolic Logic (ASL).