Guy Blachar

Curriculum Vitae

Affiliation Weizmann Institute of Science, Rehovot, Israel
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Academic Positions

- October 2024–Today: Postdoc at the Weizmann Institute of Science, under the mentorship of Prof. Gady Kozma.

Research stays.

- Visiting researcher, Mathematical Institute, University of Oxford (duration: November 18–29, 2024; host: Prof. Emmanuel Breuillard).

Education

PhD in Pure Mathematics **2019–2024**
Bar-Ilan University

Advisors: Prof. Gideon Amir and Prof. Uzi Vishne
Dissertation title: The Law of Iterated Logarithm and Nonassociative Central Simple Algebras

MSc in Pure Mathematics **2015–2016**
Bar-Ilan University

Advisor: Prof. Louis Rowen
Graduated summa cum laude

BSc in Pure Mathematics **2012–2015**
Bar-Ilan University

Graduated summa cum laude

Awards

2024	IMU Student Talk Prize
2024	Rothschild Prize Excellence Awards for PhD Students
2022–2023	The Efim Diner's Award for Excellence in Math Teaching for Gifted Youth
2022–2023	Bar-Ilan University's Outstanding Lecturer Award
2020–2021	Rector's Prize for Outstanding Doctoral Students
2019–2023	Bar-Ilan University President's Scholarship for Excellent Doctoral Students
2012–2013	Dean's List

Publications & Preprints

Publications

1. **Probabilistic laws on infinite groups** (with Gideon Amir, Maria Gerasimova and Gady Kozma), to appear in the Israel Journal of Mathematics (2024).
2. **A law of iterated logarithm on lamplighter diagonal products** (with Gideon Amir), to appear in Groups, Geometry, and Dynamics (2024).
3. **Lipschitz harmonic functions on vertex-transitive graphs** (with Gideon Amir, Maria Gerasimova and Gady Kozma), Electronic Communications in Probability, 29, 1–4 (2024).
4. **Semiassociative algebras over a field** (with Darrell Haile, Eliyahu Matzri, Edan Rein and Uzi Vishne), Journal of Algebra, 649, 35–84 (2024).
5. **Identities of the algebra $\mathbb{O}\otimes\mathbb{O}$** (with Louis Rowen and Uzi Vishne), Contemporary Mathematics, Noncommutative Rings and their Applications VII: Algebra and Coding Theory, In honor of Tariq Rizvi, (Leroy and Jain, eds.), Vol. 785, 35-45 (2023).
6. **Abelianization of the Cartwright-Steger lattice** (with Orit Sela–Ben-David and Uzi Vishne), Algebra and Discrete Mathematics (2023).
7. **Noncommutative inclusion–exclusion, representations of left regular bands and the Tsetlin library** (with Louis Rowen and Uzi Vishne), International Journal of Algebra and Computation (2021).
8. **ℓ-weak identities and central polynomials for matrices** (with Eliyahu Matzri, Louis Rowen and Uzi Vishne), Proceedings of the workshop "Polynomial Identities in Algebras" (2021).

Under revision

1. **Rank-stability of polynomial equations** (with Tomer Bauer and Be'eri Greenfeld), IMRN (under revision). ArXiv preprint at arXiv:2401.04676.

Preprints

1. **Mixability of finite groups** (with Gideon Amir, Subhajit Ghosh and Uzi Vishne), submitted. ArXiv preprint at arXiv:2501.17806.
2. **Profinite rigidity of lamplighter groups**, submitted. ArXiv preprint at arXiv:2410.15945.

Others

1. SageMath interface to the GAP package GBNP (with Tomer Bauer), available at `https://gitlab.com/mathzeta2/gbnp`.

Talks

Conference talks

1. IMU Students Talks Day, September 2024.
2. World of Groupcraft III, September 2023.
3. IMU Students Talks Day, September 2023.

4. 14th Ukraine Algebra Conference, July 2023.
5. Students Probability Day IX at the Weizmann Institute, May 2023.
6. Poster session of the conference “Groups of Dynamical Origins, Automata and Spectra”, March 2023.
7. IMU Students Talks Day, September 2022.
8. 2022 Brauer Group Meeting in Israel, June 2022.
9. SageDays 110, October 2020.

Seminar talks

1. Seminar Algebra–Geometrie–Kombinatorik, TU Dresden, January 2025.
2. Midrasha on Groups, Weizmann Institute, January 2025.
3. TAU Groups and Dynamics Seminar, December 2024.
4. Oxford Algebra Seminar, November 2024.
5. Combinatorics, Probability, and Representation Theory Seminar, Indian Institute of Technology Madras, September 2024.
6. TAU Probability Seminar, August 2024.
7. HUJI Dynamics Seminar, May 2024.
8. Probabilistic and Geometric Group Theory Online Seminar, May 2024.
9. Bar-Ilan Probability Seminar, March 2024.
10. HUJI Probability Seminar, February 2024.
11. TAU Groups and Dynamics Seminar, February 2024.
12. Bar-Ilan Algebra Seminar, January 2024.
13. Bar-Ilan Algebra Seminar, January 2023.
14. Ben-Gurion Probability and Ergodic Theory Seminar, December 2022.
15. Technion Probability Seminar, November 2022.
16. Bar-Ilan Probability Seminar, November 2022.

Teaching Experience

Instructor:

1. Introduction to Probability and Statistics for Financial Mathematics (Fall 23)
2. Linear Algebra I (Summer 21, 22, 23, 24)

Teaching assistant:

1. Introduction to Probability and Statistics (Spring 21, 22)
2. Group Theory (Fall 22, 23, 24)
3. Rings and Modules (Spring 21, 23)

4. Fields and Galois Theory (Fall 22, 23, 24)
5. Mathematical Probability (Spring 21, 22, 23, 24)
6. Linear Algebra I (Fall 16)
7. Algebraic Structures for Computer Science (Fall 16, Spring 24)

Additional Activities

1. High level of programming in Python and SageMath.
2. Arranged several reading groups of some advanced topics in algebra and probability.
3. Referee for the Journal of Algebra.
4. Member of the organizing committee for the FPSAC '21 conference.
5. Member of the organizing committee for the "AI and Mathematics: Current Trends and Future Directions" workshop, September 2024.
6. Organizer (with Re'em Waxman) of a students seminar in the spring semester of 2023.
7. Organizer (with Re'em Waxman) of a mathematical programming competition in the summer semester of 2023.