Guy Blachar

Curriculum Vitae

Affiliation	Bar-Ilan University, Ramat Gan, Israel
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Research Interests

My research interests lie in probabilistic and geometric group theory, and in particular the asymptotic behavior of random walks on finitely generated groups, word maps, and geometric properties of groups. I am also interested in Galois cohomology and the theory of rings and algebras, as well as in general probability theory.

Education

PhD in Pure Mathematics **2019–Today**
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

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

- **Rank-stability of polynomial equations** (with Tomer Bauer and Be'eri Greenfeld), submitted. ArXiv preprint at arXiv:2401.04676.
- **Probabilistic laws on infinite groups** (with Gideon Amir, Maria Gerasimove and Gady Kozma), accepted under minor revisions to the Israel Journal of Mathematics.
- **A law of iterated logarithm on lamplighter diagonal products** (with Gideon Amir), accepted under minor revisions to Groups, Geometry, and Dynamics.
- **Lipschitz harmonic functions on vertex-transitive graphs** (with Gideon Amir, Maria Gerasimove and Gady Kozma), Electronic Communications in Probability, 29, 1–4.
- **Semiassociative algebras over a field** (with Darrell Haile, Eliyahu Matzri, Edan Rein and Uzi Vishne), Journal of Algebra, 649, 35–84.
- **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.), 2021, Vol. 785, 35-45, (2023).
- **Abelianization of the Cartwright-Steger lattice** (with Orit Sela–Ben-David and Uzi Vishne), Algebra and Discrete Mathematics (2023).
- **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).
- **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).

Others

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

Talks

- HUJI Dynamics Seminar, May 2024.
- Probabilistic and Geometric Group Theory Online Seminar, May 2024.
- Bar-Ilan Probability Seminar, March 2024.
- HUJI Probability Seminar, February 2024.
- TAU Groups and Dynamics Seminar, February 2024.
- Bar-Ilan Algebra Seminar, January 2024.

- World of Groupcraft III, September 2023.
- IMU Students Talks Day, September 2023.
- 14th Ukraine Algebra Conference, July 2023.
- Students Probability Day IX at the Weizmann Institute, May 2023.
- Poster session of the conference "Groups of Dynamical Origins, Automata and Spectra", March 2023.
- Bar-Ilan Algebra Seminar, January 2023.
- Ben-Gurion Probability and Ergodic Theory Seminar, December 2022.
- Technion Probability Seminar, November 2022.
- Bar-Ilan Probability Seminar, November 2022.
- IMU Students Talks Day, September 2022.
- 2022 Brauer Group Meeting in Israel, June 2022.
- SageDays 110, October 2020.

Teaching Experience

Instructor:

- Introduction to Probability and Statistics for Financial Mathematics (Fall 23)
- Linear Algebra I (Summer 21, 22, 23)

Teaching assistant:

- Introduction to Probability and Statistics (Spring 21, 22)
- Group Theory (Fall 22, 23, 24)
- Rings and Modules (Spring 21, 23)
- Fields and Galois Theory (Fall 22, 23, 24)
- Mathematical Probability (Spring 21, 22, 23, 24)
- Linear Algebra I (Fall 16)
- Algebraic Structures for Computer Science (Fall 16, Spring 24)

Additional Activities

- High level of programming in Python and SageMath.
- Arranged several study groups of some advanced topics in algebra and probability.
- Member of the organizing committee for the FPSAC '21 conference.
- Organizer (with Re'em Waxman) of a students seminar in the spring semester of 2023.
- Organizer (with Re'em Waxman) of a mathematical programming competition in the summer semester of 2023.