

## Curriculum Vitae

**Name:** Chaya Keller (Lubin)

**ID:** 038821948

**Date of Birth:** 24.3.1983

**Marital Status:** Married + 11

**Address:** Ben Tsiyon 22 Knisa Aleph, Jerusalem 9542333, Israel

**Phone number:** 0545-368738, 02-6516836

**E-mail:** chayak@ariel.ac.il

### Professional Experience:

**2025 – today**, *University of Ariel, School of Computer Science*  
Associate Professor (tenured).

**2024 – 2025**, *University of Ariel, School of Computer Science*  
Senior Lecturer (tenured).

**2022 – 2024**, *University of Ariel, School of Computer Science*  
Senior Lecturer (in tenure track).

**2019 – 2022**, *University of Ariel, Department of Computer Science*  
Lecturer (in tenure track).

**2018 – 2019**, *Technion – Israel Institute of Technology, Department of Mathematics*  
Research fellow at the Department of Mathematics, hosted by Prof. Rom Pinchasi.

**2015 – 2018**, *Ben Gurion University, Department of Mathematics*  
Post-Doctoral fellow at the Department of Mathematics, hosted by Prof. Shakhar Smorodinsky.

**2013– 2015**, *Michlala Jerusalem College (Bayit vaGan), Department of Mathematics*  
Lecturer at the Department of Mathematics (I taught the courses: Metric Spaces and Advanced Topics in Mathematics from a Didactic viewpoint).

**2009 – 2014**, *Hebrew University, Institute of Mathematics*  
Teaching Assistant at the Institute of Mathematics (I taught the courses: Linear Algebra 2 and Linear Algebra for Physics students).

**2006 - 2012**, *Michlala Jerusalem College (Bayit vaGan), Department of Mathematics*  
Teaching Assistant at the Department of Mathematics (I taught the courses: Infinitesimal Calculus 1, Graph Theory, Combinatorics, Set Theory, and Topics in Geometry).

**2006, 2008**, *Hebrew University, Institute of Mathematics*  
Exercise Grader (in the courses: Infinitesimal Calculus 1, Differential and Integral Analysis for Economics students).

**Education:**

**2009 – 2015**, *Hebrew University, Institute of Mathematics*

Ph.D. degree in Mathematics.

Thesis title: **Extremal problems in geometric graphs.**

Advisor: Prof. Micha A. Perles.

Average grade in courses taken: **97.1**

**2005 – 2009**, *Hebrew University, Institute of Mathematics*

M.Sc. degree in Mathematics *Magna Cum Laude.*

Thesis Title: **Characterization of the Minimal Sets Blocking Simple Perfect Matchings in a Convex Geometric Graph.**

Advisor: Prof. Micha A. Perles.

Final grade: **97.**

**2002 – 2005**, *Michlala Jerusalem College for Women (Bayit vaGan), Department of Mathematics and Computer Science*

I finished my studies for the B.Ed. degree in Mathematics and Computer Science *Summa Cum Laude*, within the Excellence Program.

Final grade: **98.7**

**1998 – 2001**, *"Horev" High School for Girls, Jerusalem*

I finished the Bagrut exams, studying 49 units.

Final average (including bonuses): **117**

**Prizes and Awards:**

**2025:** Woman of the Year Award, Emunah Organization.

**2024:** The Krill prize for excellence in scientific research, Wolf Foundation.

**2016 – 2018:** The Shulamit Aloni post-doctoral fellowship, awarded by the Israeli Ministry of Science and Technology, in the framework "Advancing Women in Science and Technology".

**2016 - 2017:** The Kreitman post-doctoral fellowship, Ben Gurion University.

**2016:** The Noriko Sakurai outstanding Post Doc award, by the center for advanced studies in mathematics at Ben Gurion University.

**2014:** Award for excellence in teaching, by the Faculty of Exact Sciences of the Hebrew University.

**2013:** The Springer Excellence Prize for Ph.D. students, awarded by the Institute of Mathematics at the Hebrew University.

**2013:** Award for excellence in teaching, by the Faculty of Exact Sciences of the Hebrew University.

**2012 - 2013:** Fellowship awarded by the Israeli Ministry of Science and Technology, in the framework "Advancing Women in Science and Technology".

**2012 – 2015:** The Hoffman Leadership Program for outstanding Ph.D. students at the Hebrew University.

**2012:** Excellence prize for outstanding female Ph.D. students at the Hebrew University, awarded by the Association of Female Academicians in Israel.

**2011:** Award for excellence in teaching, by the Faculty of Exact Sciences of the Hebrew University.

**2011:** The Klein Excellence Prize for Ph.D. students, awarded by the Institute of Mathematics at the Hebrew University.

**2009 – 2013:** The Arianne de Rothschild fellowship for outstanding female Ph.D. students at the Hebrew University.

**2009:** Award for excellence in teaching, by the Faculty of Exact Sciences of the Hebrew University.

**2008:** The Klein Excellence Prize for M.Sc. students, awarded by the Institute of Mathematics at the Hebrew University.

**2006:** Excellence prize, awarded by the Michlala Jerusalem College.

**2002-2005:** Full tuition grant during the B.Ed. studies, as part of the Excellence Project of the Ministry of Education.

**2002:** Letter of recognition from the General Director of the Ministry of Education, Ms. Ronit Tirosh, for outstanding success in the Bagrut exams.

### **Refereeing**

Program Committee member at: SoCG 2019, SoCG 2024, YRF of SoCG 2025

Refereed grant proposals for: US-Israel Binational Foundation (BSF)

Refereed papers for the journals: Advances in Mathematics, Israel Journal of Mathematics, Combinatorica, Discrete and Computational Geometry, SIAM journal on Discrete Mathematics, Journal of Graph Theory, Discrete Mathematics, Graphs and Combinatorics, Theoretical computer science, Computational Geometry: Theory and Applications, Studia Scientiarum Mathematicarum Hungarica.

Refereed papers for the conferences: SODA, SoCG, EuroCG, WADS.

**Administrative appointments**

2024-today, Responsible for the Academic Atuda program, School of Computer Science, Ariel University

2022-today, Head of the excellence program, School of Computer Science, Ariel University

**Talks at Conferences and Seminars**

- |  |                        |
|--|------------------------|
| 1. SLMath Workshop: Algebraic and analytic methods in combinatorics, UC Berkeley | March 2025 (scheduled) |
| 2. Ariel University Mathematics Colloquium                                       | March 2025 (scheduled) |
| 3. Tel Aviv University Combinatorics Seminar                                     | January 2025           |
| 4. Summit 280 Conference, Budapest   | July 2024              |
| 5. Ariel University Computer Science Theory Seminar                              | May 2024               |
| 6. Tel Aviv University Algorithmics Seminar                                      | March 2024             |
| 7. Technion Combinatorics Seminar  | March 2024             |
| 8. Graph Drawing Workshop, Budapest  | November 2023          |
| 9. Ben Gurion University Computer Science Colloquium                             | May 2023               |
| 10. Bar Ilan University Combinatorics Seminar                                    | April 2023             |
| 11. Open University Computer Science Colloquium                                  | January 2023           |
| 12. Hebrew University Combinatorics Seminar                                      | June 2022              |
| 13. International Symposium on Computational Geometry (SoCG), Berlin (virtual)   | June 2022              |
| 14. Tel Aviv University Computational Geometry Seminar                           | June 2022              |
| 15. Combinatorics Seminar, Technion  | January 2022           |
| 16. Haifa University Algorithmic Graph Theory Seminar                            | January 2022           |
| 17. Combinatorics Session, Annual Meeting of the Israel Mathematical Union       | July 2021              |
| 18. Tel Aviv University Combinatorics Seminar                                    | May 2021               |

19. Copenhagen-Jerusalem Combinatorics Seminar May 2021
20. Budapest Big Seminar on Combinatorics and Geometry May 2021
21. ERC mini workshop: Extremal problems in combinatorial geometry, Eilat February 2020
22. Bar Ilan University Combinatorics seminar January 2020
23. Hebrew University Combinatorics seminar January 2020
24. SODA 2020 conference, Salt Lake City January 2020
25. EUROCOMB 2019 conference, Bratislava August 2019
26. Discrete Geometry Days 2 conference, Budapest July 2019
27. Haifa Conference on Interdisciplinary Applications of Graph Theory, Haifa University June 2019
28. Combinatorics Session, Annual Meeting of the Israel Mathematical Union June 2019
29. Computer Science Colloquium, Ariel University March 2019
30. Tel Aviv University Combinatorics Seminar March 2019
31. Mathematics Colloquium, Open University February 2019
32. ERC workshop: Adventures in Combinatorial Geometry, Ein Gedi January 2019
33. Computer Science Colloquium, Ben Gurion University January 2019
34. Weizmann Institute Theoretical Computer Science Seminar January 2019
35. Ben Gurion University Combinatorics Seminar January 2019
36. Technion Combinatorics Seminar November 2018
37. Mathematics Colloquium, Hebrew University of Jerusalem November 2018
38. Tel Aviv University Computational Geometry Seminar October 2018
39. International Symposium on Computational Geometry (SoCG), Budapest June 2018
40. Young Researchers Forum (YRF) at the International Symposium on Computational Geometry (SoCG), Budapest June 2018

- |   |               |
|---|---------------|
| 41. ERC workshop: Geometric transversals and epsilon-nets, Ein Gedi                       | March 2018    |
| 42. Mathematics Colloquium, Ben Gurion University   | March 2018    |
| 43. SIAM Annual Symposium on Discrete Algorithms (SODA) 2018, New Orleans                 | January 2018  |
| 44. Mathematics Colloquium, Holon Institute of Technology                                 | December 2017 |
| 45. Ben Gurion University Combinatorics Seminar   | November 2017 |
| 46. Bar Ilan University Combinatorics seminar   | November 2017 |
| 47. Tel Aviv University Computational Geometry Seminar                                    | June 2017     |
| 48. Haifa Conference on Interdisciplinary Applications of Graph Theory, Haifa University  | June 2017     |
| 49. SIAM Annual Symposium on Discrete Algorithms (SODA) 2017, Barcelona                   | January 2017  |
| 50. Ben Gurion University Computational Geometry Seminar                                  | December 2016 |
| 51. Haifa Conference on Interdisciplinary Applications of Graph Theory, Haifa University. | June 2016     |
| 52. Bar Ilan University Combinatorics seminar   | June 2016     |
| 53. Hebrew University Combinatorics seminar   | May 2016      |
| 54. Ben Gurion University Computational Geometry Seminar                                  | January 2016  |
| 55. Haifa Conference on Interdisciplinary Applications of Graph Theory, Haifa University  | June 2015     |
| 56. Technion Combinatorics Seminar  | April 2015    |
| 57. Mathematics Colloquium, Holon Institute of Technology                                 | April 2015    |
| 58. Hebrew University Combinatorics Seminar   | March 2015    |
| 59. Bar Ilan University Combinatorics Seminar   | January 2015  |

## **Publications**

*Journal papers – published/accepted*

1. C. Keller and M. A. Perles, An  $(\aleph_0, k+2)$ -theorem for  $k$ -transversals, *Israel Journal of Mathematics*, to appear. Extended abstract appeared at proceedings of SoCG 2022.
2. J. Davies, C. Keller, L. Kleist, S. Smorodinsky, and B. Walczak, A solution to Ringel's problem, *Journal of the European Mathematical Society*, to appear. Extended abstract appeared at proceedings of SoCG 2022.
3. B. Jartoux, C. Keller, S. Smorodinsky, and Y. Yuditsky, Conflict-free colouring of subsets, *Discrete and Computational Geometry*, **72(2)** (2024), pp. 876-891.
4. C. Keller and M. A. Perles, No Krasnoselskii number for general sets in  $\mathbb{R}^2$ , *Israel Journal of Mathematics*, **256(1)** (2023), pp. 345-361. Extended abstract appeared at proceedings of SoCG 2021.
5. C. Keller, B. Keszegh, and D. Pálvölgyi, On the number of hyperedges in the hypergraph of lines and pseudo-discs, *Electronic Journal of Combinatorics*, **29(3)** (2022), P3.25.
6. B. Jartoux, C. Keller, S. Smorodinsky, and Y. Yuditsky, On multicolour Ramsey numbers and subset-colouring of hypergraphs, *SIAM Journal on Discrete Mathematics*, **36(3)** (2022), pp. 1848-1860.
7. N. Alon, B. Jartoux, C. Keller, S. Smorodinsky, and Y. Yuditsky, The epsilon-net problem, *Discrete and Computational Geometry*, **68(2)** (2022), pp. 618-644. Extended abstract appeared at proceedings of SoCG 2020.
8. C. Keller and S. Smorodinsky, A new lower bound on Hadwiger-Debrunner numbers in the plane, *Israel Journal of Mathematics*, **244** (2021), pp. 649-680.
9. C. Keller, A. Rok, and S. Smorodinsky, CF coloring of string graphs, *Discrete and Computational Geometry*, **65(4)** (2021), pp. 1337-1372.
10. C. Keller and M. A. Perles, Blockers for simple Hamiltonian paths in convex geometric graphs of odd order, *Discrete and Computational Geometry*, **65(2)** (2021), pp. 425-449.
11. C. Keller and S. Smorodinsky, Conflict-free coloring of intersection graphs of geometric objects, *Discrete and Computational Geometry*, **64(3)** (2020), pp. 916-941. Preliminary version appeared at the SODA 2018 conference.
12. C. Keller and R. Pinchasi, On sets of  $n$  points in general position that determine lines that can be pierced by  $n$  points, submitted to *Discrete and Computational Geometry*, **64(3)** (2020), pp. 905-915.
13. C. Keller and S. Smorodinsky, From  $(p, 2)$ -theorems to tight  $(p, q)$ -theorems, *Discrete and Computational Geometry*, **63(4)** (2020), pp. 821-847. Preliminary version appeared at the SoCG 2018 conference.
14. C. Keller and Y. Stein, Blockers for triangulations of a convex polygon and a geometric Maker-Breaker game, *Electronic Journal of Combinatorics*, **27(4)** (2020), P4.12.

15. C. Keller and S. Smorodinsky, On the union complexity of families of axis-parallel rectangles with a low packing number, *Electronic Journal of Combinatorics* **25(4)** (2018), P4.32.
16. C. Keller, S. Smorodinsky, and G. Tardos, Improved bounds on the Hadwiger-Debrunner numbers, *Israel Journal of Mathematics* **225(2)** (2018), pp. 925-945. Preliminary version appeared at the SODA 2017 conference.
17. C. Keller and M. A. Perles, Blockers for simple Hamiltonian paths in convex geometric graphs of even order, *Discrete and Computational Geometry* **60(1)** (2018), pp. 1-8.
18. C. Keller and S. Smorodinsky, On piercing numbers of families satisfying the  $(p,q)_r$  property, *Computational Geometry: Theory and Applications* **72** (2018), pp. 11-18.
19. C. Keller and Y. Stein, Reverse engineering of the path graph, *Computational Geometry: Theory and Applications* **72** (2018), pp. 1-10.
20. C. Keller and M. A. Perles, On convex geometric graphs with no  $k+1$  pairwise disjoint edges, *Graphs and Combinatorics* **32(6)** (2016), pp. 2497-2514.
21. C. Keller and M. A. Perles, Reconstruction of the geometric structure of a set of points in the plane from its geometric tree graph, *Discrete and Computational Geometry* **55(3)** (2016), pp. 610-637.
22. C. Keller and M. A. Perles, Characterization of co-blockers for simple perfect matchings in a convex geometric graph, *Discrete and Computational Geometry* **50(2)** (2013), pp. 491-502.
23. C. Keller, M. A. Perles, E. Rivera-Campo and V. Urrutia-Galicia, Blockers for non-crossing spanning trees in complete geometric graphs, in: J. Pach (ed.), *Thirty Essays on Geometric Graph Theory*, Springer-Verlag, 2013, pp. 383-398.
24. C. Keller and M. A. Perles, On the smallest sets blocking simple perfect matchings in a convex geometric graph, *Israel Journal of Mathematics* **187** (2012), pp. 465-484.

Papers published at peer-reviewed conferences

1. T. M. Chan, C. Keller, and S. Smorodinsky, On Zarankiewicz's problem for intersection hypergraphs of geometric objects, proceedings of Symposium on Computational Geometry (SoCG) 2025 conference, to appear.
2. C. Keller and S. Smorodinsky, Zarankiewicz's problem via epsilon-t-nets, proceedings of Symposium on Computational Geometry (SoCG) 2024 conference, pp. 66:1-66:15.

3. J. Davies, C. Keller, L. Kleist, S. Smorodinsky, and B. Walczak, A solution to Ringel's problem, proceedings of Symposium on Computational Geometry (SoCG) 2022 conference, pp. 33:1-33:14.  
An extended version was accepted to *Journal of the European Mathematical Society*.  
Invited to a special issue of *Discrete and Computational Geometry* dedicated to selected papers from SoCG 2022.
4. C. Keller and M. A. Perles, An  $(\aleph_0, k+2)$ -theorem for  $k$ -transversals, proceedings of Symposium on Computational Geometry (SoCG) 2022 conference, pp. 50:1-50:14.  
An extended version was accepted to *Israel Journal of Mathematics*.
5. O. Dunkelmann, Z. Geyzel, C. Keller, N. Keller, E. Ronen, A. Shamir, and R. J. Tessler, Error-resilient space partitioning, proceedings of ICALP 2021 conference, pp. 4:1-4:22.
6. C. Keller and M. A. Perles, No Krasnoselskii number for general sets in  $\mathbb{R}^2$ , proceedings of Symposium on Computational Geometry (SoCG) 2021 conference, pp. 47:1-47:11.  
An extended version appeared in *Israel Journal of Mathematics*.
7. N. Alon, B. Jartoux, C. Keller, S. Smorodinsky, and Y. Yuditsky, The epsilon-net problem, proceedings of Symposium on Computational Geometry (SoCG) 2020 conference, pp. 5:1-5:15.  
An extended version appeared in *Discrete and Computational Geometry*.
8. C. Keller and S. Smorodinsky A new lower bound on Hadwiger-Debrunner numbers in the plane, proceedings of SODA 2020 conference, pp. 1155-1169, SIAM, 2020.  
An extended version appeared in *Israel Journal of Mathematics*.
9. C. Keller and S. Smorodinsky, From  $(p, 2)$ -theorems to  $(p, q)$ -theorems, proceedings of Symposium on Computational Geometry (SoCG) 2018 conference, pp. 51:1-51:14.  
Invited to and appeared in a special issue of *Discrete and Computational Geometry* dedicated to selected papers from SoCG 2018.
10. C. Keller and S. Smorodinsky, Conflict-free coloring of intersection graphs of geometric objects, proceedings of SODA 2018 conference, pp. 2397-2411, SIAM, 2018.  
An extended version appeared in *Discrete and Computational Geometry*.
11. C. Keller, S. Smorodinsky, and G. Tardos, On Max-Clique for intersection graphs of sets and the Hadwiger-Debrunner numbers, proceedings of SODA 2017 conference, pp. 2254-2263, SIAM, 2017.  
An extended version appeared in *Israel Journal of Mathematics*.

**Last updated: February, 2025**