

PD Dr. Kivanç Ersoy

Freie Universität Berlin

Group Theory / Algebra

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Research Profile

I am an algebraist working mainly in group theory, with emphasis on finite and locally finite groups, automorphisms, centralizers, profinite groups, and structural properties of infinite groups. My recent work also connects group theory with model-theoretic algebra, sofic groups, and applications of group-theoretic methods to cryptography.

Current Positions

- Privatdozent, Freie Universität Berlin, Germany, 2020–present.
- Subject Editor for Group Theory, Topological Groups, and Lie Groups, zbMATH Open, 2023–present.

Education and Qualifications

- Habilitation in Mathematics, Freie Universität Berlin, 2019.
Thesis: *Centralizers and Fixed Points of Automorphisms in Finite and Locally Finite Groups*.
- Associate Professorship Qualification, Turkey, April 2015.
- Ph.D. in Mathematics, Middle East Technical University, 2009.
Thesis: *Centralizers of finite subgroups in simple locally finite groups*.
- M.Sc. in Mathematics, Middle East Technical University, 2004.
- B.Sc. in Mathematics, Middle East Technical University, 2002.

Research Areas

Group theory; finite and locally finite groups; automorphisms of groups; linear algebraic groups; centralizers; profinite groups; residually finite groups; existentially closed groups; model-theoretic algebra; sofic and hyperlinear groups; group-theoretic cryptography.

Publications

1. **K. Ersoy**, *On minimal non-sofic and ω -non-sofic groups*, submitted, [arXiv:2604.19174](https://arxiv.org/abs/2604.19174).
2. H. Bradford, **K. Ersoy**, J. Schneider, A. Thom, *Mixed identities for simple locally finite groups*, submitted, [arXiv:2608.14537](https://arxiv.org/abs/2608.14537)
3. A. Dioguardi-Burgio, **K. Ersoy**, E. Salati, *Brauer–Fowler Bounds for Elements of Odd Prime Order*, submitted, [arXiv:2608.15194](https://arxiv.org/abs/2608.15194).
4. S. Bostan, **K. Ersoy**, *Inverse ambiguous maps on infinite groups*, submitted, [arXiv:2608.06191](https://arxiv.org/abs/2608.06191).
5. M. Brescia, **K. Ersoy**, M. Kuzucuoglu, *Automorphisms, centralizers and maximal subgroups in κ -existentially closed groups*, book chapter, to appear with Springer Nature, September 2026.

6. A. Di Bartolo, **K. Ersoy**, G. Falcone, *A residually finite analogue of Kegel's theorem on splitting automorphisms*, to appear in *Archiv der Mathematik*, August 2026, doi:[10.1007/s00013-026-02278-3](https://doi.org/10.1007/s00013-026-02278-3) [arXiv:2604.01011](https://arxiv.org/abs/2604.01011).
7. **K. Ersoy**, G. Filippone, S. Schilleci, M. Falco, G. Falcone and D. Garlisi, *Feasibility and Security of AAG-Type Key Exchange Protocols in 5G Networks*, 2026 Mediterranean Artificial Intelligence and Networking Conference (MAIN), Palermo, Italy, 2026, pp. 1-9, doi:[10.1109/MAIN71116.2026.11622388](https://doi.org/10.1109/MAIN71116.2026.11622388)
8. M. Brescia, **K. Ersoy**, M. Kuzucuoğlu, κ -*existentially closed groups and centralizers*, *J. Algebra* **679** (2025), 37–55. doi:[10.1016/j.jalgebra.2025.05.013](https://doi.org/10.1016/j.jalgebra.2025.05.013)
9. **K. Ersoy**, *Centralizers of p -subgroups in simple locally finite groups*, *Glasgow Math. J.* **62** (2020), 183–186, doi:[10.1017/S001708951900003X](https://doi.org/10.1017/S001708951900003X).
10. **K. Ersoy**, W. Herfort, *Free profinite products of prosoluble groups*, *J. Algebra* **529** (2019), 54–64, doi:[10.1016/j.jalgebra.2019.02.042](https://doi.org/10.1016/j.jalgebra.2019.02.042).
11. **K. Ersoy**, M. Kuzucuoğlu, P. Shumyatsky, *Locally finite groups and their subgroups with small centralizers*, *J. Algebra* **481** (2017), 1–11, doi:[10.1016/j.jalgebra.2017.02.018](https://doi.org/10.1016/j.jalgebra.2017.02.018)
12. **K. Ersoy**, C. K. Gupta, *Locally finite groups with centralizers of finite rank*, *Comm. Algebra* **44** (2016), 5074–5087, doi:[10.1080/00927872.2015.1130146](https://doi.org/10.1080/00927872.2015.1130146).
13. **K. Ersoy**, *Finite groups with a splitting automorphism of odd order*, *Archiv der Mathematik* **106** (2016), 401–407 doi:[10.1007/s00013-016-0874-6](https://doi.org/10.1007/s00013-016-0874-6).
14. **K. Ersoy**, A. Tortora, M. Tota, *On groups with all subgroups subnormal or soluble of bounded derived length*, *Glasgow Math. J.* **56** (2014), 221–227, doi:[10.1017/S0017089513000190](https://doi.org/10.1017/S0017089513000190).
15. **K. Ersoy**, *Infinite groups with an anticentral element*, *Comm. Algebra* **40** (2012), 4627–4638, doi:[10.1080/00927872.2011.614666](https://doi.org/10.1080/00927872.2011.614666)
16. **K. Ersoy**, M. Kuzucuoğlu, *Centralizers of subgroups in simple locally finite groups*, *J. Group Theory* **15** (2012), 9–22, doi:[10.1515/JGT.2010.087](https://doi.org/10.1515/JGT.2010.087)

Manuscripts in Preparation

- **K. Ersoy**, *Proper self-embeddings and locally graded non-sofic groups*, in preparation.
- **K. Ersoy**, E. Jabara, *Embedding finite simple groups into larger ones as subgroups with trivial centralizers*, ongoing project

Academic Positions and Experience

- Research Fellow, University of Palermo, 2024–2025.
- Part-time Instructor, HTW Berlin, 2024–2025.
- Vertretungsprofessor, TU Dresden, Institute of Algebra, 2023–2024.
- Research Associate, Heinrich-Heine-Universität Düsseldorf, 2023.
- Privatdozent, Freie Universität Berlin, 2020–present.
- PSI Fellow, Freie Universität Berlin, 2020–2022.
- Einstein Guest Professor, Freie Universität Berlin, 2018–2019.
- SAR Fellow, Freie Universität Berlin, 2017–2018.

- Associate Professor, Mimar Sinan Fine Arts University, 2015–2019; on leave after 2017.
- Assistant Professor, Mimar Sinan Fine Arts University, 2010–2015.
- Postdoctoral Fellow, University of Salerno, 2010–2011.
- Research Assistant, Middle East Technical University, 2002–2009.

Teaching Experience

Freie Universität Berlin

Linear Algebraic Groups; Seminar on Simple Groups of Lie Type; Seminar on Infinite Groups; Profinite Groups; Algebra und Zahlentheorie; Analysis 1; Analysis für Physiker 2; Seminar on Sofic and Hyperlinear Groups.

TU Dresden

Linear Algebraic Groups and Finite Groups of Lie Type; Unendliche Gruppen; Endliche Gruppen; Seminar on Groups and Symmetry; Seminar on Simple Groups of Lie Type.

Mimar Sinan Fine Arts University

Calculus; Advanced Calculus; Linear Algebra; Algebra; Graduate Algebra; Introduction to Group Theory; Graduate Group Theory; History of Mathematics; Linear Algebraic Groups.

HTW Berlin

Wahrscheinlichkeitstheorie.

Nesin Mathematics Village

Summer Schools on Profinite Groups and Linear Algebraic Groups.

Supervision

- Co-advisor, M.Sc. thesis of Manuel Staiger, Freie Universität Berlin, 2023.
- Advisor, B.Sc. thesis of Artur Lieback, Freie Universität Berlin, 2026.
- Advisor, B.Sc. thesis of Anna Marie Foulkes, Freie Universität Berlin, 2025.
- Advisor, B.Sc. thesis of Ignacio Ernst, Freie Universität Berlin, 2025.
- Advisor, B.Sc. thesis of Richard Bille, Freie Universität Berlin, 2025.

Academic Service and Organization

- Subject Editor, zbMATH Open, Group Theory, Topological Groups, and Lie Groups.
- Organizer, Groups and Topological Groups 2022, Freie Universität Berlin, Germany.
- Organizer, Group Theory in Berlin, Freie Universität Berlin, Germany, 2019.
- Organizer, Antalya Algebra Days XVII, Nesin Mathematics Village, Turkey, 2015.

- Organizer, Groups and Topological Groups 2014, Mimar Sinan Fine Arts University, Turkey.
- Organizer, Antalya Algebra Days XIII, Turkey, 2011.

Selected Talks

- *A Brauer–Fowler type result for elements of odd prime order*, Group Theory in Salerno, 2025.
- *A generalization of the classical Brauer–Fowler theorem for centralizers of elements of order p* , 10 Years of Algebra at Lincoln, 2024.
- *Centralizer depth in locally finite groups*, TU Dresden, 2023.
- *Embedding finite simple groups into larger ones as subgroups with trivial centralizers*, Ischia Group Theory, 2022.
- *Centralizer depth in locally finite groups*, University of Palermo, 2021.
- *Periodic residually finite groups with finite centralizers*, University of Braunschweig, 2019.
- *Free profinite products of prosoluble groups*, Northern Germany Group Theory Colloquium, 2019.
- *Centralizers in simple locally finite groups*, Algebra Seminar Halle–Jena, 2018.
- *Locally finite groups and their subgroups with small centralizers*, EPFL Lausanne, 2017.

Academic Visits

MFO Oberwolfach; University of Palermo; EPFL Lausanne; University of Milano-Bicocca; TU Kaiserslautern; University of Salerno; University of Manitoba; Vienna University of Technology.

Languages

Turkish native; English fluent; German C1; Italian B1; Greek A2.