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Hikmet-Burak-Oezcan

Hikmet Burak Özcan

Professional Summary

Motivated and detail-oriented Ph.D. Candidate in Mathematics with an enthusiastic approach to research and teaching. Pursuing doctoral studies in harmonic analysis, focusing on the structural and regularity properties of maximal functions. Actively involved in organizing departmental seminars and workshops, and assisting undergraduate teaching in core analysis and probability courses. Committed to advancing mathematical understanding and contributing to the academic community through collaboration and clear communication.

Education

2020–Present **Ph.D. in Mathematics**, *İzmir Institute of Technology*, Expected: Spring 2026
Thesis: *On Regularity of Hardy–Littlewood Maximal Operators*
Supervisor: Asst. Prof. Faruk Temur

2018–2020 **M.Sc. in Mathematics**, *Dokuz Eylül University*
Thesis: *Prime Ideal Theorem on Number Fields*
Supervisor: Assoc. Prof. Haydar Göral

2011–2016 **B.Sc. in Mathematics**, *İzmir University of Economics*, GPA: 3.57/4.00
Graduated *with First Rank*

Professional Experience

May 2019–Present **Research and Teaching Assistant**, *Department of Mathematics, İzmir Institute of Technology*, İzmir, Türkiye

- Actively conducting doctoral research in harmonic analysis, contributing to the department's research output and international academic visibility.
- Leading weekly tutorial and problem-solving sessions for core undergraduate courses such as Calculus I–III, Fundamentals of Mathematics, and Probability and Statistics.
- Contributing to all stages of the assessment process, including exam preparation, proctoring, and grading, while ensuring fairness and academic integrity.
- Assisting in the coordination of academic and organizational aspects of departmental seminars.
- Supporting the department's technical infrastructure by maintaining and updating the official Mathematics Department website.

Publications

2025

F. Temur, H. B. Özcan. *The Higher Regularity of the Discrete Hardy–Littlewood Maximal Function.* Preprint, 2025. [ArXiv]

2022

H. Göral, H. B. Özcan, D. C. Sertbaş. *The Green–Tao Theorem and the Infinitude of Primes in Domains. The American Mathematical Monthly*, 2022. [DOI]

2020

H. B. Özcan, S. Taşkın. *Rings with Few Units and the Infinitude of Primes. Hacettepe Journal of Mathematics and Statistics*, 2020. [DOI]

H. Göral, H. B. Özcan. *Several Novel Proofs of the Infinitude of Primes. The Mathematics Student*, 2020. [ResearchGate]

Seminars and Talks

Upcoming

Nov 2025 **On Higher Regularity of Discrete Hardy–Littlewood Maximal Function.** 2nd Atlantic Conference in Nonlinear PDEs & Harmonic Analysis, Instituto Superior Técnico – Universidade de Lisboa. [Poster]

Past

Sep 2025 **The Higher Regularity of the Hardy–Littlewood Maximal Function.** İzmir Mathematics Day 7, Ege University. [Slides]

May 2025 **On the Regularity of the Discrete Hardy–Littlewood Maximal Function.** I. Workshop on Applied Mathematics and Statistics, İzmir University of Economics. [Slides]

Jan 2025 **Discretization Approach to the Weak Boundedness of Maximal Convolution Operators.** Seminars of the Department of Mathematics, İzmir Institute of Technology. [Slides]

Jul 2024 **Hardy–Littlewood Maximal Function.** Seminars of the Department of Mathematics, FernUniversität in Hagen. [Slides]

May 2022 **Hardy–Littlewood Maximal Function Theorem.** Seminars of the Department of Mathematics, İzmir Institute of Technology. [Slides]

Nov 2021 **A Bridge Between Additive Combinatorics and the Infinitude of Prime Numbers.** Seminars of the Department of Mathematics, İzmir Institute of Technology. [Slides]

Oct 2020 **Mathematicians Will Never Stop to Provide New Proofs of the Infinitude of Primes.** İzmir Mathematics Days 3, Dokuz Eylül University. [Slides]

Dec 2019 **Prime Ideal Theorem on Number Fields.** Seminars of the Department of Mathematics, Dokuz Eylül University. [Slides]

Sep 2019 **Sayı Cisimlerinde Asal İdeal Teoremi.** 32. Ulusal Matematik Sempozyumu, Ondokuz Mayıs Üniversitesi. [Slides]

Sep 2019 **A Special Case of Fermat's Last Theorem.** Algebra Workshop, Manisa Celal Bayar University. [Slides]

Sep 2019 **Prime Ideal Theorem on Number Fields.** İzmir Mathematics Days 2, Dokuz Eylül University. [Slides]

Nov 2018 **Congruent Number Problem.** Seminars of the Department of Mathematics, Dokuz Eylül University. [Slides]

Jun 2018 **Krull–Schmidt–Remak–Azumaya Theorem.** İzmir Mathematics Days 1, Yaşar University. [Slides]

Research Interests

Harmonic Analysis and the Study of Maximal Operators

Regularity Properties of Maximal Functions
Algebraic Number Theory
Mathematical Foundations of Machine Learning and Data Science

Technical Skills

Academic & Scientific	LaTeX, R, Python, Manim
Tools & Web	VS Code, GitHub, HTML

Languages

English	Professional Working Proficiency (B1)
Russian	Beginner (A1–A2)