

# Yağmur Yılmaz

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CONTACT INFORMATION Department of Mathematics and Statistics [yyilmaz@rockets.utoledo.edu](mailto:yyilmaz@rockets.utoledo.edu)  
University of Toledo  
Toledo, Ohio

EDUCATION **University of Toledo**, Toledo, Ohio  
Ph.D., [Mathematics](#), May 2025  
Thesis Title: *Supergeometry, Differential Operators and Bracket Structures*  
• Advisor: [Ekaterina Shemyakova](#)  
**Middle East Technical University(METU)**, Ankara, Türkiye  
M.S., [Mathematics](#), July 2018  
Thesis Title: *Mayer-Vietoris Sequence for Persistent Homology*  
• Advisor: [Mehmetcik Pamuk](#)  
**Middle East Technical University(METU)**, Ankara, Türkiye  
B.S., [Mathematics](#), June 2015

RESEARCH INTERESTS Supergeometry, Poisson Geometry, Algebraic Theory of Differential Operators, Computational Topology

PAPERS AND PREPRINTS  
• *A Quantum Anchor for Higher Koszul Brackets* (with E.Shemyakova)  
Preprint, 2024  
• *Homological Properties of Persistent Homology* (with H.Varlı and M.Pamuk)  
Accepted, Journal of Algebra and Its Applications, 2024

AWARDS,GRANTS AND HONORS  
• University of Toledo, College of Natural Sciences and Mathematics Diversity Achievement Awards, 2022  
• “Persistent Homology” BAP Project (BAP-01-01-2017-003) (Researcher)  
• “Persistent Homology and Discrete Morse Theory” TÜBİTAK (The Scientific and Technological Reserch Council of Turkey) 1001 Project (117F015) (Researcher)

EMPLOYEMENT HISTORY Teaching Assistant, University of Toledo 2020-Present

## TEACHING EXPERIENCE

Teaching Assistant for Math 1850: Calculus I	Spring 2025
Teaching Assistant for Math 1850: Calculus I	Fall 2024
Teaching Assistant for Math 1200: Math Modeling Problem Solving	Summer 2024
Instructor for Math 1320: College Algebra	Fall 2023
Teaching Assistant for Math 2890: Numerical Methods and Linear Algebra	Summer 2023
Teaching Assistant for Math 1850: Calculus I	Spring 2023
Instructor for Math 1320: College Algebra	Fall 2022
Teaching Assistant for Math 2860: Elementary Differential Equations	Summer 2022
Teaching Assistant for Math 1850: Calculus I	Spring 2022
Instructor for Math 1320: College Algebra	Fall 2021
Teaching Assistant for Math 2850: Elementary Multivariable Calculus	Summer 2021
Teaching Assistant for Math 1850: Calculus I	Spring 2021
Teaching Assistant for Math 1850: Calculus I	Fall 2020
Teaching Assistant for Math 2860: Elementary Differential Equations	Summer 2020
Teaching Assistant for Math 2860: Elementary Differential Equations	Spring 2020

## RESEARCH TALKS

**Bracket Structures, Non-linear Pullback and Quantum Thick Morphisms,**  
49th Annual Mathematics Conference, Sep 30 2023, Miami University, Ohio

**Bracket Structures and Non-linear Pullback,**  
2023 Georgia Topology Conference, May 23 2023, University of Georgia, Georgia

**Construction and Properties of Classical Koszul Bracket on Differential Forms and Its Generalization,**  
Colloquium, May 17 2023, Yozgat Bozok University, Turkiye

**Persistent Homology,**  
Student Seminar, February 5 2020, University of Toledo, Ohio

**Mayer-Vietoris Sequence for Persistent Homology,**  
5th Workshop of the Association for Turkish Women in Mathematics, May 6 2018, Dicle University, Turkiye

**Introduction to Persistent Homology,**  
Winter Workshop 2017, December 27 2017, Gökova Geometry Topology Institute, Turkiye

**Perfect Discrete Morse Functions on 2-complexes,**  
Graduate Seminar, May 9 2017, METU, Turkiye

CONFERENCES,  
WORKSHOPS AND  
SUMMER SCHOOLS

<b>49th Annual Mathematics Conference</b> Miami University, Oxford, Ohio	September 2023
<b>2023 Georgia Topology Conference</b> University of Georgia, Athens, Georgia	May 2023
<b>27th Gökova Geometry and Topology Conference</b> Gökova, Türkiye	June 2022
<b>Workshop on Supergeometry and Bracket Structures in Mathematics and Physics</b> Fields Institute, Toronto, Canada	March 2022
<b>Lie Theory and Poisson Geometry</b> CIRM, Marseille, France	January 2022
<b>Online Summer School on Geometry and Topology</b> Faculty of Science of University of Hradec Králové (Czech Republic) Mathematical Center in Akademgorodok (Novosibirsk, Russia)	July 2021
<b>Midwest Several Complex Variables Conference</b> University of Michigan-Dearborn, MI	October 2019
<b>26th Gökova Geometry and Topology Conference</b> Gökova, Türkiye	May 2019
<b>Algebraic Topology: Methods, Computation and Science</b> Vienna, Austria	June 2018
<b>25th Gökova Geometry and Topology Conference</b> Gökova, Türkiye	May 2018
<b>5th Workshop of the Association for Turkish Women in Mathematics</b> Dicle University, Türkiye	May 2018
<b>Winter Workshop 2017, Gökova Geometry Topology Institute</b> Gökova Türkiye	December 2017
<b>Applied Topology in Bedlewo 2017</b> Bedlewo, Poland	June 2017
<b>24th Gökova Geometry and Topology Conference</b> Gökova, Türkiye	May 2017
<b>4th Workshop of the Association for Turkish Women in Mathematics</b> METU, Ankara, Türkiye	April 2017
<b>Association for Turkish Women in Mathematics Graduate Summer School I</b> METU, Ankara, Türkiye	June 2016

OUTREACH AND  
SERVICE

- **Mentor** [DRP Turkey 2023](#)
- **President** [AMS Student Chapter, 2022-2023](#)
- **Mentor** [DRP Turkey 2022](#)
- **Member at Large** [AMS Student Chapter, 2021-2022](#)