

Nurdan Kar, Ph.D.

Personal

EMAIL: nurdan.kar@bilkent.edu.tr
WEBSITE: <https://nurdankar.phd/>
LINKEDIN: Nurdan Kar
X: @nkarmath

Education

Doctor of Philosophy (Ph.D.) in Mathematics <i>Ankara University</i>	Ankara, Türkiye 2019 – 2025
Master of Science (M.Sc.) in Mathematics <i>Hacettepe University</i>	Ankara, Türkiye 2016 – 2018
Special Student (during M.Sc. at Hacettepe University) <i>Middle East Technical University (METU)</i>	Ankara, Türkiye Spring 2017

Research Experiences

Research Scholar <i>University of Maryland, College Park</i> PhD Thesis Research	MD, USA Jan 2023 – Jan 2024
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Research Interests

- Applied Mathematics
- Mathematical Biology (Disease Modeling)
- Stochastic Modeling of Biological Systems

Funding and Fellowships

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| • Centre International de Mathématiques Pures et Appliquées (CIMPA) Grant
(€1000 travel grant + accommodation expenses) | 2025 |
| • TÜBİTAK 2214-A International Research Fellowship for Ph.D. Students
(\$21600 + travel expenses) | 2022 |

Funding for Events

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| • Turkish Mathematical Society - MAD Fund for Mathematical Modeling Symposium
(25000TL/\$650) | 2025 |
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Society Memberships

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| • Society for Industrial and Applied Mathematics (SIAM) | 2025 – present |
| • Association for Women in Mathematics (AWM) | 2025 – 2026 |
| • Society for Mathematical Biology (SMB) | 2020 – 2026 |

Papers

- Kar, N. (2026). Multiscale Modeling of Glioblastoma Infiltration: Bayesian Calibration of Micro-Macro Dynamics. In preparation.
- Kar, N., Özalp, N. (2024). A fractional mathematical model approach on glioblastoma growth: tumor visibility timing and patient survival. *Mathematical Modelling and Numerical Simulation with Applications*, 4(1), 66-85. <https://doi.org/10.53391/mmnsa.1438916>
- Kar, N. (2023). Time-fractional quenching problem: Blow-up of $D_t^\alpha u$ at the quenching point. arXiv: 2306.07508 [math.AP].

Invited Talks

II Encuentro Multidisciplinario de Ciencias Naturales y Exactas: Rosalind Franklin **Online**
Cayetano Heredia University (Peru) 13 Nov 2025
Talk: Evolution of Mathematical Models of Tumor Growth

Talks

Centre International de Mathématiques Pures et Appliquées Research School **Havana, Cuba**
University of Havana 10 Jun 2025
Talk: Reaction-Diffusion Formalism for Glioma Growth

Departmental Seminar **Ankara, Türkiye**
İ.D Bilkent University 7 Apr 2025
Talk: A Mathematical Model for Tracking Malignancy in the Human Brain

İzmir Mathematics Days VI **İzmir, Türkiye**
Yasar University 12 Sep 2024
Talk: DTI-Based Mathematical Modeling of Glioma Invasion

Departmental Seminar **Online**
İ.D Bilkent University (Türkiye) 3 Sep 2024
Talk: Mathematical Modeling of Glioblastoma Growth

Lightning Talks **Online**
DRP Türkiye 2024 30 Jul 2024
Talk: On Mathematical Oncology

15th Ankara Mathematics Days **Ankara, Türkiye**
Ankara Hacı Bayram Veli University 23 May 2024
Talk: A Macroscopic-Scale Fractional Model for Glioblastoma Recurrence Monitoring

9th Workshop of Association for Turkish Women in Maths **İzmir, Türkiye**
İzmir University of Economics 03 May 2024
Talk: A Fractional Mathematical Model for Macroscopic Dynamics of Glioblastoma Growth

Graduate Seminars III **Ankara, Türkiye**
Hacettepe University 23 Feb 2024
Talk: Examining Glioblastoma Dynamics Through a Fractional Mathematical Modeling Perspective

Departmental Seminar (Host: Prof. Sridhar Hannenhalli) **MD, USA**
National Cancer Institute 03 Oct 2023
Talk: Tracking Glioblastoma Recurrence: A Novel Prognostic Mathematical Model Approach

Monroe Martin Talks **MD, USA**
University of Maryland 31 Mar 2023
Talk: Time-Fractional Order Modeling of Brain Tumor Dynamics

İzmir Mathematics Days I

Yasar University

Talk: Bäcklund Transformations of Nonlinear Partial Differential Equations

İzmir, Türkiye

27 Jun 2018

Conference Attendance (Selected)

SMB 2020 Annual Meeting

The Society of Mathematical Biology

Attendee

Online

17 – 20 Aug 2020

The 8th International Workshop on Differential Equations and Applications

Dokuz Eylül University

Attendee

İzmir, Türkiye

02 – 04 Jun 2017

Teaching and Mentoring

Instructor

Department of Mathematics, Bilkent University

- Course Coordinator: MATH 260 (Spring 2026) and MATH 230 (Summer 2026)

- Courses Taught:

- MATH 260 – Introduction to Statistics (Spring 2026)
- MATH 230 – Probability and Statistics for Engineers (Fall 2025, Summer 2026, Fall 2026)
- MATH 106 – Introduction to Calculus II (Spring 2025, Summer 2025)
- MATH 105 – Introduction to Calculus I (Fall 2024)

Ankara, Türkiye

2024–present

Course Coordinator & Instructor

High School Summer Camp, Bilkent University

- S-11 – Introduction to Statistics

Ankara, Türkiye

2026

Mentor

Directed Reading Program (DRP) Türkiye

- Bartu Gencer, Boğaziçi University. *Research: Mathematical formulations of Waddington's epigenetic landscape.*
- Beyza Nur Korkmaz, Bursa Technical University. *Research: Diffusion Tensor Imaging (DTI)-based approaches to modeling anisotropic cancer invasion pathways.*

Hybrid

Summers 2024 & 2025

Academic Experiences

Participant & Speaker

University of Havana

Research School

Havana, Cuba

9 – 20 Jun 2025

Participant

Fields Institute

Thematic Program in Mathematical Oncology

Online

Sep 2024 – Dec 2024

Participant

Association for Turkish Women in Maths & METU

Summer School

Ankara, Türkiye

Jun 2024 – Jul 2024

Computer Skills

- Programming Python, Maple
- Technical $\LaTeX$, MS Office (Word/Excel/PowerPoint)
- Environments Docker, VS Code, Google Colab, Jupyter

Service and Science Outreach

- **Invited Panelist** | International Day of Women and Girls in Science, Bilkent University (2026)
- **Mentor** | Directed Reading Program Türkiye (2025)
- **Organizer** | Mathematical Modeling Symposium (2025)
- **Co-Coordinator** | Young Mathematicians Research Symposia Platform (2024 – present)
- **Founder** | Initiated and led the founding of the Young Mathematicians Research Symposia Platform in Türkiye with the support of Prof. Aslı Pekcan Yıldız from Hacettepe University.
- **Mentor** | Directed Reading Program Türkiye (2024)

Language Skills

Turkish (Native), English (Advanced)

References

Available on request