curriculum vitae   Şefika Kuzgun

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Academic degrees

2022. Ph.D. in Mathematics, University of Kansas. Advisor: David Nualart

2018. M.A. in Mathematics, University of Kansas.

2016. M.S. in Mathematics, Boğaziçi University. Advisor: Tuğrul Burak Gürel

2014. B.S. in Mathematics, honors, Boğaziçi University.

Academic employment

2024 - 2026. Postdoctoral Researcher, Max Planck Institute for Mathematics in the Sciences, Leipzig.

2022 - 2024. Visiting Assistant Professor, University of Rochester.

2016 - 2022. Graduate Research and Teaching Assistant, University of Kansas.

2014 - 2016. Teaching Assistant, Boğaziçi University.

Research interests

Stochastic Analysis, Stochastic Partial Differential Equations, Malliavin Calculus.

Publications

6. Time-dependent averages of a critical long-range stochastic heat equation. (Joint with Ran Tao.)

5. On the radius of self-repellent fractional Brownian motion. (Joint with Le Chen, Carl Mueller and Panqiu Xia.) *Journal of Statistical Physics*, **191** (2024), no. 2, pp. 19.

4. Convergence of densities of spatial averages of the parabolic Anderson model driven by colored noise. (Joint with David Nualart.) *Stochastics*, **96** (2024), no. 2, pp. 968–984.

3. Convergence of densities for the stochastic heat equation. (Joint with David Nualart.) *Stochastic Processes and Applications*, **37** (2022) pp. 68–100.

2. Feynman-Kac formula for iterated derivatives of the parabolic Anderson model. (Joint with David Nualart.) *Potential Analysis*, **59** (2023), no. 2, pp. 651–673.

1. Rate of convergence in the Breuer-Major theorem via chaos expansions. (Joint with David Nualart.) *Stochastic Analysis and Applications*, **37** (2019), no 6, pp. 1057–1091.

Honors, awards and funding

2025. International Center for Mathematical Sciences (ICMS) Mathematics for Humanity Workshop Grant (£25,167) and Centre International de Mathématiques Pures et Appliquées (CIMPA) Grant (€12,000), with extra funding from the International Mathematical Union, the European Mathematical Union and the Turkish Mathematical Society to organize a summer school

2023. Association for Women in Mathematics/National Science Foundation Travel Grant.

2021. Charles J. and Mary Pat Himmelberg Graduate Student Award, University of Kansas.

2020 & 2021. Graduate Student Summer Research Scholarship, University of Kansas.

2018 & 2019. Joan Kirkham Summer Scholarship, University of Kansas.

2016. Gülnihal Yücel Teaching Award, Boğaziçi University.

2014. First Ranking Student in Mathematics, Boğaziçi University.

2014. Cahit Arf Fellowship, Turkish Mathematical Society (TMS).

Research talks

05/2025. Speaker at the PDE and Applications Seminar, Delft Institute of Applied Mathematics.

04/2025. Speaker at Online Mathematics Seminar, Bilkent University, Ankara, Türkiye.

02/2025. Speaker at the short talks session of Winter school on Statistical Mechanics, Nonequilibrium Processes and Probability, University of Rome La Sapienza.

02/2025. Speaker at 2nd Münster-Leipzig Retreat, Münster.

01/2025. Speaker at Probability Seminar, University of Bristol.

01/2025. Speaker at Probability Seminar, Cardiff University.

01/2025. Speaker at Probability Seminar, University of Bath.

11/2024. Speaker at Function Spaces Seminar, Friedrich Schiller University, Jena.

09/2024. Speaker at young researchers session of 36th National Mathematics Symposium, Amasya University, Türkiye.

06/2024. Speaker at the stochastic PDE minisymposia at The Equadiff Conference, Karlstad University, Sweden.

06/2024. Speaker at the 5th Ankara-Istanbul Workshop on Stochastic Days, Middle East Technical University, Ankara, Türkiye.

03/2024. Speaker at Probability Seminar, Cornell University, New York.

11/2023. Speaker at 14th Symposium on Probability and Stochastic Processes, Center of Research in Mathematics (CIMAT), Guanajuato, Mexico.

07/2023. Speaker at 51 Saint-Flour Probability Summer School, Saint-Flour, France.

06/2023. Speaker at Turkish Mathematical Society's Meeting for Young Mathematicians, Nesin Mathematics Village, İzmir, Türkiye.

01/2023. Speaker at Mathematics Seminar, Koç University, İstanbul, Türkiye.

11/2022. Speaker at Penn/Temple Probability Seminar, Temple University.

09/2022. Speaker at Probability, Ergodic Theory, Mathematical Physics Seminar, University of Rochester.

04/2022. Speaker at Kansas Math Graduate Student Conference, Kansas State University.

12/2021. Speaker at the Applied Analysis Seminar, Max Planck Institute for Mathematics in the Sciences, Leipzig, Germany.

12/2021. Speaker at the short talks session of Frontier Probability Days, University of Nevada.

11/2021. Speaker at the Applied Mathematics and Modeling Group Seminar, University of Vienna, Austria.

10/2021. Speaker at the contributed talks session of Workshop: Junior Female Researchers in Probability, Berlin/online.

08/2021. Speaker at NSF/CBMS Conference: Gaussian Random Fields, Fractals, SPDEs, and Extremes, University of Alabama in Huntsville.

06/2021. Speaker at the PhD Session of Summer School: Young Researchers between Geomerty and Stochastic Analysis, online.

06/2021. Speaker at the Math Grad Seminars, Boğaziçi University, İstanbul, Türkiye.

08/2020. Pre-recorded talk at Bernoulli-IMS One World Symposium, online.

Other workshop/school participation

01/2025. School & Workshop on Disordered Media, Rényi Institute/Erdos Center, Budapest.

07/2024. XXI International Congress on Mathematical Physics (ICMP), University of Strasbourg.

06/2024. Young Researcher Symposium of ICMP, University of Strasbourg.

05/2024. SPDEvent 2024, Universität Bielefeld.

03/2024. Universality and Integrability in KPZ, Columbia University, New York.

06/2023. International Conference on Malliavin Calculus and Related Topics celebrating the work of David Nualart and Anton Thalmaier, University of Luxembourg.

05/2023. PDEs and Randomness Summer School, Max Planck Institute for Mathematics in the Sciences, Leipzig.

10/2022. Random Media & Large Deviations Conference in honor of Ofer Zeitouni's 60th Birthday, Courant Institute of Mathematical Sciences, New York.

10/2022. Probabilistic Methods in Geometry and Analysis, The Institute for Computational and Experimental Research in Mathematics (ICERM), Providence, Rhode Island.

06/2022. PIMS - IFDS - NSF Summer School on Optimal Transport, University of Washington, Seattle.

05/2022. PDE and Randomness, Centre de recherches mathématiques (CRM)/online.

03/2022. Interacting Particle Systems and Hydrodynamic Limits, CRM/online.

09/2021. Bath Mathematical Symposium on PDE and Randomness, online.

06/2021. SPDE & Friends, online.

05/2021. Summer Program in Partial Differential Equations, University of Texas at Austin/online.

07/2020. Summer School on PDE and Randomness, online.

10/2019. Hamiltonian Systems I, Mathematical Sciences Research Institute (MSRI), Berkeley, California.

07/2018. Harmonic Analysis Summer School, Park City Mathematics Institute (PCMI), Utah.

06/2016. 3rd Ankara-Istanbul Workshop on Stochastic Processes, Middle East Technical University, Ankara, Türkiye.

Teaching experience

Nesin Mathematics Village

Instructor: Graduate Probability (Summer 2024), Brownian Motion (Summer 2025)

University of Rochester

Instructor: Calculus II (Fall 2022, Spring 2023, Fall 2023, Spring 2024), Introduction to Probability (Fall 2022), Introduction to Financial Mathematics (Spring 2023, Fall 2023), Stochastic Processes (Spring 2024)

University of Kansas

Coordinator: Precalculus (Spring 2020)

Instructor: Precalculus (Fall 2017), Business Calculus (Fall 2016, Spring 2017 & 2019), Calculus II (Summer 2017)

Assistant: Calculus II for Honors (Spring 2018 & 2021), Calculus III (Fall 2018 & 2019)

Grader: Probability (Graduate, Fall 2021), Statistics (Graduate, Spring 2020), Time Series (Spring 2019)

Boğaziçi University

Instructor: Differential Equations (Synchronous online, Summer 2020), Matrix Theory (Summer 2019)

Assistant: Calculus (Fall 2015), Vector Calculus (Spring 2015), Calculus I for Mathematics Majors (Fall 2015), Calculus II for Mathematics Majors (Spring 2016), Matrix Theory (Summer 2015), Differential Equations (Fall 2014)

Assistant: Real Analysis (Summer 2016)

Other talks and contributions

06/2026. Project Coordinator at ISem Research School - Eventual Positivity, *Positivity of the Stochastic Heat Equation*, Umiversity of Wuppertal.

03/2026. Panelist at GROW@Dresden 2026: *PhD Applications.*

03/2025. Panelist at Boğaziçi University: *Postdoc and PhD Applications*, online.

06/2024. Presenter at ISem Research School - Harmonic analysis techniques for elliptic operators, *Paley-Littlewood Theory*, Centre International de Rencontres Mathématiques (CIRM).

04/2024. Speaker at Association of Women in Mathematics Seminar *Universality Phenomenon*, University of Kansas.

12/2023. Speaker at Arbeitsgemeinschaft on Quantum Field Theory and Stochastic PDEs, *Reconstruction Theorem*, Mathematisches Forschungsinstitut Oberwolfach (MFO), Germany.

07/2022. Speaker at Lightning Talks Session: *A Brief Overview of SPDEs*, Directed Reading Program Türkiye, online.

02/2022. Speaker at Graduate Student Seminar on *Academic Job Search*, University of Kansas.

02/2021. Panelist at Association for Women in Mathematics Seminar: *Teaching Matters*, University of Kansas.

02/2020. Panelist at Association for Women in Mathematics Student Chapter Meeting: *Life as a Mathematics Graduate Student*, University of Kansas.

Undergraduate supervision

Directed Reading Program Türkiye[1]

Sahra Karakoç, *Central limit theorem*

Zeynel Uluşan, *The art of randomness: Brownian motion*

Metehan Akkuş, *Sobolev Inequalities*

Hamit Alp Cömert, *Random walk and heat equation*

Fatma Melike Güler, *Picard-Lindelöf theorem*

Elvira Tahiri, *A brief overview of Markov chains*

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[1]Linked videos are their presentations

Xinyue Zhang, *Brownian motion with applications in finance*

Kunxu Song, *Stochastic calculus an introduction*

Service and outreach

2026.   Co-organizer, Summer School on Probability in Turkey 2026: interactions and applications at Nesin Mathematics Village.

2026.   Co-organizer, Summer School on PDEs and Randomness, Max Planck Institute for Mathematics in the Sciences.

2025.   Co-organizer, Summer School on Probability and Applied Analysis, Feza Gürsey Center for Physics and Mathematics, İstanbul, Türkiye.

2024.   Co-organizer, Summer School on Probability with / on random graphs: trees, networks, assignments, Nesin Mathematics Village, İzmir, Türkiye.

2023 - 2024. Scientific committee member and mentor, Directed Reading Program Türkiye.

2021 - 2022. Co-founder, co-organizer and mentor, Directed Reading Program Türkiye.

2023 - 2024. Co-founder, co-organizer, Mathematics Support Platform Türkiye.
(Founded for alleviating the impacts of the 2023 major earthquake on education.)

2020 - 2022. Co-founder, graduate mentor, University of Kansas Student Chapter of the American Mathematical Society Mentoring Program.

2019 - 2022. Volunteer, University of Kansas April Math Awareness Month activities.

2018 - 2022. Co-founder, co-organizer, University of Kansas Graduate Student Probability Seminar.

2020 - 2021. President, University of Kansas Student Chapter of the Association for Women in Mathematics.

2019 - 2020. Vice President, University of Kansas Student Chapter of the American Mathematical Society.

2018 - 2019. Secretary, University of Kansas Student Chapter of the American Mathematical Society.

2018 - 2019. Leader, University of Kansas Student Chapter of the American Mathematical Society probability & analysis qualifying exam study group.

Reviewer for the following journals

Stochastic Processes and Applications
Stochastics and Partial Differential Equations: Analysis and Computations
Mathematical Communications

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