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Yulia Mukhina

Education

2023–now **PhD student**, *École polytechnique*, *Advisors: Gleb Pogudin, Joris van der Hoeven*

2017–2023 **Specialist (equivalent to Masters) in Mathematics**, *Moscow State University*, *Advisors: E.I. Bunina, A.S. Gordienko*

Employment

2017–2020 **Mathematical Circle of MSU Faculty of Mechanics and Mathematics**, *Tutor*

2022–2023 **International Laboratory of Game Theory and Decision Making, Higher School of Economics**, *Research assistant*

2020–2023 **State budgetary educational institution of the city of Moscow "School 1514"**, *Teacher of additional mathematics education*

Scholarships

2022 **Grant "Stipend - Mechanics and Mathematics faculty (Student)"**,"BASIS" Foundation

Publications

Preprints

1. **On the Computation of Newton Polytopes of Eliminants** R. Mohr, Yu. Mukhina, https://www.arxiv.org/pdf/2502.05015
2. **Projecting dynamical systems via a support bound** Yu. Mukhina, G. Pogudin, https://arxiv.org/abs/2501.13680

Published Articles

1. **A differential game of N persons in which there is Pareto equilibrium of objections and counterobjections but no Nash equilibrium** V. Zhukovskii, Yu. Mukhina, V. Romanova Izvestiya *Instituta Matematiki i Informatiki Udmurtskogo Gosudarstvennogo Universiteta* DOI: 10.35634/2226-3594-2021-57-04
2. **Linear Quadratic Game of N Persons as the Analog of Antagonistic Game** V. Zhukovskiy, S. Samsonov, V. Romanova, L. Zhukovskaya, Yu. Mukhina *Taurida Journal of Computer Science Theory and Mathematics* DOI: 10.37279/1729-3901-2020-19-4-56-82
3. **A New approach to optimal solutions of noncooperative games: accounting for Savage–Niehans risk** V. Zhukovskiy, L. Zhukovskaya, Yu. Mukhina *Taurida Journal of Computer Science Theory and Mathematics*

https://www.mathnet.ru/eng/tvim159

4. **A new approach to guaranteed solutions of multicriteria choice problems: Pareto consideration of Savage–Niehans risk and outcomes** V. Zhukovskiy, L. Zhukovskaya, Yu. Mukhina
Taurida Journal of Computer Science Theory and Mathematics
https://www.mathnet.ru/eng/tvim160
5. **Guaranteed solution for risk-neutral decision maker: an analog of maximin in single-criterion choice problem** V. Zhukovskiy, L. Zhukovskaya, Yu. Mukhina, S. Samsonov
Taurida Journal of Computer Science Theory and Mathematics
https://www.mathnet.ru/eng/tvim163

Teaching

2024–2025 **École polytechnique**, *Teaching assistant for CSE101 - Computer Programming (Introduction to Python)*

2023–2024 **École polytechnique**, *Teaching assistant for CSE102 - Computer Programming(Introduction to Python)*

Computer skills

Languages: Python, SQL, JavaScript, C/C++, Julia, Maple

Software: LaTeX, Linux

Language proficiency

Russian (native), English (fluent), French (intermediate), German (beginner)

Talks

28 Mar 2025 **Elimination in Polynomial Dynamical Systems via a support bound**, *invited talk, Kolchin Seminar in Differential Algebra*

10 Mar 2025 **Elimination in Polynomial Dynamical Systems via a Support Bound**, *Journées nationales de calcul formel, CIRM, Marseille*

3 Mar 2025 **Elimination for Differential Dynamical Systems**, *invited talk, The MAX computer algebra seminar, LIX, École Polytechnique*

25 Feb 2025 **Bounding the support in the differential elimination problem, poster**, *Enumerative combinatorics and effective aspects of differential equations, special week of the thematic month Singularities, differential equations, transcendence, CIRM, Marseille*

04 Feb 2025 **On Differential Elimination Algorithms**, *invited talk, The Theoretical Cosynus Seminar, LIX, École Polytechnique*

30 July 2024 **Bounding the support in the differential elimination problem, poster**, *MEGA 2024, MPI, Leipzig*

24 June 2024 **Support of the Minimal Polynomial in the Differential Dynamical System**, *EACA 2024 (Encuentro Álgebra Computacional y Aplicaciones), Real Colegio María Cristina, Madrid*

17 Apr 2023 **Niehans–Savage minimax regret principle in linear-quadratic problems**, *Lomonosov, Moscow State University*

27 Oct 2022 **On vector guarantees in multiobjective problems under uncertainty**, *Tikhonov readings, Moscow State University*

21 Sen 2022 **Savage–Niehans principle for linear-quadratic problem**, *Crimean autumn mathematical school-symposium*

8 June 2022 **Decision making based on the Pareto union of the principles of minimax regret and guaranteed outcome**, *International Conference "Differential Equations and Optimal Control", Steklov Mathematical Institute RAS, Moscow*

21 Apr 2022 **Savage principle and consideration of the outcome in a single-criterion nonlinear problem with uncertainty**, *Lomonosov readings, Moscow State University*

30 Oct 2021 **A multiplayer differential game in which there is Pareto equilibrium of objections and counterobjections and no Nash equilibrium**, *Conference for Young Scientists in Mathematical Economics and Economic Theory "MEET-2021" (Higher School of Economics), Saint-Petersburg*