

# Yulia Mukhina

Bâtiment Alan Turing  
1 rue Honoré d'Estienne d'Orves  
91229 Palaiseau, France

✉ [yulia.mukhina@lix.polytechnique.fr](mailto:yulia.mukhina@lix.polytechnique.fr)

🌐 <https://www.lix.polytechnique.fr/Labo/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:  $\text{\LaTeX}$ , Linux

## Language proficiency

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

## Talks

- 3 June 2025 **Differential elimination for dynamical systems**, *invited talk, Université de Limoges, France*
- 24 Apr 2025 **A new algorithm for differential elimination**, *invited talk, Algebra and Representation theory seminar, Universität Bonn, Bonn, Germany*
- 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 Cosyns 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 Sep 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 non-linear 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**