

# Dmitrii Pavlov

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## Education

- 08/22 – **PhD Student in Mathematics**, *Max Planck Institute for Mathematics in the Sciences*, Advisors: Bernd Sturmfels and Simon Telen, Expected Graduation: 07/2024.
- 09/16–06/22 **Specialist (equivalent to Masters) in Fundamental Mathematics**, *Moscow State University*, Advisors: Yury P. Razmyslov, Gleb Pogudin.  
GPA: 5.0/5.0

## Employment

- 2021–2022 **Huawei Russian Research Institute, Moscow Optic Algorithm Laboratory**, *Junior research engineer*.  
Research in digital signal processing, discrete optimization and numerical methods for solving the Nonlinear Schrödinger equation.
- 2019–2021 **Moscow Center for Continuous Mathematical Education**, *Editor of interactive courses and textbooks in mathematics*.
- 2019–2020 **Yandex.Math**, *Consultant of interactive courses in mathematics*.
- 2018–2019 **Mathematical Circle of MSU Faculty of Mechanics and Mathematics**, *Tutor*.

## Scholarships

- 2021 **Kolmogorov Scholarship for Academic Excellence**, Moscow State University

## Publications

- Santaló Geometry of Convex Polytopes** D. Pavlov and S. Telen, <https://arxiv.org/abs/2402.18955>, 2024.
- Algebraic Geometry of Quantum Graphical Models** E. Duarte, D. Pavlov, and M. Wiesmann, <https://arxiv.org/abs/2308.11538>, 2023.
- Combinatorics of  $m = 1$  Grasstopes** Y. Mandelshtam, D. Pavlov, and E. Pratt, <https://arxiv.org/abs/2307.09603>, 2023.
- On real and observable realizations of input-output equations** S. Falkensteiner, D. Pavlov, and J. R. Sendra, <http://arxiv.org/abs/2303.16799>, 2023.
- Logarithmically Sparse Symmetric Matrices** D. Pavlov, <http://arxiv.org/abs/2301.10042>, 2023.
- Gibbs Manifolds** D. Pavlov, B. Sturmfels, and S. Telen, *Information Geometry*, <https://doi.org/10.1007/s41884-023-00111-2>, 2023.

**On realizing differential-algebraic equations by rational dynamical systems**  
D. Pavlov and G. Pogudin, *Proceedings of the ACM International Symposium on Symbolic and Algebraic Computation (ISSAC 2022)*, <https://doi.org/10.1145/3476446.3535492>, 2022.

**From algebra to analysis: new proofs of theorems by Ritt and Seidenberg**  
D. Pavlov, G. Pogudin, and Yu. Razmyslov, *Proceedings of the American Mathematical Society*, <https://doi.org/10.1090/proc/16065>, 2022.

## Talks

- 31 Jan 2024 **Combinatorics of  $m = 1$  Grasstopes**, *Quantum Field Theory Group Seminar*, MPI for Physics, Munich.
- 5 Dec 2023 **Combinatorics of  $m = 1$  Grasstopes**, *Geometry Seminar*, TU Dresden.
- 29 Nov 2023 **Algebraic Geometry of Quantum Graphical Models**, *InterCity Seminar*, Universität Konstanz.
- 20 Oct 2023 **Realizations of input-output equations: rational, observable, and real**, *Kolchin Seminar in Differential Algebra (online)*.
- 11 Jul 2023 **Gibbs manifolds**, *SIAM AG23, Minisymposium on Geometric and Algebraic Methods in Quantum Information*, Eindhoven.
- 10 May 2023 **Real realizations of algebraic differential equations**, *Nonlinear Algebra Seminar*, MPI MiS.
- 21 Mar 2023 **Gibbs manifolds**, *New Directions in Real Algebraic Geometry*, Mathematisches Forschungsinstitut Oberwolfach.
- 9 Mar 2023 **What is a Gibbs manifold?**, *Algebra, Geometry and Computation*, CWI Amsterdam.
- 1 Mar 2023 **What is a Gibbs manifold?**, *Nonlinear Algebra Seminar*, MPI MiS.
- 5 Oct 2022 **Realizability of algebraic differential equations by rational dynamical systems**, *Nonlinear Algebra Seminar*, MPI MiS.
- 12 Apr 2022 **Realizability of algebraic differential equations by rational dynamical systems**, *Algebra and Model Theory Seminar*, Moscow State University.
- 8 Dec 2020 **Analytic spectrum of a differential  $\mathbb{C}$ -algebra with several commuting derivations**, *Algebra and Model Theory Seminar*, Moscow State University.
- 8 May 2019 **Differentially flat systems**, *Algebra and Model Theory Seminar*, Moscow State University.

## Events organized

- Nov 2023 **1st IMPRS COMBO Autumn School**, Leipzig.

## Computer skills

- Languages: Python, Julia, Macaulay2, Sage, C/C++  
Software: LaTeX, GitLab, Linux

Language proficiency

Russian (native), English (C1/C2), French (B2), German (B1)