

Ivan Yakovlev

Curriculum Vitae

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Employment

2024–2026 **Postdoc**, *Max Planck Institute for Mathematics, Bonn.*

Education

2021–2024 **PhD in Pure Mathematics**, *Université de Bordeaux.*
At Laboratoire Bordelais de Recherche en Informatique (LaBRI).
Combinatorics and Interactions group.
Advisor: Vincent Delecroix. Thesis title: Metric ribbon graphs.

2018–2021 **Normalien**, *École Normale Supérieure de Paris.*
Admitted via the International Selection program. 3 year scholarship.

2019–2021 **Master in Mathematics**, *Sorbonne Université.*
Fundamental Mathematics track.

2018–2019 **Bachelor (Licence) in Mathematics**, *Sorbonne Université.*

2015–2019 **Bachelor in Applied Mathematics**, *Taras Shevchenko National University of Kyiv.*

Research interests

Enumerative geometry of hyperbolic / translation / square-tiled surfaces, moduli spaces of curves and differentials, Masur–Veech volumes, intersection theory, Hurwitz numbers. Particular interest in related combinatorial structures: ribbon graphs (combinatorial maps), cellular decompositions of moduli spaces, polytopes, hyperplane arrangements, curve complexes, mapping class groups. I am also interested in algorithmic problems on surfaces and I enjoy experimenting in SageMath.

Preprints

Volumes of odd strata of quadratic differentials,
with E. Duryev, É. Goujard.
Submitted.
Arxiv link: <https://arxiv.org/abs/2502.13121>

Publications

Contribution of n -cylinder square-tiled surfaces to Masur–Veech volume of $\mathcal{H}(2g-2)$,
Geom. Funct. Anal. 33, 1682–1716 (2023).
DOI link: <https://doi.org/10.1007/s00039-023-00652-9>
Arxiv link: <https://arxiv.org/abs/2209.12348>

Algorithms for length spectra of combinatorial tori,

with V. Delecroix, M. Ebbens, F. Lazarus.

Journal of Computational Geometry 15 (2):57-93.

DOI link: <https://doi.org/10.20382/jocg.v15i2a3>

Arxiv link: <https://arxiv.org/abs/2303.08036>

Extended abstract: 39th International Symposium on Computational Geometry (SoCG 2023),

Vol. 258 of Leibniz International Proceedings in Informatics (LIPIcs), pages 26:1–26:16.

DOI link: <https://doi.org/10.4230/LIPIcs.SocG.2023.26>

Talks

- Feb 2026 Geometry seminar, *MPI MiS, Leipzig*.
- Oct 2025 Gravity seminar, *IMAPP, Radboud University, Nijmegen*.
- Jul 2025 Low-dimensional topology seminar, *MPIM, Bonn*.
- Mar 2025 ALEA days, *CIRM, Marseille*.
- Dec 2024 Christmas Workshop on Geometry and Number Theory, *Saarland University, Saarbrücken*.
- Nov 2024 KMPB Workshop “Holomorphic differentials”, *Humboldt University, Berlin*.
- Nov 2024 Paroles aux jeunes du RT Tétraèdre de Platon, *ENS Paris*.
- Jan 2024 Journées de combinatoire de Bordeaux, *LaBRI, Bordeaux*.
- Oct 2023 Geometry and Topology seminar, *Université du Luxembourg*.
- May 2023 LAMFA PhD Seminar, *LAMFA, Amiens*.
- Mar 2023 ALEA days, *CIRM, Marseille*.
- Mar 2023 Journée cartes at Marne-la-Vallée, *Université Gustave Eiffel, Marne*.
- Jan 2023 Seminar of Combinatorics and Interactions group, *LaBRI, Bordeaux*.
- Nov 2022 Algebraic geometry and moduli seminar, *ETH Zurich*.
- Apr 2022 Workshop of ANR MoDiff, *LaBRI, Bordeaux*.
- Jan 2022 Seminar of Combinatorics and Interactions group, *LaBRI, Bordeaux*.

Visits

- Feb 2026 MPI MiS, Leipzig (1 week).
- Oct 2025 IMAPP, Radboud University, Nijmegen (1 week).
- Oct 2023 Université du Luxembourg (1 week).
- May 2023 Institut Fourier, Grenoble (1 week).
- Nov 2022 ETH Zurich, (1 week).
- May 2021 M2 internship visit, LaBRI, Bordeaux, (1 month).

Teaching

- 2023-2024 Computer networks (2nd year Bachelor).
Introduction to C programming (1st year Bachelor).
- 2022-2023 Algorithms on tree-like data structures (2nd year Bachelor).
- 2021-2022 Combinatorics, Probability, Statistics (2nd year Bachelor).
Algorithms on arrays (1st year Bachelor).

Organization / outreach

- Mar 2024 Co-organization of the School on flat surfaces and interactions, Le Teich (Bordeaux).
- 2022-2023 Co-organization of the Combinatorics and Interactions seminar at LaBRI, Bordeaux.
- Jun 2022 Training of Ukrainian team for international maths olympiads, CIRM, Marseille, France.
- Apr 2019 Coordinator at European Girls' Mathematical Olympiad, Kyiv, Ukraine.
- 2015–2018 Olympiad mathematics teaching for high-school students, Kyiv, Ukraine.

Participation in conferences, schools

- Aug 2025 Workshop “Combinatorial and hyperbolic random planar geometry”, CIRM, Marseille.
- Jul 2025 Conference “Dynamics and rigidity”, Cetraro.
- Jun 2025 Conference “Degenerations of Flat Surfaces and Rational Maps”, Toulouse.
- Jun 2025 Summer school on Dynamics and Geometry, CIRM, Marseille.
- Sep 2024 Workshop on Riemann Surfaces, Oberwolfach.
- Jan 2024 Sage Days 125, Le Teich (Bordeaux).
- Oct 2023 Conference “Probability and Geometry in, on and of non-Euclidean spaces”, CIRM, Marseille.
- Jul 2023 Research school “Renormalization and Visualization for packings, billiards and surfaces”, CIRM, Marseille.
- Jul 2023 IMJ-PRG Summer School 2023 “Microlocal and probabilistic methods in geometry and dynamics”, Paris.
- Nov 2022 Meeting of young researchers in geometry and dynamics, Orsay.
- Oct 2022 School on Random Walks, Göttingen.
- Sep 2022 Conference “Combinatorics, dynamics and geometry in the moduli spaces”, CIRM, Marseille.
- May 2022 Conference “Structures on Surfaces”, CIRM, Marseille.
- Mar 2022 ALEA days, CIRM, Marseille.
- Jan 2022 Winter school on billiards, Autrans.
- Sep 2021 Summer school on topological recursion “TRSalento”, Otranto.

Miscellaneous

Languages: English, French, Russian (native), Ukrainian (native).
Programming: C++, Python, SageMath, OCaml.