

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.