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 problems related to surfaces and their moduli spaces: hyperbolic / translation / square-tiled surfaces, Masur–Veech volumes, combinatorial maps (ribbon graphs), intersection theory on $\mathcal{M}_{g,n}$, Hurwitz numbers.

I am also interested in combinatorial theory of polytopes, integer point enumeration in polyhedra, algorithmic problems on surfaces, mapping class groups and I enjoy experimenting in SageMath.

Preprints

Volumes of odd strata of quadratic differentials,
with E. Duryev, É. Goujard.
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`

Refereed proceedings

Algorithms for length spectra of combinatorial tori (extended abstract),
with V. Delecroix, M. Ebbens, F. Lazarus.
39th International Symposium on Computational Geometry (SoCG 2023),
Vol. 258 of Leibniz International Proceedings in Informatics (LIPIcs), pages 26:1–26:16, Dagstuhl,
Germany, 2023.
DOI link: `https://doi.org/10.4230/LIPIcs.SoCG.2023.26`
Full version of this paper was accepted to the *Journal of Computational Geometry*.
Arxiv link: `https://arxiv.org/abs/2303.08036`

Talks

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-Valée, *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

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

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.