

Artem Semidetnov

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Education

MSc	University of Geneva , Mathematics (expected)	2025 – 2027
BSc	Saint Petersburg State University , Mathematics	2021 – 2025
BSc	Neapolis University Pafos , Applied Computer Science, JetBrains Program	2022 – 2024

Research Interests

- Categorical homotopy theory; simplicial methods and operads; homotopy type theory and computer-formalized approaches; geometric and combinatorial group theory.

Publications and Preprints

Operadic double dual (preprint in preparation)

Arshak Aivazian, Emmanuel Farjoun, Vasily Ionin, **Artem Semidetnov**

An explicit non-elementary matrix over a bivariate Laurent polynomial ring ↗

Sept 2026

Vasily Ionin, **Artem Semidetnov** · arXiv:2609.04275 ↗

On Some More Problems from the Kourovka Notebook ↗

Aug 2026

Vasily Ionin, **Artem Semidetnov** · arXiv:2608.29219 ↗

The stable commutator length of a relator is not a one-relator group invariant ↗

Aug 2026

Artem Semidetnov · arXiv:2608.21465 ↗

The operad associated to a crossed simplicial group ↗

Dec 2025

Artem Semidetnov · arXiv:2512.14498 ↗

On the geometry of free nilpotent groups ↗

May 2021

Artem Semidetnov, Ruslan Magdiev · arXiv:2106.00095 ↗

Research Experience / Projects

On Simplicial Resolutions for Link Groups ↗

Oct 2026

Independent mathematical note presenting two proofs of the Lei-Li-Wu theorem on a simplicial resolution of link groups.

JetBrains - Research Intern, HoTT and Dependent Types Lab

Pafos, Cyprus

- Developed the official Arend library and formalized results in algebra and homotopy type theory.
- Formalized the Eckmann-Hilton argument, Eilenberg-Mac Lane spaces, homology of types, group automorphisms, Schur's lemma, Maschke's lemma, and characterizations of group actions; selected contributions shipped in [Arend 1.10](#) ↗.

June 2024 - Sept 2024

Selected Talks

The operad associated to a crossed simplicial group ↗

Copenhagen, Denmark

- Young Topologists Meeting 2026

July 2026

Plus construction and simplicial methods ↗

Pushkin, Russia

- Conference "Algebraic Topology, Geometry, Combinatorics, and Data Analysis" ↗

Aug 2025

Twisting numbers on braid and Thompson groups [↗](#)

- Topological Methods in Dynamics and Related Topics VII

Nizhny Novgorod, Russia
2024

On the Poisson boundary of lamplighter groups [↗](#)

- St. Petersburg Seminar on Representation Theory and Dynamical Systems

Saint Petersburg, Russia

On the geometry of free nilpotent groups

- Siberian Summer Conference

Novosibirsk, Russia
2021

Honors and Awards

Excellence Master Fellowship, University of Geneva [↗](#)

2025 – 2027

Rodnye Goroda Scholarship

2023 – 2024

JetBrains Scholarship, Neapolis University Pafos

2022 – 2024

Chebyshev Laboratory Travel Grant, Winter School in Mathematics and Theoretical Computer Science [↗](#)

2025

Teaching Experience

Sirius Educational Center, Teaching Assistant, Groups of Intermediate Growth [↗](#)

Sochi, Russia
Apr 2024 – May 2024

Mathematics and Computer Science Faculty Program for Prospective Students, Teaching Assistant, Braid and Knot Theory

Saint Petersburg, Russia
June 2023

Laboratory for Continuous Mathematical Education, Mathematics Teacher for Gifted Students

Saint Petersburg, Russia
2021 – 2023

Work Experience

JetBrains, Research Intern, HoTT and Dependent Types Lab

- Designed and developed an MCP server for the Arend proof assistant, exposing type-checking and IDE functionality to AI coding agents.
- Integrated the MCP server with the Arend plugin for IntelliJ IDEA and built an experimental Arend coding agent using Koog.
- Fine-tuned models for Arend code completion.

Remote
Nov 2025 – Apr 2026

IPONWEB (acquired by Criteo), Machine Learning Intern

- Reverse-engineered the behavior of a Criteo ML system that analyzes websites and produces word2vec representations; evaluated potential applications.

Pafos, Cyprus
May 2023 – Sept 2023

Workshops, Service and Additional Information

Teaching Higher Category Theory with Computers [↗](#)

Funded participant.

ICERM, Brown University,
Providence, RI
Aug 2026

Academic Service and Outreach

- Organizer of the [Euler International Mathematical Institute Functional Analysis Seminar](#) [↗](#).
- Invited judge, Saint Petersburg Tournament of Young Mathematicians (since 2021) and International Tournament of Young Mathematicians (2024, 2025).
- [Problem author](#) [↗](#), ITYM 2024; [Scientific Organizing Committee](#) [↗](#), ETEAM 2025.

Additional Information

Intel ISEF finalist (2020); English C1 (IELTS 8.0/9, taken in 2020 and 2024).