Aleksei Samoilenko

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I am currently in the final (5th) year of the Specialist program at the Faculty of Mathematics, Saint Petersburg State University under supervision of Alexander Smirnov.

Research Projects

Iwasawa theory for algebraic tori pdf

I analyzed an example of a normed torus, calculated its class group orders and Shafarevich–Tate groups. I also found representatives of Ш in some cases, and described the action of the Galois group.

Gross and Rohrlich points of infinite order on Jacobians of Fermat curves pdf

The endomorphism algebras of Jacobians of Fermat curves were calculated, which showed that the corresponding Abelian varieties are not modular in the classical sense.

Conferences, Workshops, and Summer Schools

Autumn ALGEULER , 2025 , Euler institute (St. Petersburg)

School and Workshop on Explicit Arithmetic Geometry , 2025 , ICTP (Trieste)

IV Conference of Mathematical Centers of Russia , 2024 , PDMI RAS (St. Petersburg)

Student Mathematical School "Algebra and Number Theory" , 2024 ,
HSE , International Laboratory for Mirror Symmetry and Automorphic Forms (Voronovo)

Summer Mathematics School "Algebra and Geometry" , 2023 ,
HSE , Laboratory of Algebraic Geometry and Its Applications (Suzdal)

Academic Activities

- Since the start of my studies at the university, I have been actively involved in the Alexander Smirnov circle of arithmetic enthusiasts.
- Since the summer of 2025, I have been participating in Vasily Golyshev's group, where I study the kernels of differential equations as an approach to the Langlands program and the Kolyvagin system for special cases of the Bloch-Kato conjecture.
- Together with Alexey Lvov, I am organizing a student seminar on Abelian varieties at the faculty, dedicated to studying the proof of Faltings's theorem and creating a community of mathematicians interested in arithmetic geometry.
- Completed the following courses: Etale cohomology, classs field theory, ...

Teaching Activities

- I teach practical classes in Algebra and Number Theory to computer science students.
- I taught an online Olympiad Mathematics circle for middle school students.