

Andrei Katsevich

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Education

Princeton University

GRADUATE STUDENT WORKING ON [HIGH ENERGY THEORY](#), PHYSICS DEPARTMENT

- Advisor: [Igor R. Klebanov](#) (Princeton Univ.)

Princeton, NJ, USA

August 2023 - Present

Moscow Institute of Physics and Technology (MIPT)

BACHELOR'S DEGREE IN APPLIED MATHEMATICS AND PHYSICS, LANDAU PHYSTECH SCHOOL OF PHYSICS AND RESEARCH

EDUCATIONAL PROGRAM «QUANTUM FIELD THEORY, STRING THEORY AND MATHEMATICAL PHYSICS»

- Bachelor's thesis: [Perturbed minimal models of two-dimensional conformal field theory](#) (in Russian)
- Advisor: [Alexey Litvinov](#) (Landau Inst.)
- GPA: 4.98/5.00 (9.77/10.00) – ranked №1 of the department

Moscow, Russia

August 2019 - July 2023

Work Experience

Princeton University, Physics Department

ASSISTANT INSTRUCTOR

- Taught laboratory sessions in PHY103 (Classical Mechanics) and PHY104 (E&M).

Chernogolovka, Russia

July 2022 - July 2023

L.D. Landau Institute for Theoretical Physics of Russian Academy of Sciences

LABORATORY ASSISTANT RESEARCHER

- Studied QFT, CFT and matrix models.

Chernogolovka, Russia

July 2022 - July 2023

State Educational Institution "Brest Lyceum №1 named after A.S. Pushkin"

PHYSICS TEACHER

- Prepared lyceum students for Belarusian Republican and International Physics Olympiads.

Brest, Belarus

July 2020, 2021, 2022

Publications

Sphere free energy of scalar field theories with cubic interactions [arXiv:2412.14086](#)

SIMONE GIOMBI, ELIZABETH HIMWICH, ANDREI KATSEVICH, IGOR R. KLEBANOV, ZIMO SUN

- We study the sphere free energy in cubic $O(N)$ model using $6 - \epsilon$ expansion and proposed Long Range Approach.

October 2024

Preprint

The spectrum of perturbed (3, 10) minimal model [arXiv:2410.18069](#)

ANDREI KATSEVICH

- We study the spectrum of relevantly perturbed non-unitary minimal model $M(3, 10)$.
- Significant part of work was done in [MIPT Bachelor thesis](#).

October 2024

Preprint

Ginzburg-Landau description of a class of non-unitary minimal models [arXiv:2410.11714](#)

ANDREI KATSEVICH, IGOR R. KLEBANOV, ZIMO SUN

- We study the GL description of a class of non-unitary minimal models $M(q, 3q \pm 1)$ with odd q .

October 2024

Accepted to JHEP

The eigenvalue spectrum of a large real antisymmetric random matrix with non-zero mean [arXiv:2309.01833](#)

ANDREI KATSEVICH, PAVEL MESHCHERIAKOV

- Using the replica method, we study the spectrum of a random antisymmetric real matrix with nonzero mean.

September 2023

Preprint

Schools

Prospects in Theoretical Physics 2024 (PiTP)

IAS

Princeton

July 2024

4-th Spring Student School in Mathematics and Physics

SKOLTECH

- Gave two lectures on [S-matrix](#) and [perturbed Ising model](#).

Moscow

May 2023

Winter school ITMP MSU 2023

ORGANIZERS: [A. Litvinov](#) (Landau Inst.), [D. Bykov](#) (MSU), [S. Mironov](#) (Moscow, ITEP), [D. Ponomarev](#) (ITMP MSU)

- Gave a lecture on perturbed minimal models of two-dimensional conformal field theory.

Moscow

January-February 2023

Theoretical Physics Summer Practicum 2022

Remote

ORGANIZERS: L. LEVITOV (MIT), A. BOYARSKY (EPFL), L. SPODYNEIKO (CALTECH, MIT), G. TARNOPOLSKY (UNIVERSITY OF CARNEGIE MELLON), A. ZHIHOEDOV (CERN) AND OTHERS WITH SUPPORT OF KNU AND KHARKIV UNIVERSITY

August 2022

- Participated in the project of [Grigory Tarnopolsky](#) "Introduction to Random Matrix Theories in Quantum Physics".

Theoretical Physics Summer Practicum 2021

Remote

ORGANIZERS: L. LEVITOV (MIT), D. ABANIN (PRINCETON UNIVERSITY), N. NEKRASOV (SIMONS CENTER FOR GEOMETRY AND PHYSICS), A. SADOFYEV (SANTIAGO DE COMPOSTELA U., IGFAE) AND OTHERS WITH SUPPORT OF SKOLTECH, MIPT AND HSE

August 2021

- Was selected for the Practicum, being in the 1-st place in the competition for solving problems from the initial sections of physics.
- Participated in the project of [Andrey Sadofyev](#) "Hydrodynamics as an Effective Field Theory".

Conferences

Simons Collaboration on Confinement and QCD Strings Annual Meeting

New York

SIMONS FOUNDATION

November 7-8, 2024

Simons Collaboration on Confinement and QCD Strings Annual Meeting

New York

SIMONS FOUNDATION

November 2-3, 2023

65th All-Russian Scientific Conference of MIPT

Moscow

MIPT

April 2023

- Report subject: Truncated Conformal Space Approach for non-unitary minimal models (in Russian).

Skills

Physical background

General Physics, Analytical mechanics, Classical field theory, General theory of relativity, Cosmology, Quantum Mechanics, Quantum field theory, Conformal field theory, Statistical physics

Mathematical background

Mathematical analysis, Linear algebra, Differential equations, Complex analysis, Probability Theory, Lie groups and algebras and their representations, Integrable systems, Random matrix theory

Landau theoretical minimums

Mathematics I, Mechanics, Field theory, Mathematics II, Quantum mechanics, Quantum electrodynamics

Other

LaTeX ([some of my solutions](#), mostly in Russian), Wolfram Mathematica, [You-Tube channel](#)

Achievements

GRADUATE SCHOOL (PRINCETON UNIVERSITY)

2023-2024 **The Elliott Robinson Little '25 Student Aid Fund**, Named Fellowship

Princeton, NJ, USA

UNDERGRADUATE SCHOOL (MIPT)

2022-2023 **Prize-winner (2023), Absolute Winner (2022)**, [MIPT Olympiad in Theoretical Physics](#)

Moscow, Russia

2022-2023 **Prize-winner (2023), Winner (2022)**, [All-Russian Student Olympiad "I'm a professional" in Physics](#)

Moscow, Russia

2022 **Prize-winner**, [All-Russian Student Olympiad "I'm a professional" in Mathematics](#)

Moscow, Russia

2022-2021 **Winner (2022), Prize-winner (2021)**, [MIPT Traditional Student Olympiad in Physics](#)

Moscow, Russia

HIGH SCHOOL

2019 **Bronze medal**, [50th International Physics Olympiad \(IPhO\)](#)

Tel Aviv, Israel

2019 **1-st Degree Diploma (Absolute Winner)**, International Mathematical Olympiad of the Borderland for students of grades 9-11 (Brest-Bialystok-Vilnius-Smolensk-Odessa)

Brest, Belarus

2019-2017 **3-rd (2017), 1-st (2018), 2-nd (2019) Degree Diploma**, Belarusian Republican Physics Olympiad (BelPhO)

Belarus

2018 **2-nd Place Diploma**, Physics Olympiad on International Belarusian-Syrian session for gifted children

NDC "Zubrenok",
Belarus

Extracurricular Activity

Princeton Slavic Club

Princeton, USA

4TH PRESIDENT

October 2024 - present

- Cultural/diversity organization for graduate students from Belarus, Russia, Ukraine and other post-soviet countries.
- Provided cultural events (New Year's Eve, Maslenitsa, Student Day) and socials (Movie and Board Game Nights).

MIPT Mentorship

Moscow, Russia

MENTOR

September 2022 - May 2023

- Fall 2022 mentor project: "Introduction to Random Matrix Theory".
- Spring 2023 lecture course: [Introduction to Statistical Physics: from Ising Model to Renormalization Group](#) (in Russian)

MIPT Visiting Olympiad at the SEI "Brest Lyceum №1 named after A.S. Pushkin"

Brest, Belarus

MAIN ORGANIZER

January 2020, 2021, 2022, 2023

- Four times ([2023](#), [2022](#), [2021](#), [2020](#)) held the Visiting Olympiad in Brest, which was attended by about 60 schoolchildren every year.