EGOR IM

PhD Candidate in Theoretical Physics

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EXPERIENCE

Scientific Assistant
ETH Zürich

Jun 2021 – Jun 2025 | Zürich, Switzerland

- conducting **research** in the field of mathematical physics;
- conducting **tutorials** for bachelor and master students in the course of 6 semesters:
  - preparing materials for **weekly classes**;
  - **helping** students **with understanding** complex mathematical and physical concepts and solving problems;
- assisting with the **supervision** of two master theses.

RESEARCH PROJECTS

Polylogarithm Functions on Higher-Genus Surfaces
ETH Zürich

study of special functions on 2D surfaces:
- in **international collaboration** with 5 researchers;
- developed a **C library** (using openMP, GSL) to evaluate functions numerically with a **Python package-wrapper**;

Algebraic Structures in AdS/CFT Integrability
ETH Zürich

individual supervised research project to study algebraic structures in the context of AdS_5/CFT_4 integrability
- **applied mathematical framework** to a physical **problem**;
- developed a **Mathematica package** for Hopf algebras.

EDUCATION

PhD in Theoretical Physics
ETH Zürich

Jun 2021 – Ongoing | Zürich, Switzerland

Advisor: Prof. Niklas Beisert (nbeisert@ethz.ch)

MSc in Physics
ETH Zürich

Sep 2019 – Apr 2021 | Zürich, Switzerland

GPA: **5.8/6.0 with distinction**

Major fields of study: theoretical physics | mathematics

BSc in Applied Mathematics and Physics
St Petersburg University

Sep 2015 – June 2019 | St Petersburg, Russia

GPA: **5.0/5.0 with distinction**

Major fields of study: computational physics | HPC | numerical algorithms | programming | statistical analysis

RELEVANT COMPETENCES

- **Analytical mindset** and **problem-solving** skills gained through research in theoretical physics.
- Deep knowledge of **mathematical** and **computational** methods for solving complex problems.
- **Programming** skills in Python, C/C++, and Java.
- Hands-on experience with **parallel programming** and **numerical libraries**.
- **Data analysis** and **visualization** skills.
- Solid **software development** experience.

TECH SKILLS

Languages: Python | Mathematica | C/C++ | Java | Bash | LaTeX | SQL

OS: Linux | Windows

Libraries: NumPy | SciPy | GSL | IntelMKL | TensorFlow | MPI | openMP | PySpark | Pandas | Matplotlib | Plotly | Cython | Qt

Tools: Git | Docker | Jupyter

LANGUAGES

English (C1 level)
German (B1 level)
Russian (native)

OTHER ACTIVITIES

Organization of IGST 2023

Jun 2023 | ETH Zürich

Organization of the conference “Integrability in Gauge and String Theories 2023”.
- developed a set of **Bash scripts** to automate the hybrid setup of the conference

Night of Physics 2022

Jun 2022 | ETH Zürich

Participated in the public scientific fair with a stand on the topic of curved spaces.
- developed the simulator (**using C++ and openMP**) to travel through curved 3D spaces hypray2

Article Management Tool

GitHub: eg0rim/amt

Developer of a tool to manage articles and references for scientific writing.
- uses **Python**, **PySide/PyQt**, **SQLite**

CONFERENCES

Talks

- Workshop on Representation Theory and Mathematical Physics "New Perspectives on Yangians and Quantum Affine Algebras", Parma, Italy, 1-3 October 2024.
- The XXVIII International Conference on Integrable Systems and Quantum Symmetries (ISQS28), Prague, Czech Republic, 1-5 July 2024.

REFEREES

Prof. Niklas Beisert

ETH Zürich

@ nbeisert@ethz.ch

Dr. Johannes Brödel

ETH Zürich

@ jbroedel@ethz.ch

PUBLICATIONS

Journal Articles

- K. Baune, J. Broedel, **E. Im**, A. Lisitsyn, and Y. Moeckli, "Higher-genus Fay-like identities from meromorphic generating functions," Sep. 2024. arXiv: 2409.08208 [hep-th].
- K. Baune, J. Broedel, **E. Im**, A. Lisitsyn, and F. Zerbini, "Schottky–Kronecker forms and hyperelliptic polylogarithms," *J. Phys. A*, vol. 57, no. 44, p. 445 202, 2024. DOI: 10.1088/1751-8121/ad8197. arXiv: 2406.10051 [hep-th].
- N. Beisert and **E. Im**, "Affine Classical Lie Bialgebras for AdS/CFT Integrability," Jan. 2024. arXiv: 2401.10327 [hep-th].
- N. Beisert and **E. Im**, "Classical Lie bialgebras for AdS/CFT integrability by contraction and reduction," *SciPost Phys.*, vol. 14, no. 6, p. 157, 2023. DOI: 10.21468/SciPostPhys.14.6.157. arXiv: 2210.11150 [hep-th].