

## About MSU:

Lomonosov Moscow State University (MSU) is the highest-ranked university in Russia, with a consistent position within the global top 100 of the world university ranking. It was founded in 1755, and, since its inception, has educated many notable alumni.

Learn more about MSU  
[www.msu.ru](http://www.msu.ru)



## About the MSU Faculty of Mechanics and Mathematics:

The Faculty of Mechanics and Mathematics was established in 1933, and is considered one of the most esteemed faculties at MSU. The Faculty is recognized globally as one of the leading centres of mathematical sciences. Today the faculty comprises 26 departments, 14 research laboratories and around 350 of academic staff members.

Learn more about the Faculty  
[www.math.msu.ru](http://www.math.msu.ru)



## About ITMP:

The Institute for Theoretical and Mathematical Physics (ITMP) is a division of Lomonosov Moscow State University, and was founded in December 2018. The goal of the Institute is to advance high-level research and education in fundamental areas of theoretical and mathematical physics.

Learn more about ITMP  
<https://itmp.msu.ru/en/>



## APPLICATION DEADLINE:

**FEBRUARY, 15 2022**

**SUCCESSFUL APPLICANTS WILL  
BE INVITED TO ATTEND AN  
INTERVIEW IN MARCH-APRIL  
2022**



**MASTER OF SCIENCE PROGRAM**

**GEOMETRY AND  
QUANTUM FIELDS**

**2022**

## CONTACT DETAILS:

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**Email:** [info@itmp.msu.ru](mailto:info@itmp.msu.ru)

**Admissions Office:** [admissions@itmp.msu.ru](mailto:admissions@itmp.msu.ru)

**ITMP website:** <https://itmp.msu.ru/en/>

**Program website:** <https://itmp.msu.ru/en/mscgeometry>

**A JOINT MASTER'S PROGRAM  
OF ITMP MSU AND THE MSU  
FACULTY OF MECHANICS AND  
MATHEMATICS**

# ABOUT THE PROGRAM

International program *Geometry and Quantum Fields* is a 2-year master's course in mathematics and theoretical physics. The subject of the program is the physics and mathematics of fundamental interactions with the emphasis on modern developments motivated by the challenging problem of quantum gravity. **The unique feature of the program is that it provides a solid mathematical background**, particularly, in geometry, **alongside the systematic education in quantum field theory, gravity, string theory and holography**. The program also includes an individual research project supervised by leading researchers from MSU or other research institutes in Moscow.

## PROGRAM DIRECTORS:



Professor Arkady Tseytlin,  
Head of ITMP,  
Professor of Theoretical Physics,  
Imperial College London



Professor Andrei Shafarevich,  
Head of the MSU Faculty of  
Mechanics and Mathematics

## PROGRAM FACTS

**Field of Study: Mathematics**

**Location: MSU campus, Moscow**

**Duration: 2 years, full-time**

**Language of instruction: English**

**Places: 15 tuition-free**

**Admission: Fall 2022**

## ADMISSION REQUIREMENTS

### Degree requirements:

A BSc from an accredited institution with a major in Mathematics, BSc with a major in Physics or Science with a strong component in mathematics.

### Language Requirements:

All applicants for whom English is not a native language will be asked to demonstrate proficiency in the English language.

## REQUIRED DOCUMENTS



## CORE COURSES

- Differential Geometry and Topology;
- Symplectic Geometry and Quantization;
- QFT/Modern QFT;
- CFT in Two Dimensions;
- Introduction to Supermathematics;
- Lie Groups, Lie Algebras and their Representations;
- Introduction to String Theory;
- Conformal Theories and Holographic Dualities;
- Infinite-dimensional Lie Algebras and their Representations;
- Conformal Geometry and Riemann Surfaces;
- Selected Topic of General Relativity;
- Classical Integrable Systems.

## SCHOLARSHIPS AND FUNDING:

*The Foundation for the Advancement of Theoretical Physics and Mathematics "BASIS" offers means to support talented students:*

1. A scholarship that includes a monthly stipend;
2. Travel grants to participate in international schools and scientific programs.