

SEARCH OF NEW PHENOMENA BEYOND STANDARD MODEL WITH ATLAS DETECTOR ON LHC

Moscow Institute of Physics and Technology (National Research University)

Degree or qualification is awarded: **PhD (Candidate of Science)**

Language of study: **English**

Mode of study: **full-time**

Duration: **4 years**

Availability of free education: **yes**

Price: **375 000 RUB**

Programme webpage at the university website:

<https://eng.mipt.ru/programs/search-of-new-phenomena-beyond-standard-model-with-atlas-detector-on-lhc/>

Programme curator: **Denis Ustyuzhaninov**

Tel.: **+7 (498) 713 91 70**

E-mail: interadmission@phystech.edu

Entry requirements:

- Master's degree / equivalent in a related field
- B2 level of English
- Good track record of publications related to the topic of the intended research
- Strong research proposal 1,500 - 3,500 words

Research supervisor:

[Alexey Myagkov](#)

PhD

Supervisor's research interests:

Despite the numerous successes of the Standard Model (SM), it cannot describe many experimental facts – the existence of dark matter, the problems of naturalness and other. One of the main task for experiments on LHC is to find the ways how to extend the SM. It could be searches of new resonances or symmetries, deviations from SM predictions.

Research highlights:

ATLAS (CERN, Geneva, Swiss) is one of the biggest detector of the world. It is multipurpose devise to study huge amount of different reactions. All studies are realized by multinational groups.

Supervisor's specific requirements:

- The base knowledge is required in high energy physics and particle physics.
- Experience with C++, python and Linux is required.

Main publications:

- Searches for heavy diboson resonances in pp collisions at $\sqrt{s}=13$ TeV with ATLAS detector JHEP 1609 (2016) 173.
- Searches for heavy ZZ and WZ resonances in the $l\bar{l}q\bar{q}$ and $\nu\nu q\bar{q}$ final states in pp collisions at $\sqrt{s}=13$ TeV with ATLAS detector JHEP 1803 (2018) 009.
- Search for the electroweak diboson production in association with a high-mass dijet system in semileptonic final states in pp collisions at $\sqrt{s}=13$ TeV with ATLAS detector Phys Rev D100 (2019) no 3 032007.

Specializations within this programme