

# AUTOMORPHISM GROUPS OF AFFINE ALGEBRAIC VARIETIES

## / Alexander Perepechko

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 curator: **Denis Ustyuzhaninov**

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### 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:

[Alexander Perepechko](#)

PhD

### Supervisor's research interests:

Affine algebraic varieties over algebraically closed fields represent a classical topic of algebraic geometry. Their automorphism groups are a rich domain of research that includes combinatorial representations of reductive group actions and birational self-maps. I am interested in topic of transitivity, additive actions, infinite-dimensional subgroups (called ind-groups), toric and T-varieties, and integer-point orbits on varieties corresponding to Diophantine equations.

### Research highlights:

- This research program involves international
- collaboration with research groups in the UK,
- Germany, and France.

### Supervisor's specific requirements:

- Background in basic algebraic geometry.
- Acquaintance with algebraic groups.
- Python3 knowledge is preferable.

### Main publications:

- (with Ivan Arzhantsev and Hendrik Süß) Infinite transitivity on universal torsors, Journal of the London Mathematical Society 89 (2014), no. 3, 762-778.
- (with Sergei Kovalenko and Mikhail Zaidenberg) On automorphism groups of affine surfaces, Advanced Studies in Pure Mathematics 75 (2017), Algebraic Varieties and Automorphism Groups, 207-286; arXiv:1511.09051.
- (with Andriy Regeta) When is the automorphism group of an affine variety nested?, preprint, arXiv:1903.07699.

## **Specializations within this programme**