# NUMERICAL METHODS OF OPTIMIZATION

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

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:**

Alexander Gasnikov

PhD, DSc

#### Supervisor's research interests:

- Stochastic optimization.
- · Accelerated algorithms.
- Superposition of algorithms.
- Mathematical modeling of traffic flows (traffic assignment problems).

## Supervisor's specific requirements:

- Mathematical analysis.
- Linear algebra.
- Probability theory.
- Computes Science.
- Python.

#### Main publications:

- A. Gasnikov, P. Dvurechensky, E. Gorbunov, E. Vorontsova, Daniil Selikhanovych and Cesar A. Uribe Optimal Tensor Methods in Smooth Convex and Uniformly Convex Optimization. Conference on Learning Theory. P. 1374–1391, 2019.
- A. Kroshnin, D. Dvinskikh, P. Dvurechensky, A. Gasnikov, N. Tupitsa and C.A. Uribe. On the Complexity of Approximating Wasserstein Barycenter. Proceedings of the 36th International Conference on Machine Learning, PMLR 97:3530-3540, 2019.
- Nesterov, Y., Gasnikov, A., Guminov, S., & Dvurechensky, P. (2020). Primal-dual accelerated gradient methods with small-dimensional relaxation oracle // Optimization Methods and Software, 1-38.

Specializations within this programme