NUMERICAL METHODS FOR NONSMOOTH 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:
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:
Fedor Stonyakin
PhD

Supervisor's research interests:

- Methods for Convex Programming Problems.
- Methods for Variational Inequalities.
- Inexactness in Optimization.
- Adaptive Algorithms for Optimization Problems.
- Optimization Problems with Relative Accuracy.

Supervisor's specific requirements:

- Mathematical analysis.
- Linear Algebra.
- Analytical Geometry.
- Computes Science.
- Python.

Main publications:

- Bayandina, P. Dvurechensky, A. Gasnikov, F. Stonyakin, A. Titov. Mirror descent and convex optimization problems with non-smooth inequality constraint. // Lecture Notes in Mathematics. 2018. Vol. 2227, P. 181 – 213.
- F. S. Stonyakin, D. Dvinskikh, P. Dvurechensky, A. Kroshnin, O. Kuznetsova, A. Agafonov, A. Gasnikov, A. Tyurin, C. A. Uribe, D. Pasechnyuk, S. Artamonov. Gradient Methods for Problems with Inexact Model of the Objective. // In: M. Khachay et al. (Eds.): MOTOR 2019. Lecture Notes in Computer Science. 2019. Vol. 11548. P. 97 – 114.
- P. Dvurechensky, A. Gasnikov, E. Nurminsky and F. Stonyakin. Advances in Low-Memory Subgradient Optimization. // In: A. M. Bagirov et al.(eds.). Numerical Nonsmooth Optimization. State of the Art Algorithms. Springer Nature Switzerland AG 2020. P. 19 – 59.
- F. S. Stonyakin. On the Adaptive Proximal Method for a Class of Variational Inequalities and Related Problems. // Proceedings of the Steklov Institute of Mathematics. 2020. Vol. 309(1). P.S139 – S150.
- F. Stonyakin, E. Vorontsova and M. Alkousa. New Version of Mirror Prox for Variational Inequalities with Adaptation to Inexactness. // 10th International Conference on Optimization and Applications, OPTIMA-2019.

Specializations within this programme