

LINEAR ALGEBRA AND ITS APPLICATIONS

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 Guterman](#)

PhD, DSc

Supervisor's research interests:

Combinatorial matrix theory; nonnegative matrices, graphs, and their applications; matrix invariants and maps preserving them; permanent and related matrix functions.

Research highlights:

Area of research belongs to a modern mathematics on the top level; there are possibilities to participate in scientific conferences and workshops and to interact with foreign scientists.

Supervisor's specific requirements:

- Basic classes in algebra and linear algebra.

Main publications:

- Majorization for $(0,1)$ -matrices (with G. Dahl and P. Shteyner) Linear Algebra and Its Applications, 585, 2020, 147-163.
- Permanent Polya problem for additive surjective maps (with I.A. Spiridonov) Linear Algebra and Its Applications, 599, 2020, 140-155.
- Upper bounds for the length of non-associative algebras (with D.K. Kudryavtsev) Journal of Algebra, 544, 2020, 483-497.
- 2-words, their graphs and matrices (with E.M. Kreines and N.V. Ostroukhova) Zapiski Nauch. Sem. POMI, 482, 2019, 45-72.
- Graph characterization of fully indecomposable nonconvertible $(0,1)$ -matrices with minimal number of ones (with M. Budrevich, G. Dolinar Gregor, B. Kuzma) Ars Mathematica Contemporanea, 17(1), 2019, 141-151.
- Krauter conjecture on permanents is true (with M.V. Budrevich) Journal of Combinatorial Theory – Series A, 162, 2019, 306-343.
- Majorization for matrix classes (with Geir Dahl and Pavel Shteyner) Linear Algebra and Its Applications, 555, 2018, 201-221.
- Extremal generalized centralizers in matrix algebras (with G. Dolinar, B. Kuzma, O. Markova) Communications in Algebra, 46(7), 2018, 3147-3154.

Specializations within this programme