Resume

Maxim Aleksandrovich Baranov

Position: Associate Professor
Academic Degree: Candidate of Physical and Mathematical Sciences
Contact Information:

- **Date of Birth:** October 22, 1993
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Education

- **2017:** Saint Petersburg Polytechnic University (SPbPU), Technical Physics, Master's degree.
- **2023:** Candidate of Physical and Mathematical Sciences (specialization: 1.3.4 Radiophysics).

Professional Development

- **2023:** Digital Services of the Electronic Educational Environment at SPbPU.
- **2022:** Cybersecurity of Digital Identity.
- **2022:** Electronic Educational Environment in the Context of Digital Transformation.
- **2020:** Basics of First Aid.
- **2018:** Work in the Electronic Educational Environment at SPbPU.

Scientific Projects

- **RFBR No. 21-72-20029:** Supercomputer Modeling and Technologies for Biomolecular Film Structures (lead researcher), 2021–2024.
- **RFBR No. 24-25-00204:** Integration of Genomic Analysis and Medical Visualization for Accurate Prediction and Forecasting of Lung Cancer Characteristics and Treatment Outcomes at Early Stages of Non-Small Cell Lung Cancer (researcher), 2024–2025.
- **RFBR No. 20-57-56018:** Improving the Efficiency of Diagnosing Lung Damage Based on CT Data in COVID-19 (researcher), 2020–2023.

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5 Most Significant Publications

1. Baranov M. A., Shariaty F., Tsybin O. Y. Dynamics of glycine, diphenylalanine, and tryptophan oligomers: computer simulation in an IR electric field with different forms and polarization //Journal of

Biomolecular Structure and Dynamics. – 2024. – Pp. 1-8. https://doi.org/10.1080/07391102.2024.2446674. Scopus, Web of Science Core Collection, Q1

2. Faridoddin S., Alexandrovich B. M., Yurjevich T. O. Structure of biomolecular films through advanced imaging and statistical analysis //Colloids and Surfaces A: Physicochemical and Engineering Aspects. – 2024. – Vol. 702. – Pp. 134920. https://doi.org/10.1016/j.colsurfa.2024.134920. Scopus, Web of Science Core Collection, Q1
3. Baranov, M. A. Supercomputer Modeling of Intramolecular Vibrations of Glycine, Diphenylalanine, and Tryptophan in Electric Fields of Terahertz and Infrared Spectral Ranges / M. A. Baranov, E. K. Karseeva, O. Yu. Tsybin // Biophysics. – 2024. – Vol. 69, No. 2. – Pp. 213-229. – DOI 10.31857/S0006302924020016. – EDN OVYPQX. RSCI, Web of Science Core Collection, Scopus
4. Baranov, M. A. Supercomputer Dynamic Models of Glycine, Tryptophan, and Diphenylalanine in Electric Fields of Terahertz and Infrared Spectral Ranges / M. A. Baranov, E. K. Karseeva, O. Yu. Tsybin // Scientific and Technical Bulletin of Saint Petersburg State Polytechnic University. Physics and Mathematics. – 2023. – Vol. 16, No. 3. – Pp. 59-72. – DOI 10.18721/JPM.16306. – EDN HKISTI. RSCI, Web of Science Core Collection, Scopus
5. Baranov, M. A. Prototypes of Devices of Heterogeneous Hybrid Semiconductor Electronics with Built-in Biomolecular Domain / M. A. Baranov, E. K. Karseeva, O. Yu. Tsybin // Microelectronics. – 2023. – Vol. 52, No. 6. – Pp. 497-507. – DOI 10.31857/S0544126923600185. – EDN UXDIUD. RSCI, Web of Science Core Collection, Scopus

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Intellectual Property Results

1. **2024:** Software for Multi-threaded Processing of Molecular Dynamics Data (Certificate No. 2024685837).
2. **2023:** Software for Analysis of Surface Structures of Amino Acid Solution Films (Certificate No. 2023688757).
3. **2023:** Software for Comprehensive Analysis of Molecular System Energies (Certificate No. 2023688590).
4. **2022:** Software for Modeling Molecular Dynamics under Variable Electric Fields (Certificate No. 2022680736).
5. **2022:** Software for Analyzing Local Intramolecular Vibrations (Certificate No. 2022682021).
6. **2021:** Software for Processing Molecular Modeling Data of Biomolecule Interactions with Metals (Certificate No. 2021665822).
7. **2020:** Software for Image Processing to Determine Geometric Parameters of Biological Fluid Structures (Certificate No. 2020617699).
8. **2020:** Software for Calculating Casimir Pressure in a Three-Layer System (Certificate No. 2020662916).
9. **2020:** Software for Collecting Data from a Pulse Densitometer Sensor (Certificate No. 2020664208).
10. **2020:** Software for Calculating Fractal Sizes of Protein Film Structures (Certificate No. 2020667561).