



Ivan Gordeev

Curriculum Vitae

Personal Website

gordeev.page



Links

researchgate.net



github.com

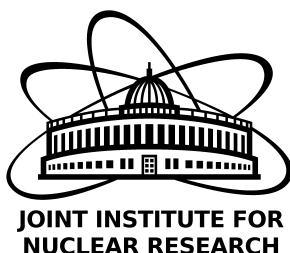


Languages

Russian ★★★★★

English ★★★★★

Alma Mater



General Information

Full Name: Ivan Sergeevich Gordeev

Sex: Male

Date of Birth: 21st July 1996

Place of Birth: Russian Federation

Nationality: Russian

Marital Status: Married

Professional career

2023 – present **Researcher**

[Joint Institute for Nuclear Research](#)

Researcher at the Laboratory of Radiation Biology. Radiation Research Department of the base facilities. Joint Institute for Nuclear Research (Dubna, Russia)

2021 – present **University Lecturer**

[Dubna State University](#)

Lecture courses: “Physics and technology of accelerators”, “Processing and analysis of scientific data using high-level programming language”. Dubna State University (Dubna, Russia)

2020 – 2023 **Junior Researcher**

[Joint Institute for Nuclear Research](#)

Junior Researcher at the Laboratory of Radiation Biology. Section of Radiation Research. Research group for studying radiation fields of JINR basic facilities and environment. Joint Institute for Nuclear Research (Dubna, Russia)

2017 – 2020 **Laboratory Assistant**

[Joint Institute for Nuclear Research](#)

Laboratory Assistant at the Laboratory of Radiation Biology. Section of Radiation Research. Research group for studying radiation fields of JINR basic facilities and environment. Joint Institute for Nuclear Research (Dubna, Russia)

Education

28.11.24 **PhD in Physics and Mathematics**

[Joint Institute for Nuclear Research](#)

Awarded the academic degree of Doctor of Philosophy (PhD) in Physics and Mathematics by decision of the Dissertation Council of the Joint Institute for Nuclear Research for IT and Computational Physics (Dubna, Russia)

2018 – 2020 **MSc in Physics**

[Dubna State University](#)

Dubna State University. Department of Biophysics. Faculty of Natural and Engineering Sciences (Dubna, Russia)

Specialization: Radiation Biophysics and Astrobiology

Thesis title: “Monte Carlo Simulation of Radiation Fields Inside the Spacecraft and Calculation of Astronaut Doses on the Earth-Mars Flight”

GPA: 5.00 / 5.00 (with honors)

2014 – 2018 **BSc in Physics**

[Dubna State University](#)

Dubna State University. Department of Biophysics. Faculty of Natural and Engineering Sciences (Dubna, Russia)

Specialization: Human and Environmental Radiation Safety

Thesis title: “Simulation of Radiation Fields Inside Spacecraft in the Earth’s Environment”

GPA: 4.95 / 5.00 (with honors)

Activities & Awards

- 28.11.24 **PhD thesis defense** [Dissertation Council of the JINR for IT and Computational Physics](#)
 Successful defense of the thesis: “Modelling of mixed radiation fields in spacecraft and on charged particle accelerators”. Supervisor Dr. habil. A. N. Bugay.
Abstract: The PhD thesis presents the methodology and results of computer modelling of the spacecraft’s internal radiation field during missions outside the Earth’s magnetosphere, aimed at predicting the radiation risk to astronauts. The simulations were carried out using the Monte Carlo FLUKA code. New approaches were developed to reproduce a mixed radiation field with similar characteristics under terrestrial conditions using heavy charged particle accelerators. A mathematical model of a specialized simulator was developed and implemented in the gcrs software package. It is demonstrated that the proposed GCR simulator scheme enables unique experimental research in space radiobiology and can be implemented on the applied research beamlines of the NICA Complex at JINR. Link to the PhD materials: <https://dissertations.jinr.ru/en/Dissertations/Materials/252>
- 28.7-21.9.24 **Supervision in Student Program** [Joint Institute for Nuclear Research](#)
 Supervision in the START JINR Student Program 2024 at Joint Institute for Nuclear Research. Russia, Dubna
Results: Under my supervision, student Anthony Walwyn Cadenas from University of Havana (Cuba) successfully accomplished his work on the topic: “Treatment planning and dosimetry at the SARRP facility” during his 8 weeks stay. Link to the report: https://students.jinr.ru/uploads/report_files/report_student_2074_project_411.pdf
- 23-25.04.24 **International scientific forum** [Samarkand State University](#)
 The Third International Forum “Physics - 2024” hosted by the Samarkand State University. Poster presentation: “A New Type of Particle Accelerator-Based Simulator of Cosmic Radiation Fields”. Samarkand, Uzbekistan.
Results: Certificate of participation
- 24-28.10.22 **Scientific conference** [Joint Institute for Nuclear Research](#)
 Participation in the XXVI International Scientific Conference of Young Scientists and Specialists (Dubna, Russia). Topic of report: “A new type of ground-based simulator of inner radiation field of a spacecraft in deep space”
Results: Certificate of Attendance
- 7-9.10.22 **Scientific-popular festival NAUKA 0+** [Lomonosov Moscow State University](#)
 Lecturer in the scientific-popular festival NAUKA 0+ (Moscow, Russia). Topic: “From Monte Carlo to Mars: Radiation inside an interplanetary spacecraft”. Festival programme: https://festivalnauki.ru/upload/iblock/82c/dvb26kc53fc1n1cew2sxytxrqigj5nf7/fn2022_program.pdf (page 42).
Results: Certificate of Attendance
- 24-25.02.22 **First Prize JINR award** [Joint Institute for Nuclear Research](#)
 First Prize award by the decision of the 131st session of the JINR Scientific Council for best papers in the field of applied physics research (Dubna, Russia). Topic: “Calculation and modeling of the radiation field inside a spacecraft beyond Earth’s magnetosphere”
Results: First Prize award
- 21.9.21 **Online videoconference** [GSI Helmholtz Center for Heavy Ion Research](#)
 Participation in the ESA–FAIR Space Radiation Summer School special videoconference (Darmstadt, Germany)
Results: Certificate of Attendance
- 19-22.7.21 **Online PHITS course** [Japan Atomic Energy Agency \(JAEA\)](#)
 Participation in the advanced course on PHITS (Tokai, Japan)
Results: Certificate of the PHITS advanced course attendance

- 1-5.2.21 **Online PHITS course** [Japan Atomic Energy Agency \(JAEA\)](#)
Participation in the basic course on PHITS (Tokai, Japan)
Results: Certificate of the PHITS basic course attendance
- 5-16.10.20 **Online FLUKA training** [The European Organization for Nuclear Research \(CERN\)](#)
Attended the FLUKA Beginners' Online Training. Switzerland, Meyrin.
Results: Certificate of the FLUKA basic course attendance
- 15-16.4.19 **Scientific-practical conference** [Dubna State University](#)
Participation in the XXVI annual regional scientific-practical conference of students, postgraduates and young specialists at Dubna State University with the topic of report: "Calculation of the radiation fields from the GCR inside the spacecraft during interplanetary flights". Russia, Dubna
Results: Best Student Presentation Award
- 3.12.18 **Scientific-popular student conference** [Dubna State University](#)
Participation in the scientific-popular student conference in English: "Universe of Science. Challenges and Solutions" at Dubna State University with the topic of report: "Breaking the Wall of Cosmic Radiation using Particle Accelerator"
Results: Best Student Presentation Award and nomination for "The Best Communicative Skills and Best Presentation"
- 22.10.18 **University competition** [Dubna State University](#)
Participant of the "Best students of the Dubna State University" competition
Results: Best Student of the Dubna State University Award
- 17-19.10.18 **International Conference** [International Conference Hall in Dubna](#)
Participant of the meeting of the International Conference "Modern Problems of Space Radiobiology and Astrobiology"
Results: Co-author of the conference report: "Modeling Radiation Fields Inside Spacecraft at JINR's Nuclotron"
- 23.7-13.9.18 **Summer Student Program** [GSI Helmholtz Center for Heavy Ion Research](#)
Participation in the HGS-HIRe Summer Student Program 2018 at GSI. Germany, Darmstadt
Results: skills received in using MC transport code FLUKA, in work with ROOT framework. The skills of scientific writing and presentation, as well as teamwork skills and communication in a foreign language were improved. Attended a number of lectures on various fields of physics. Got acquainted with the main facilities of the GSI (UNILAC, ESR, HADES, HILITE) and the FAIR project. A report on the work in the research group was written: "Comparison of MCNPX, GEANT4 and FLUKA Simulations of the Radiation Situation Inside a Spacecraft in Deep Space", and a presentation was made on the closing section. The report is published in the proceedings of the 2018 HGS-HIRe Summer Student Program
- 26.1-5.2.18 **Personnel exchange program (Winter School)** [Kindai University](#)
Participation in the personnel exchange program "Monodukuri Engineer in Japan and Russia" winter student school at Kindai University. Japan, Osaka
Results: Communication skills in a foreign language were improved. Got acquainted with Japanese culture, manufactory and Monodukuri technique
- 2.10.17 **International pitch competition** [Visit Centre of Joint Institute for Nuclear Research](#)
Participation in the "Falling Walls Lab Dubna", international Lab season stage at Joint Institute for Nuclear Research. Russia, Dubna
Results: Certificate of participation
- 16.12.16 **Scientific-popular student conference** [Dubna State University](#)
Participation in the scientific-popular student conference in English "Discovering the Mysteries of Science" at Dubna State University with the topic of report: "Feynman Diagrams". Russia, Dubna
Results: Second Best Presentation Award and nomination for the "Best Pronunciation"

Publications

1. I. S. Gordeev & A. N. Bugay
Computer Physics Communications, vol. 305 (2024) (Q1, 1.95)
"Computer modeling of a new type galactic cosmic rays simulator"
DOI: 10.1016/j.cpc.2024.109346
2. I. S. Gordeev & G. N. Timoshenko
Physics of Particles and Nuclei Letters, vol. 19, pp. 402–407 (2022)
"Albedo of Neutrons of Relativistic Energies"
DOI: 10.1134/S1547477122040136
3. A. V. Butenko, I. S. Gordeev, A. D. Kovalenko, M. Paraipan, E. M. Syresin, and G. N. Timoshenko
Physics of Particles and Nuclei Letters, vol. 19, pp. 123–128 (2022)
"Prediction of Radiation Environment around NICA Complex"
DOI: 10.1134/S1547477122020042
4. I. S. Gordeev & G. N. Timoshenko
Life Sciences in Space Research, vol. 30, pp. 66–71 (2021) (Q1, 0.684)
"A new type of ground-based simulator of radiation field inside a spacecraft in deep space"
DOI: 10.1016/j.lssr.2021.05.002
5. G. N. Timoshenko & I. S. Gordeev
Physics of Particles and Nuclei Letters, vol. 18, pp. 799–805 (2021)
"Reference Radiation Field for GCR Chronic Exposure Simulation"
DOI: 10.1134/S1547477121070128
6. G. N. Timoshenko & I. S. Gordeev
Planetary and Space Science, vol. 199 (2021) (Q2, 0.607)
"Computation of linear energy transfer of space radiation in biological tissue analog"
DOI: 10.1016/j.pss.2021.105190
7. G. N. Timoshenko & I. S. Gordeev
Physics of Particles and Nuclei Letters, vol. 17, n. 7, pp. 951–957 (2020)
"Calculating the Linear Energy Transfer Distribution in Radiobiological Experiments on the U400M Cyclotron"
DOI: 10.1134/S1547477120070055
8. G. N. Timoshenko & I. S. Gordeev
Physics of Particles and Nuclei, vol. 51, n. 5, pp. 988–993 (2020)
"Estimation of the Astronaut's Doses inside the Spacecraft Habitable Module in Deep Space"
DOI: 10.1134/S106377962005007X
9. G. N. Timoshenko & I. S. Gordeev
Physics of Particles and Nuclei Letters, vol. 17, n. 3, pp. 379–388 (2020)
"Forecasting Radiation Environment around the NICA Booster"
DOI: 10.1134/S1547477120030152
10. G. N. Timoshenko & I. S. Gordeev
Journal of Astrophysics and Astronomy, vol. 41 (2020) (Q2, 0.566)
"Simulation of radiation field inside interplanetary spacecraft"
DOI: 10.1007/s12036-020-9620-3
11. G. N. Timoshenko, A. R. Krylov, M. Paraipan, I. S. Gordeev
Radiation Measurements, vol. 107, pp. 27–32 (2017) (Q2, 0.372)
"Particle Accelerator-Based Simulation of the Radiation Environment on Board Spacecraft for Manned Interplanetary Missions"
DOI: 10.1016/j.radmeas.2017.10.006

OS Knowledge

Linux ★★★★★
Windows ★★★★★

Programming Skills

Python ★★★★★
Bash ★★★★★
Fortran ★★★★★
C++ ★★★★★

Preprints

1. [Ivan Gordeev](#)
SSRN preprint (2025)
"Microdosimetry-Based Characterisation of X-Ray Irradiators and Dose Enhancement Factor Study for Cell Monolayer Irradiation"
Available at SSRN: <http://dx.doi.org/10.2139/ssrn.5165976>
2. [Ivan Gordeev](#)
ArXiv e-prints [cs.HC, hep-ex] (2020)
"FitsGeo – Python package for PHITS geometry development and visualization"
arXiv:2008.03298

Patents

1. G. N. Timoshenko & [I. S. Gordeev](#)
Patent №2761376 (RU) (2021)
"A device for modeling mixed radiation fields on high energy heavy ion beams for the purposes of experimental radiobiology"

Registered Software

1. [I. S. Gordeev](#)
Certificate of state registration of a software №2024661642 RU (2024)
"GCRs Spectra application for calculating the spectra of primary particles of galactic cosmic rays at specific solar activity"
2. [I. S. Gordeev](#)
Certificate of state registration of a software №2024618617 RU (2024)
"A data visualization application for computer models of irradiation facilities simulating mixed radiation fields at charged particle accelerators"
3. [I. S. Gordeev](#)
Certificate of state registration of a software №2023667527 RU (2023)
"An optimization tool for irradiation facility models simulating mixed radiation fields in charged particle accelerator environments"

Software in Use

Ubuntu OS: FLUKA&Flair, PHITS, GEANT4, ROOT, GnuPlot, Jupyter Notebook, L^AT_EX, GIMP, Inkscape, PyCharm, Visual Studio Code, Git

Windows OS: Microsoft Office applications, Origin, Mathcad, Autodesk Inventor, AutoCAD

About me

I specialize in radiation fields modeling for accelerator shielding and dosimetry. My work focuses on using Monte Carlo transport codes such as FLUKA and PHITS for radiation transport simulations, along with expertise in GEANT4, ROOT, and programming languages such as Python, C++, and Fortran. I am passionate about radiation safety, computational modeling, and the development of shielding strategies for accelerators.

My key character traits are perseverance and the ability to learn quickly. One of my favorite physicists is Richard Feynman, and I'm especially inspired by one of his famous quotes: "What I cannot create, I do not understand". I see this expression as my personal credo. To me, it means that if you can't create something—whether it's in your mind or in real life, through an experiment—you can't truly understand it. Deep understanding requires inventing new approaches and developing models that describe the problem at hand. After long, persistent reflection and attempts to solve a problem, a solution eventually emerges. So, let's create in order to understand!