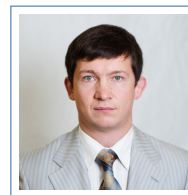


Oleg Rogozin

Curriculum Vitæ

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17 November 1987



Experience

Research

- 2017–now **Postdoctoral Research**, *Skolkovo Institute of Science and Technology*, Moscow.
- Multiscale modeling and simulation of physical processes of selective laser melting
- 2017–now **Postdoctoral Research**, *Federal Research Center "Computer Science and Control" of Russian Academy of Sciences*, Moscow.
- High-accuracy simulations of rarefied gas flows on the basis of the Boltzmann equation
 - Kinetic-based numerical methods for multiscale gas flows
- 2015–2017 **Doctoral Research**.
- Development and parallel implementation of the conservative projection discrete-velocity method for solving the Boltzmann equation
 - Numerical and asymptotic analysis of rarefied gas flows, including those driven by large temperature variations
- 2009–2014 **Doctoral Research**, *Moscow Institute of Physics and Technology*, Dolgoprudny.
- Design and development of the problem solving environment for high-performance computing
 - Development of numerical methods and algorithms for kinetic and fluid-dynamic-type equations
 - Computer simulation of the some classical problems of molecular gas dynamics

Industrial

- 2013–2015 **Software Developer**, *iBinom*, Moscow.
- Server-side development based on NodeJS and Amazon Web Services
 - Design of the special-purpose file system over Amazon S3
- 2011–2012 **Software Engineer**, *National Research Centre "Kurchatov Institute"*, Moscow.
- InfiniBand network troubleshooting on a supercomputer
 - Diagnostic tools development for InfiniBand network (shell)
 - Stereo 3D visualization
- 2006–2011 **Laboratory Assistant**, *National Research Centre "Kurchatov Institute"*, Moscow.
- Scientific research on rarefied gas dynamics
 - Administration of Linux-based stations

Teaching

- 2018–now **Lecturer**, *Skolkovo Institute of Science and Technology*, Moscow.
- "Numerical methods in engineering and science" for graduate students under the guidance of Prof. Oleg Vasilyev and Prof. Aslan Kasimov
- 2012–2012 **Lecturer**, *Moscow Institute of Physics and Technology*, Dolgoprudny.
- "Computer architecture" for undergraduate students
- 2005–2006 **Instructor**, *Moscow Institute of Physics and Technology*, Dolgoprudny.
- Extramural courses for university entrants

Education

- 2011–2014 **Ph.D. (Physics and Mathematics)**, *Moscow Institute of Physics and Technology*, Dolgoprudny.
- Numerical and asymptotic analysis of some classical problems of molecular gas dynamics
- Supervisor: Prof. Felix Tcheremissine
 - Speciality: Mechanics of liquid, gas, and plasma
 - Defended at Computing Center of RAS on May 24, 2018
- 2009–2011 **M.Sc. (Applied Mathematics and Physics)**, *Moscow Institute of Physics and Technology*, Dolgoprudny, *4.88/5.00*.
- The solution of classical problems of rarefied gas dynamics by the projection method of discrete ordinates
- 2005–2009 **B.Sc. (Applied Mathematics and Physics)**, *Moscow Institute of Physics and Technology*, Dolgoprudny, *4.97/5.00*.
- Nonequilibrium gas flows simulation in channels with different geometry on the basis of the Boltzmann equation

Languages

Russian	Native
English	Upper-intermediate
German	Basic
French	Basic

Computer skills

OSes	Linux (administration), OS X, Windows
Languages	C++98/11/14/17/20, Python, Matlab/Octave, Fortran, Javascript, Shell, SQL, Assembler
Software	OpenFOAM, Amazon Web Services
Parallel	MPI, OpenMP, Hadoop, HPX
Networking	Ethernet, InfiniBand

Research Interests

- Current Numerical methods, Multiscale modeling, Computational fluid mechanics, Additive manufacturing
- Previous Boltzmann equation, Rarefied gas dynamics, Numerical methods, High-performance computing

Invited speaker

- 2nd International Workshop on Aerodynamics Covering Various Flow Regimes (IWACFR-2017), Mianyang, Sichuan, China, Aug 9-12, 2017

Reviewer

- Physics of Fluids
- Vacuum
- Science Bulletin
- Results in Applied Mathematics
- Mathematics

Main Publications

- [1] E. L. Sharaborin, O. A. Rogozin, and A. R. Kasimov. “The Coupled Volume of Fluid and Brinkman Penalization Methods for Simulation of Incompressible Multiphase Flows”. In: *Fluids* 6.9 (2021). DOI: 10.3390/fluids6090334.
- [2] V. V. Aristov, O. V. Ilyin, and O. A. Rogozin. “Kinetic multiscale scheme based on the discrete-velocity and lattice-Boltzmann methods”. In: *Journal of Computational Science* 40 (2020), p. 101064. DOI: 10.1016/j.jocs.2019.101064. arXiv: 1806.09225.
- [3] O. A. Rogozin. “Slow non-isothermal flows: numerical and asymptotic analysis of the Boltzmann equation”. In: *Computational Mathematics and Mathematical Physics* 57.7 (2017), pp. 1201–1224. DOI: 10.1134/S0965542517060112. arXiv: 1701.05811.
- [4] O. Rogozin. “Numerical analysis of the nonlinear plane Couette-flow problem of a rarefied gas for hard-sphere molecules”. In: *European Journal of Mechanics B/Fluids* 60 (2016), pp. 148–163. DOI: 10.1016/j.euromechflu.2016.06.011.
- [5] O. Rogozin. “Computer simulation of slightly rarefied gas flows driven by significant temperature variations and their continuum limit”. In: *Theoretical and Computational Fluid Dynamics* 28.6 (2014), pp. 573–587. DOI: 10.1007/s00162-014-0334-5. arXiv: 1410.6711.

Other Publications

- [1] A. M. Filimonov, O. A. Rogozin, O. N. Dubinin, Y. O. Kuzminova, A. A. Shibalova, I. V. Okulov, I. S. Akhatov, and S. A. Evlashin. “Modification of Mechanical Properties in Directed Energy Deposition by a Static Magnetic Field: Experimental and Theoretical Analysis”. In: *Materials* 14.18 (2021), p. 5190. DOI: 10.3390/ma14185190.
- [2] A. M. Filimonov, O. A. Rogozin, D. G. Firsov, Y. O. Kuzminova, S. N. Sergeev, A. P. Zhilyaev, M. I. Lerner, N. E. Toropkov, A. P. Simonov, I. I. Binkov, et al. “Hardening of Additive Manufactured 316L Stainless Steel by Using Bimodal Powder Containing Nanoscale Fraction”. In: *Materials* 14.1 (2021), p. 115. DOI: 10.3390/ma14010115.
- [3] V. V. Aristov, O. V. Ilyin, and O. A. Rogozin. “A hybrid numerical scheme based on coupling discrete-velocities models for the BGK and LBGK equations”. In: *Proceedings of 31th International Symposium on Rarefied Gas Dynamics*. 2019. DOI: 10.1063/1.5119547.
- [4] O. A. Rogozin, V. V. Aristov, A. Peng, and Z. Li. “Regularization and modeling of the Boltzmann collisional operator: Tcheremissine and Shakhov approaches”. In: *Proceedings of 31th International Symposium on Rarefied Gas Dynamics*. 2019. DOI: 10.1063/1.5119548.

- [5] V. V. Aristov, O. V. Ilyin, and O. A. Rogozin. “Fluid-kinetic coupling of the BGK and lattice Boltzmann equations”. In: *7th European Conference for Aeronautics and Aerospace Sciences*. 2017. DOI: 10.13009/EUCASS2017-652.
- [6] Y. A. Anikin, Y. Y. Kloss, O. A. Rogozin, T. A. Sazykina, and F. G. Tcheremissine. *Introduction to Numerical Methods in Rarefied Gas Dynamics*. Fiztekh-polygraph, 2011, p. 80.
- [7] O. I. Dodulad, Y. Y. Kloss, D. V. Martynov, O. A. Rogozin, V. V. Ryabchenkov, P. V. Shuvalov, and F. G. Tcheremissine. “Problem Solving Environment for Computing and Analysing the Gas Kinetic Processes”. In: *Nano and Microsystem Technique 2* (2011), pp. 12–17.
- [8] Y. A. Anikin, E. P. Derbakova, O. I. Dodulad, Y. Y. Kloss, D. V. Martynov, O. A. Rogozin, P. V. Shuvalov, and F. G. Tcheremissine. “Computing of Gas Flows in Micro- and Nanoscale Channels on the Base of the Boltzmann Kinetic Equation”. In: *Procedia Computer Science* 1.1 (2010), pp. 735–744. DOI: 10.1016/j.procs.2010.04.079.
- [9] Y. A. Anikin, E. P. Derbakova, N. I. Khokhlov, Y. Y. Kloss, O. A. Rogozin, P. V. Shuvalov, and F. G. Tcheremissine. “BKViewer – Software for Visualizing the Simulation Results of Phenomena in a Rarefied Gas”. 2010613640. 2010.
- [10] E. P. Derbakova, Y. Y. Kloss, O. A. Rogozin, P. V. Shuvalov, and F. G. Tcheremissine. “Rogsolv – Software for Simulating Gas Kinetic Processes on the Basis of the Numerical Solution of the Boltzmann Equation”. 2010613639. 2010.
- [11] Y. Y. Kloss, O. A. Rogozin, and F. G. Tcheremissine. “Computer Simulation of the Multistage Knudsen Micropump in Plane Geometry”. In: *Nano and Microsystem Technique* 6 (2010), pp. 24–31.