

Dr. Nikita S. Gibanov

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EDUCATION

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| 2016–2020 | Ph.D. student
Specialization “Unsteady conjugate natural convective heat transfer in closed cavities with local heat source different shapes” at Tomsk State University, Russia |
| 2016 | Master’s degree in Fluid Mechanics, Tomsk State University, Russia |
| 2014 | Bachelor’s degree in Fluid Mechanics, Tomsk State University, Russia |

APPOINTMENTS

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| 2022–Present | Associate professor of the Department of Theoretical Mechanics, Tomsk State University |
| 2022–Present | Researcher at the Laboratory on Convective Heat and Mass Transfer, Tomsk State University |
| 2018–2022 | Senior Lecturer of the Department of Theoretical Mechanics, Tomsk State University |
| 2017–2022 | Junior Researcher at the Laboratory on Convective Heat and Mass Transfer, Tomsk State University |
| 2014–2016 | Laboratory Assistant at the Laboratory on Convective Heat and Mass Transfer, Tomsk State University |
| 2012–2014 | Laboratory Assistant at the Study Laboratory of Computational Mathematics and Computer Modeling department, Tomsk State University |

AREAS OF INTEREST

Conjugate heat and mass transfer	systems
Surface Thermal Radiation	Computational fluid dynamics
Natural convection	Finite difference method
Heat and mass transfer in closed cavities	Lattice Boltzmann method
Different shapes of local heat (isothermal and volumetric heat generation) source	Fluid flow and heat transfer in 3D channels
Numerical analysis	Active and passive electronic cooling systems
Heat transfer and flow pattern in electronic	

Citations and Other Statistics (as of November 2021)

- 1) Social Science Citation Index (Web of Science): over 496 citations, h-index 12
- 3) Scopus: 524 citations, h-index 13

Selected Research Projects and Grants (Project Leader)

2022 – 2024	«Mathematical modeling of conjugate convective heat transfer in three-dimensional channels with using multiprocessor calculations», grant of Russian Science Foundation, Tomsk, Russia.
2021 – 2023	«Development of effective active and passive cooling systems for electronic equipment using modern computing technologies», scholarship of the President of the Russian Federation, Tomsk, Russia.
2018 – 2020	«Intensification of heat transfer in closed cavities with heaters of various shapes, sizes and heat generation powers», scholarship of the President of the Russian Federation, Tomsk, Russia.

Selected Research Projects and Grants (Member of the Research Team)

2014 – 2016	« Modeling of heat and mass transfer processes and phase changing in heat pipes», government task of the Ministry of Education and Science of the Russian Federation, Tomsk, Russia.
2015 – 2016	«Mathematical modeling of unsteady regimes of conjugated convective-radiative heat transfer in technological objects taking into account external hydrodynamic and thermal effects», Grants Council, Tomsk, Russia.
2017 – 2019	«Methods for intensifying convective heat transfer in closed semi-open systems», government task of the Ministry of Education and Science of the Russian Federation, Tomsk, Russia.

- 2017 – 2018 «Mathematical modeling of convective heat transfer in media with variable physical properties», Grants Council, Tomsk, Russia.
- 2017 – 2018 «Mathematical modeling of convective heat transfer and entropy generation in closed and semi-open cavities in the presence of a magnetic field», grant of Russian Foundation for Basic Research, Tomsk, Russia.
- 2017 – 2019 «Simulation of active and passive cooling systems of heat-generating elements in electronics and power engineering», grant of Russian Science Foundation, Tomsk, Russia.
- 2019 – 2020 « Numerical investigations of conjugate heat and mass transfer in electronic equipment cooling systems based on materials with phase transitions», grant of Russian Foundation for Basic Research, Tomsk, Russia.
- 2019 – 2020 «Mathematical modeling of complex heat exchange in technological areas with heat generation elements», Grants Council, Tomsk, Russia.

Conference and Seminar Presentations

2022

- XIX International Conference of Students and Young Scientists «Prospects of Fundamental Sciences Development», Tomsk, Russia;
- 5th International Symposium on Convective Heat and Mass Transfer (CONV-22), Izmir, Turkey;
- All-Russian Conference with elements of a scientific school for young scientists "XXXVIII Siberian Thermophysical Seminar», Novosibirsk, Russia.
- 8th Russian National Conference on Heat and Mass Transfer (RNCHT-8), Moscow, Russia.

2021

- XVIII International Conference of Students and Young Scientists «Prospects of Fundamental Sciences Development», Tomsk, Russia;
- All-Russian youth scientific conference of students, graduate students and young scientists «All the facets of mathematics and mechanics», Tomsk, Russia;
- All-Russian Conference with elements of a scientific school for young scientists "XXXVII Siberian Thermophysical Seminar», Novosibirsk, Russia.

2020

- XVII International Conference of Students and Young Scientists «Prospects of Fundamental Sciences Development», Tomsk, Russia;

- All-Russian Conference with elements of a scientific school for young scientists "XXXVI Siberian Thermophysical Seminar», Novosibirsk, Russia.
- The 3rd International Conference on Frontiers in Industrial and Applied Mathematics-2020 (FIAM-2020), Jamshedpur, Jharkhand, India

2019

- 12th International Conference on Thermal Engineering (ICTEA-2018), Gandhinagar, India;
- All-Russian youth scientific conference of students, graduate students and young scientists «All the facets of mathematics and mechanics», Tomsk, Russia;
- XVI International Conference of Students and Young Scientists «Prospects of Fundamental Sciences Development», Tomsk, Russia;
- XXII School-seminar of young scientists and specialists under the guidance of Academician A.I. Leontiev «Problems gas dynamics and heat and mass transfer in energy installations», Moscow, Russia.
- All-Russian Conference with elements of a scientific school for young scientists "XXXV Siberian Thermophysical Seminar», Novosibirsk, Russia.
- VI All-Russian scientific conference «Perm hydrodynamics scientific readings», Perm, Russia.

2018

- 11th International Conference on Thermal Engineering (ICTEA-2018), Doha, Qatar;
- XIII International Conference of Students and Young Scientists "Prospects of Fundamental Sciences Development", Tomsk, Russia;
- All-Russian Conference with elements of a scientific school for young scientists "XXXIV Siberian Thermophysical Seminar», Novosibirsk, Russia;
- All-Russian conference on mathematics and mechanics, Tomsk, Russia;
- 7th Russian National Conference on Heat and Mass Transfer (RNCHT-7), Moscow, Russia.

2017

- XIV International Conference of Students and Young Scientists "Prospects of Fundamental Sciences Development", Tomsk, Russia;
- XXI School-seminar of young scientists and specialists under the guidance of Academician A.I. Leontiev "Problems of gas dynamics and heat and mass transfer in power installations ", St. Petersburg, Russia;
- XXXIII Siberian Thermophysical Seminar, Novosibirsk, Russia;

- VI International Scientific and Technical Conference of Young Scientists, Post-Graduates and Students "High Technologies in Modern Science and Technology", Tomsk, Russia;
- VI International Youth Scientific Conference «Actual Problems of Contemporary Continuum Mechanics and Celestial Mechanics – 2017», Tomsk, Russia.

2016

- All-Russian youth scientific conference of students, graduate students and young scientists «All the facets of mathematics and mechanics», Tomsk, Russia;
- IX All-Russian Conference "Fundamental and Applied Problems of Modern Mechanics", Tomsk, Russia;
- XIV All-Russian school-conference with international participation "Actual problems of thermophysics and physical hydrodynamics", Novosibirsk, Russia.

2015

- All-Russian youth scientific conference of students, graduate students and young scientists «All the facets of mathematics and mechanics», Tomsk, Russia;
- XII International Conference of Students and Young Scientists "Prospects of Fundamental Sciences Development", Tomsk, Russia;
- XX School-seminar of young scientists and specialists under the guidance of Academician A.I. Leontiev "Problems gas dynamics and heat and mass transfer in energy installations", Zvenigorod, Russia;
- IX International Scientific and Practical Conference «Modern Problems of Mechanical Engineering», Tomsk, Russia.

2014

- All-Russian youth scientific conference of students, graduate students and young scientists «All the facets of mathematics and mechanics», Tomsk, Russia;
- XII International Scientific and Practical Conference of Students, Postgraduates and Young Scientists «Youth and Modern Information Technologies», Tomsk, Russia;
- International Youth Scientific Conference «Current issues of continuum mechanics and celestial mechanics», Tomsk, Russia.

Journal papers

1. Gibanov N.S., Sheremet M.A. Effect of the buoyancy force on natural convection in a cubical cavity with a heat source of triangular cross-section // *IOP Conf. Series: Materials Science and Engineering*. – 2016. – Vol. 124. – 012057, – pp. 1-4. DOI: 10.1088/1757-899X/124/1/012057
2. Gibanov N.S., Sheremet M.A., Pop I. Free convection in a trapezoidal cavity filled with a micropolar fluid // *International Journal of Heat and Mass Transfer*. – 2016. – Vol. 99. – pp. 831–838. DOI: 10.1016/j.ijheatmasstransfer.2016.04.056 (IF=3.891)
3. Gibanov N.S., Sheremet M.A., Pop I. Natural convection of micropolar fluid in a wavy differentially heated cavity // *Journal of Molecular Liquids*. – 2016. – Vol. 221. – pp. 518–525. DOI: 10.1016/j.molliq.2016.06.033 (IF=4.513)
4. Bondareva N.S., Gibanov N.S., Martyushev S.G., Miroshnichenko I.V., Sheremet M.A. Comparative analysis of finite difference method and finite volume method for unsteady natural convection and thermal radiation in a cubical cavity filled with a diathermic medium // *Computer Research and Modeling*. – 2017. – Vol. 9. – pp. 567-578. DOI: 10.20537/2076-7633-2017-9-4-567-578
5. Gibanov N.S., Sheremet M.A., Oztop H.F., Al-Salem K. Convective heat transfer in a lid-driven cavity with a heat-conducting solid backward step under the effect of buoyancy force // *International Journal of Heat and Mass Transfer*. – 2017. – Vol. 112. – pp. 158-168. DOI: 10.1016/j.ijheatmasstransfer.2017.04.102 (IF=3.891)
6. Gibanov N.S., Sheremet M.A., Oztop H.F., Abu-Hamdeh N. Effect of uniform inclined magnetic field on mixed convection in a lid-driven cavity having a horizontal porous layer saturated with a ferrofluid // *International Journal of Heat and Mass Transfer*. – 2017. – Vol. 114. – pp. 1086-1097. DOI: 10.1016/j.ijheatmasstransfer.2017.07.001 (IF=3.891)
7. Gibanov N.S., Sheremet M.A. Unsteady natural convection in a cubical cavity with a triangular heat source // *International Journal of Numerical Methods for Heat and Fluid Flow*. – 2017. – Vol. 27. – pp. 1795-1813. DOI: 10.1108/HFF-06-2016-0234 (IF = 2.45)
8. Gibanov N.S., Sheremet M.A., Oztop H.F., Nusier O.K. Convective heat transfer of ferrofluid in a lid-driven cavity with a heat-conducting solid backward step under the effect of a variable magnetic field // *Numerical Heat Transfer; Part A: Applications*. – 2017. – Vol. 72. – pp. 54-67. DOI: 10.1080/10407782.2017.1353377 (IF = 2.409)
9. Gibanov N.S., Sheremet M.A., Oztop H.F., Al-Salem K. Effect of uniform inclined magnetic field on natural convection and entropy generation in an open cavity having a horizontal porous layer saturated with a ferrofluid // *Numerical Heat Transfer; Part A: Applications*. – 2017. – Vol. 72. – pp. 479-494. DOI: 10.1080/10407782.2017.1386515 (IF = 2.409)
10. Gibanov N.S., Sheremet M.A., Ismael M.A., Chamkha A.J. Mixed convection in a ventilated cavity filled with a triangular porous layer // *Transport in Porous Media*. – 2017. – Vol. 120. – pp. 1-21. DOI: 10.1007/s11242-017-0888-y (IF = 1.997)
11. Gibanov N.S., Sheremet M.A. The impact of position of the local volumetric heat generating source of a semi-cylindrical shape on heat exchange inside the cavity // *Vestnik Udmurtskogo Universiteta: Matematika, Mekhanika, Komp'yuternye Nauki*. – 2018. – Vol. 28. – pp. 119-130. DOI: 10.20537/vm180111

12. Gibanov N.S., Sheremet M.A., Oztop H.F., Al-Salem K. MHD natural convection and entropy generation in an open cavity having different horizontal porous blocks saturated with a ferrofluid // *Journal of Magnetism and Magnetic Materials*. – 2018. – Vol. 452. – pp. 193-204. DOI: 10.1016/j.jmmm.2017.12.075 (IF = 2.683)
13. Gibanov N.S., Sheremet M.A., Oztop H.F., Abu-Hamdeh, N. Mixed convection with entropy generation of nanofluid in a lid-driven cavity under the effects of a heat-conducting solid wall and vertical temperature gradient // *European Journal of Mechanics, B/Fluids*. – 2018. – Vol. 70. – pp. 148-159. DOI: 10.1016/j.euromechflu.2018.03.002 (IF = 1.811)
14. Gibanov N.S., Sheremet M.A. Natural convection in a cubical cavity with different heat source configurations // *Thermal Science and Engineering Progress*. – 2018. – Vol. 7. – pp. 138-145. DOI: 10.1016/j.tsep.2018.06.004
15. Gibanov N.S., Bondareva N.S., Sheremet M.A. Melting of nano-enhanced PCM inside finned radiator // *Journal of Physics: Conference Series*. – 2018. – Vol. 1105. – Issue 1, 012023 DOI: 10.1088/1742-6596/1105/1/012023
16. Gibanov N.S., Sheremet M.A. Effect of trapezoidal heater on natural convection heat transfer and fluid flow inside a cubical cavity // *International Journal of Numerical Methods for Heat and Fluid Flow*. – 2019. – Vol. 29. – pp. 1232-1248. DOI: 10.1108/HFF-07-2018-0407 (IF = 2.45)
17. Gibanov N.S., Miroshnichenko I.V., Sheremet M.A. Comparison of two numerical approaches for natural convection in cavities with energy sources. *Journal of Physics: Conference Series*. – 2019. – Vol. 1382. – Issue 1, 012123 DOI: 10.1088/1742-6596/1382/1/012131
18. Bondareva N.S., Gibanov N.S., Sheremet M.A. Computational study of heat transfer inside different PCMs enhanced by Al₂O₃ nanoparticles in a copper heat sink at high heat loads. *Nanomaterials*. – 2020. – Vol. 10. – Issue 2. – №284 DOI: 10.3390/nano10020284
19. Gibanov N.S., Miroshnichenko I.V., Sheremet M.A. Numerical analysis of heat source surface emissivity impact on heat transfer performance in a rectangular enclosure at high Rayleigh numbers. *International Journal of Computational Methods in Engineering Science and Mechanics*. – 2020. – Vol. 21. – Issue 4. – pp. 205-214 DOI: 10.1080/15502287.2020.1788191
20. Gibanov N.S., Sheremet M.A. Numerical investigation of conjugate natural convection in a cavity with a local heater by the lattice Boltzmann method // *Fluids*. – 2021. – Vol. 6. – Article number 316. DOI: 10.3390/fluids6090316
21. Gibanov N.S., Miroshnichenko I.V., Sheremet M.A. Numerical Analysis of Heat Transfer through Hollow Brick Using Finite-Difference Method // *Axioms*. – 2022. – Vol. 11. Iss. 2. – Article number 37. DOI: 10.3390/axioms11020037
22. Gibanov N.S., Rashidi M.M., Sheremet M.A. Comparative analysis of the lattice Boltzmann method and the finite difference technique of thermal convection in closed domains with heaters // *International Journal of Numerical Methods for Heat and Fluid Flow*. – 2022. – Vol. 32. – pp. 3579-3597
23. Gibanov N.S., Sheremet M.A. Effect of shape and sizes of a local heat source on convective heat transfer in a square cavity // *Computer Research and Modeling*. – 2015. – Vol. 7, №2, pp. 271-280
24. Gibanov N.S., Sheremet M.A. Numerical investigation of conjugate free-convective heat

transfer in a closed cavity with a triangular heat generation source // Bulletin of Perm University. Series: Physics. – 2018. – Vol. 42, issue 4. – pp 52-59

Reviewer:

- International Journal of Heat and Mass Transfer
- International Communications in Heat and Mass Transfer
- International Journal of Numerical Methods for Heat & Fluid Flow
- European Journal of Mechanics - B/Fluids
- Nature. Scientific Reports
- Energies
- Materials
- Mathematics
- Thermophysics and Aeromechanics
- Computer Methods in Biomechanics and Biomedical Engineering
- Jordan Journal of Mechanical and Industrial Engineering