

PhD Igor Miroshnichenko – Curriculum Vitae

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Contact address

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Current position / Affiliations

Senior Researcher, Regional Scientific and Educational Mathematical Centre, Tomsk state university, Russia
Associate Professor, Theoretical Mechanics Department, Tomsk state university, Russia

Education

10/2014 – 07/2018 PhD in Fluid mechanics, Title of thesis: Turbulent modes of coupled thermogravitational convection and thermal radiation in areas with local energy sources, Tomsk state university, Tomsk
09/2012 – 06/2014 Master studies in Fluid mechanics, Tomsk state university, Tomsk
09/2008 – 06/2012 Undergraduate studies in Mechanics, Tomsk state university, Tomsk

Research Interests

- 1) Turbulence
- 2) Numerical simulations
- 3) Fluid dynamics
- 4) Natural convection modeling

Citations and Other Statistics (as of June 2019)

- 1) Social Science Citation Index (Web of Science): over 376 citations, h-index 12
- 3) Scopus: 782 citations, h-index 14

Selected Research Projects and Grants (Project Leader)

2019 – 2021 «Mathematical modeling of complex heat transfer in building structures», project of the Russian Science Foundation, 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.
2014 – 2015 «Mathematical modeling unsteady regimes conjugate convective heat transfer in systems containing the phase change material», grant of Russian Foundation for Basic Research, 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 – 2018 «Mathematical modeling of convective heat transfer in media with variable physical properties», Grants Council, Tomsk, Russia
2020 – 2022 «Simulation of active and passive cooling systems of heat-generating elements in electronics and power engineering», project of the Russian Science Foundation, Tomsk, Russia.

Conference and Seminar Presentations

- 2022 8TH Russian National Conference on Heat Transfer, Moscow.
- 2021 6TH WORLD CONGRESS ON MOMENTUM, HEAT AND MASS TRANSFER (MHMT'2021), Lisbon.
XVIII International Conference of Students and Young Scientists "Prospects of Fundamental Sciences Development", Tomsk.
- 2020 XVII International Conference of Students and Young Scientists "Prospects of Fundamental Sciences Development", Tomsk.
- 2019
The 7th Asian Symposium on Computational Heat Transfer and Fluid Flow, Tokyo;
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;
XII All-Russian Congress on Fundamental Problems of Theoretical and Applied Mechanics, Ufa.
- 2018
11th International Conference on Thermal Engineering (ICTEA-2018), Doha; XIII International Conference of Students and Young Scientists "Prospects of Fundamental Sciences Development", Tomsk; 7th Russian National Conference on Heat and Mass Transfer (RNCMT-7), Moscow.
- 2017
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; XXXIII Siberian Thermophysical Seminar, Novosibirsk; VI International Scientific and Technical Conference of Young Scientists, Post-Graduates and Students "High Technologies in Modern Science and Technology", Tomsk.
- 2016
XIII International Conference of Students and Young Scientists "Prospects of Fundamental Sciences Development", Tomsk; IX All-Russian Conference "Fundamental and Applied Problems of Modern Mechanics", Tomsk; XIV All-Russian school-conference with international participation "Actual problems of thermophysics and physical hydrodynamics", Novosibirsk.
- 2015
IV International Scientific and Technical Conference of Young Scientists, Post-Graduates and Students "High Technologies in Modern Science and Technology", Tomsk; XII International Conference of Students and Young Scientists "Prospects of Fundamental Sciences Development", Tomsk; 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; All-Russian Conference "XXXII Siberian Thermophysical Seminar", Novosibirsk; XXI International Scientific Conference of Students and Young Scientists "Modern Technologies and Technologies", Tomsk.
- 2014
XIII All-Russian school-conference with international participation "Actual problems of thermophysics and physical hydrodynamics", Novosibirsk;

Refereed Journals

- 2022
Miroshnichenko I.V., Gibanov N.S., Sheremet M.A. Numerical analysis of heat transfer through hollow brick using finite-difference method // *Axioms*. – 2022. – Vol. 11, No. 2. – 37.
- 2021
Mikhailenko S.A., Miroshnichenko I.V., Sheremet M.A. Thermal radiation and natural convection in a large-scale enclosure heated from below: Building application // *Building Simulation*. – 2021. – Vol. 14. – Pp. 681–691.

Miroshnichenko I.V., Toilibayev A.A., Sheremet M.A. Simulation of thermal radiation and turbulent free convection in an enclosure with a glass wall and a local heater // *Fluids*. – 2021. – Vol. 6, No. 91.

Miroshnichenko I.V., Sheremet M.A., Chen Y.-B., Chang J.-Y. Automation of the heated floor system in a room under the influence of ambient conditions // *Applied Thermal Engineering*. – 2021. – Vol. 196. – 117298.

2020.

Miroshnichenko I.V., Gibanov N.S., 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. – Pp. 205-214.

Sivaraj C., Miroshnichenko I.V., Sheremet M. A. Influence of thermal radiation on thermogravitational convection in a tilted chamber having heat-producing solid body // *International Communications in Heat and Mass Transfer*. – 2020. – Vol. 115. – 104611.

Miroshnichenko I.V., Sheremet M. A. Numerical simulation of heat transfer in an enclosure with time-periodic heat generation using finite-difference method // *Lecture Notes in Computer Science*. – 2020. – Vol. 12143. – Pp. 149-162.

Mikhailenko S.A., Miroshnichenko I.V., Sheremet M.A. Thermal radiation and natural convection in a large-scale enclosure heated from below: Building application // *Building Simulation*. – in press

2019

Miroshnichenko, I.V., Sheremet, M.A., Mohamad, A.A. The influence of surface radiation on the passive cooling of a heat-generating element // *Energies*. -2019. – Vol. 12. – Article number en12060980.

Miroshnichenko I.V., Sheremet M. A. Effect of Thermal Conductivity and Emissivity of Solid Walls on Time-Dependent Turbulent Conjugate Convective-Radiative Heat Transfer // *Journal of Applied and Computational Mechanics*. – 2019. – Vol. 5. – Pp. 207-216.

2018

Miroshnichenko I.V., Sheremet M. A. Turbulent natural convection heat transfer in rectangular enclosures using experimental and numerical approaches: A review // *Renewable and Sustainable Energy Reviews*. – 2018. – Vol. 82. – Pp. 40-59.

Miroshnichenko I.V., Sheremet M. A. Radiation effect on conjugate turbulent natural convection in a cavity with a discrete heater // *Applied Mathematics and Computation*. – 2018. – Vol. 321. – Pp. 358-371.

Miroshnichenko I.V., Sheremet M. A. Turbulent natural convection combined with thermal surface radiation inside an inclined cavity having local heater // *International Journal of Thermal Sciences*. -2018. – Vol. 124. – Pp. 122-130.

Chamkha A.J., Miroshnichenko I.V., Sheremet M.A. Unsteady conjugate natural convective heat transfer and entropy generation in a porous semi-circular cavity // *ASME Journal of Heat Transfer*. – 2018. – Vol. 140. – Issue 6. – Article number 062501

Miroshnichenko I.V., Sheremet M.A., Oztop H.F., Abu-Hamdeh N. Natural convection of alumina-water nanofluid in an open cavity having multiple porous layers // *International Journal of Heat and Mass Transfer*. – 2018. – Vol. 125. – Pp. 648–657.

Miroshnichenko I.V., Sheremet M.A., Oztop H.F., Abu-Hamdeh N. Natural convection of Al₂O₃/H₂O nanofluid in an open inclined cavity with a heat-generating element // *International Journal of Heat and Mass Transfer*. – 2018. – Vol. 126. – Pp. 184–191.

Miroshnichenko I.V., Sheremet M.A., Chamkha A.J. Turbulent natural convection combined with surface thermal radiation in a square cavity with local heater // *International Journal of Numerical Methods for Heat & Fluid Flow*. – 2018. – Vol. 28. – Issue 7. – Pp. 1698–1715.

2017

Miroshnichenko, I.V., Sheremet, M.A., Pop, I. Natural convection in a trapezoidal cavity filled with a micropolar fluid under the effect of a local heat source // *International Journal of Mechanical Sciences*. – 2017. – Vol. 120. – Pp. 182-189.

Miroshnichenko I.V., Chamkha A.J., Sheremet M.A. Numerical analysis of unsteady conjugate natural convection of hybrid water-based nanofluid in a semicircular cavity // *Journal of Thermal Science and Engineering Applications*. – 2017. – Vol. 9. – Pp. 1-9.

Miroshnichenko I.V., Sheremet M.A. Turbulent Natural Convection and Surface Radiation in a Closed Air Cavity with a Local Energy Source // *Journal of Engineering Physics and Thermophysics*. 2017. - Vol. 90. – Pp. 557-563.

Miroshnichenko I.V., Sheremet M.A., Pop I., Ishak A. Convective heat transfer of micropolar fluid in a horizontal wavy channel under the local heating // *International Journal of Mechanical Sciences*. – 2017. – Vol. 128-129. – Pp. 541-549.

2016

Miroshnichenko, I.V., Sheremet, M.A., Oztop, H.F., Al-Salem, K. MHD natural convection in a partially open trapezoidal cavity filled with a nanofluid // *International Journal of Mechanical Sciences*. – 2016. – Vol. 119. – Pp. 294-302.

Miroshnichenko, I.V., Sheremet, M.A., Mohamad, A.A. Numerical simulation of a conjugate turbulent natural convection combined with surface thermal radiation in an enclosure with a heat source // *International Journal of Thermal Sciences*. -2016. – Vol. 109. – Pp. 172-181.

Miroshnichenko I.V., Sheremet M.A. Effect of surface radiation on transient natural convection in a wavy-walled cavity // *Numerical Heat Transfer; Part A: Applications*. -2016. – Vol. 69.- Pp. 369-382.

Miroshnichenko I.V., Sheremet M.A. Effect of surface emissivity on conjugate turbulent natural convection in an air-filled cavity with a heat source // *Key Engineering Materials*. -2016.- Vol. 685.-Pp. 315-319.

Miroshnichenko I.V., Sheremet M.A. Effect of thermophysical properties of solid walls on turbulent modes of complex heat transfer in an enclosure // *Key Engineering Materials*. -2016.- Vol. 683.-Pp. 540-547.

2015

Miroshnichenko I., Sheremet M. Comparative study of standard $k-\epsilon$ and $k-\omega$ turbulence models by giving an analysis of turbulent natural convection in an enclosure // *EPJ Web of Conferences*. – 2015. – Vol. 82. – Pp. 01057-1–01057-4.

Sheremet M.A., Miroshnichenko I.V. Numerical study of turbulent natural convection in a cube having finite thickness heat-conducting walls // *Heat and Mass Transfer*. – 2015. –Vol. 51.-Pp. 1559-1569.

Miroshnichenko I.V., Sheremet M.A. Effect of buoyancy force on turbulent modes of complex heat transfer in an air-filled square cavity // *IOP Conference Series: Materials Science and Engineering*. – 2015. –Vol. 93. Pp. 1-4.

Miroshnichenko I.V., Sheremet M.A. Numerical simulation of turbulent natural convection combined with surface thermal radiation in a square cavity // *International Journal of Numerical Methods for Heat and Fluid Flow*. – 2015. – Vol. 25. – Pp. 1600-1618.

Martyushev S.G., Miroshnichenko I.V., Sheremet M.A. Influence of the geometric parameter on the regimes of natural convection and thermal surface radiation in a closed parallelepiped // *Journal of Engineering Physics and Thermophysics*. – 2015. – Vol. 88. – Pp. 1522-1529.

2014

Martyushev S.G., Miroshnichenko I.V., Sheremet M.A. Numerical Analysis of Spatial Unsteady Regimes of Conjugate Convective-Radiative Heat Transfer in a Closed Volume with an Energy Source // *Journal of Engineering Physics and Thermophysics*. – 2014. – Vol. 87. – Pp. 124 -134.