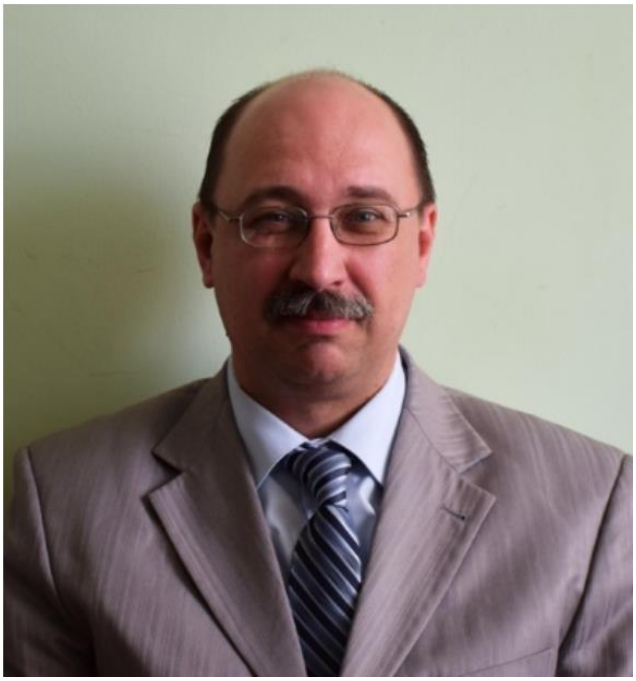
Summary C.V. of Doctor of Technical Sciences, Professor Andry Sedelnikov



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Education and work.
In 1994, he graduated from the Air- and spacecraft Department of the Samara State Aerospace University (specialty 5.5 years of study 1988-1994) with a degree in spacecraft and upper stages.

In the period 1994-1998 he studied at graduate school at the Department of Theoretical Mechanics of Samara State Aerospace University.

In 1998 he defended Ph. D (physics and mathematics) “Model and methodology for determining the microaccelerations level on board a spacecraft with elastic structural elements” with a degree in Theoretical Mechanics at Samara State Aerospace University.

In the period 2011–2015 he studied in doctoral studies at the Department of Design of Air- and spacecraft Engines of Samara State Aerospace University.

In 2015 he defended his doctoral dissertation (technical sciences) “Development of a comprehensive method for monitoring and evaluating microaccelerations on board a spacecraft” with a degree in “Monitoring and testing of aircraft and their systems” at Omsk State Technical University.

Currently working:
Department of Space Engineering, Samara National Research University - Professor;
Department of Theoretical Mechanics, Samara National Research University - Professor;
Department of Flight Dynamics and Control Systems, Samara National Research University - Professor;
Department of Higher Mathematics, Samara National Research University - Professor;
Research Laboratory of Automated Research Systems - Leading Researcher.

Areas of scientific interest.

Main publication.

1) Microgravity modelling and research.

1. Sedelnikov A.V. Fractal assessment of microaccelerations at weak damping of natural oscillation in spacecraft elastic elements. II. Russian Aeronautics. 2007. Vol. 50. № 3. P. 322–325. (Q4)
2. Sedelnikov A.V. A problem of choosing a generalized parameter of flexible spacecraft structures to construct a fractal model of microaccelerations. Russian Aeronautics. 2008. Vol. 51 № 1. P. 84-86. (Q4)
3. Sedelnikov A.V., Serpukhova A.A. Simulation of a flexible spacecraft motion to evaluate microaccelerations // Russian Aeronautics. 2009. Vol. 52. № 4. P. 484–497. (Q4)
4. Sedelnikov A.V., Kireeva A.A. Alternative solution to increase the duration of microgravity calm period on board the space laboratory. Acta Astronautica. 2011. Vol. 69. №. 6–7, 480–484. (Q2)
5. Sedelnikov A.V. Fractal quality of microaccelerations. Microgravity Science and Technology. 2012. Vol. 24. № 5. P. 345–350. (Q1)
6. Belousov A.I., Sedelnikov A.V. Probabilistic estimation of fulfilling favorable conditions to realize the gravity-sensitive processes aboard a space laboratory. Russian Aeronautics. 2013. Vol. 56. №. 3. P. 60–63. (Q4)
7. Sedelnikov A.V. The usage of fractal quality for microacceleration data recovery and for measuring equipment efficiency check. Microgravity Science and Technology. 2014. Vol. 26. № 5. P. 327–334. (Q1)
8. Belousov A.I., Sedelnikov A.V. The problems of formation and control of the required level of microacceleration during testing and operation of spacecraft. Russian Aeronautics. 2014. Vol. 57. № 2. P. 111–117. (Q4)
9. Sedelnikov A.V. Classification of microaccelerations according to methods of their control. Microgravity Scienes and Technology. 2015. Vol. 27. № 3, 245–251. (Q1)
10. Sedelnikov A.V., Potienko K.I. How to estimate microaccelerations for spacecraft with elliptical orbit. Microgravity Science and Technology. 2016. Vol. 28. №. 1. P. 41–48. (Q2)
11. Sedelnikov A.V. Modeling of microaccelerations caused by running of attitude-control engines of spacecraft with elastic structural elements. Microgravity Science and Technology. 2016. Vol. 28. № 5. P. 491–498. (Q2)
12. Sedelnikov A.V. Study of over-assessment of microaccelerations when using a beam-model of elastic elements. International Review of Aerospace Engineering. 2016. Vol. 9. № 1. P. 9–12. (Q1)
13. Anshakov G.P., Belousov A.I., Sedelnikov A.V. The problem of estimating microaccelerations aboard Foton-M4 spacecraft. Russian Aeronautics. 2017. Vol. 60. №. 1. C. 83–89. (Q4)
14. Sedelnikov A.V. Evaluation of the level of microaccelerations on-board of a small satellite caused by a collision of a space debris particle with a solar panel. Jordan Journal of Mechanical and Industrial Engineering. 2017. Vol. 11. № 2. P. 121–127. (Q2)
15. Sedelnikov A.V., Potienko K.I. Analysis of reduction of controllability of spacecraft during conducting of active control over microaccelerations. International Review of Aerospace Engineering. 2017. Vol. 10. № 3. P. 160–166. (Q1)
16. Sedelnikov, A.V. Mean of microaccelerations estimate in the small spacecraft internal environment with the use fuzzy sets. Microgravity Science and Technology. 2018. Vol. 30. № 4. P. 503–509. (Q1)
17. Sedelnikov A.V. Accuracy assessment of microaccelerations simulation on the spacecraft “Foton-M” no. 2 according to magnetic measuring instruments data. Microgravity Science and Technology. 2020. Vol. 32. № 3. P. 259–264. (Q1)

18. Sedelnikov A.V. The Assessment Problem of Microaccelerations at the Experimental Sample of the Small Spacecraft “AIST” after the Battery Degradation and the Method of its Solution. Microgravity Science and Technology. – 2020. – Vol. 32. – № 4. – P. 673–679. (Q1)
19. Sedelnikov A.V., Taneeva A.S., Khnyryova E.S., Kamaletdinova M.V., Martynova E.D. Investigation of the rotational motion stability of the AIST small spacecraft prototype according to the measurements of the Earth's magnetic field, Journal of Physics: Conference Series. – 2021. – Vol. 1901. – 012022. (Q4)
20. Sedelnikov A.V., Eskina E.V., Taneeva A.S., Khnyryova E.S., Bratkova M.E. The problem of ensuring and controlling microaccelerations in the internal environment of a small technological spacecraft, Journal of Current Science and Technology. – 2023. – Vol. 13. – № 1. – P. 1–11. (Q4)

2) Applied mechanics. Problems of thermal conductivity and thermoelasticity.

1. Sedelnikov A.V., Rodina V.S., Orlov D.I. Modeling the effect of temperature deformations of large elements on the dynamics of the orbital motion of a small spacecraft. Journal of Physics: Conference Series. – 2019. – Vol. 1368. – 042074. (Q4)
2. Sedelnikov A.V. Development of control algorithms for the orbital motion of a small technological spacecraft with a shadow portion of the orbit / A.V. Sedelnikov, D.I. Orlov // Microgravity Science and Technology. – 2020. – Vol. 32. – № 5. – P. 941–951. (Q1)
3. Sedelnikov A.V., Orlov D.I., Leskova Yu. D. Investigation of the dynamics of a small spacecraft elastic element temperature change under a temperature shock considering a penumbral section, IOP Conference Series: Materials Science and Engineering. – 2020. – Vol. 1061. – 012028.
4. Sedelnikov A.V., Orlov D.I. Analysis of the significance of the influence of various components of the disturbance from a temperature shock on the level of microaccelerations in the internal environment of a small spacecraft, Microgravity Science and Technology. – 2021. – Vol. 33. – № 2. – 22. (Q2)
5. Sedelnikov A.V., Serdakova V.V., Khnyryova E.S. Construction of the criterion for using a two-dimensional thermal conductivity model to describe the stress-strain state of a thin plate under the thermal shock, Microgravity Science and Technology. – 2021. –Vol. 33. – № 6. – 65. (Q2)
6. Sedelnikov A.V., Serdakova V.V. Evaluation of the Effect of the Difference between the Real Attachment Unit and the Sealing in the Study of the Stress-Strain State of the Solar Panel of a Small Spacecraft as a Result of a Temperature Shock, Applied Mechanics and Materials. – 2022. – Vol. 904. – P. 27–33.
7. Sedelnikov A.V., Salmin V.V., Lazarev Yu. N., Orlov D.I., Taneeva A.S. Compensating Microaccelerations from a Temperature Shock, Lecture Notes in Mechanical Engineering. – Safety in Aviation and Space Technologies. Select Proceedings of the 9th World Congress "Aviation in the XXI Century". – 2022. DOI: 10.1007/978-3-030-85057-9. (Q4)
8. Sedelnikov A.V., Serdakova V.V., Glushkov S.V., Nikolaeva A.S., Evtushenko M.A. Consideration of the Initial Deformation From Natural Oscillations of Large Elastic Elements of the Spacecraft When Assessing Microaccelerations From Thermal Shock Using a Two-dimensional Model of Thermal Conductivity, Microgravity Science and Technology. 2022. Vol. 34. № 2. 22. (Q2)
9. Sedelnikov A.V., Orlov D.I., Serdakova V.V., Nikolaeva A.S., Khnyreva E.S. Investigating the temperature field of large elastic elements of a small spacecraft for the Earth remote sensing to assess the effect of a temperature shock on its rotational motion, 2022 VIII International Conference on Information Technology and Nanotechnology (ITNT). – 2022. – doi:10.1109/ITNT55410.2022.9848563.
10. Sedelnikov A.V., Orlov D.I., Serdakova V.V., Nikolaeva A.S. The Symmetric Formulation of the Temperature Shock Problem for a Small Spacecraft with Two Elastic Elements, Symmetry. – 2023. – Vol. 15. – № 1. – 172. – https://doi.org/10.3390/sym15010172. (Q2)

11. Sedelnikov A.V., Orlov D.I., Serdakova V.V., Nikolaeva A.S. Investigation of the stress-strain state of a rectangular plate after a temperature shock, Mathematics. – 2023. – Vol. 11. – № 3. – 638. https://doi.org/10.3390/math11030638. (Q2)
12. Sedelnikov A.V., Orlov D.I., Serdakova V.V. et al. The importance of a three-dimensional formulation of the thermal conductivity problem in assessing the effect of a temperature shock on the rotational motion of a small spacecraft, E3S Web of Conferences. – 2023. – 371. – 03015. doi: 10.1051/e3sconf/202337103015.
13. Sedelnikov A.V., Serdakova V.V., Orlov D.I., Nikolaeva A.S. Investigating the Temperature Shock of a Plate in the Framework of a Static Two-Dimensional Formulation of the Thermoelasticity Problem, Aerospace. – 2023. – Vol. 10. – № 5. – 445. – https://doi.org/10.3390/aerospace10050445. (Q2)
14. Sedelnikov A.V., SerdakovaV.V., Nikolaeva A.S. Method of Taking into Account Influence of Thermal Shock on Dynamics of Small Satellite and its Use in Analysis of Microaccelerations, Microgravity Science and Technology. – 2023. –Vol. 35. – № 3. – 25. – https://doi.org/10.1007/s12217-023-10049-w. (Q2)
15. Sedelnikov A.V., Serdakova V.V., Nikolaeva A.S., Evtushenko M.A. Numerical Simulation of the Stress-Strain State of a Thin Plate in the ANSYS Package as a Two-Dimensional Formulation of the Thermo-Elasticity // Applications of Modelling and Simulation. – 2023. – Vol. 7. – P. 156–167.

3) Aerospace Engineering.

1. Belousov A.I., Sedelnikov A.V., Potienko K.I. Study of Effictive Application of Electric Jet Engine as a Mean to Reduce Microacceleration Level, International Review of Aerospace Engineering. 2015. Vol. 8. № 4. P. 157–160. (Q1)
2. Sedelnikov A.V., Molyavko D.P., Potienko K.I. How Does Asymmetry of Solar Panels Influence Constructive Component of Microacceleration Field of Inner Environment of Space Laboratory. Microgravity Science and Technology. 2017. Vol. 29. № 4. P. 305–311. (Q1)
3. Belousov A.I., Sedelnikov A.V. Selecting the parameters of the orientation engine for a technological spacecraft. IOP Conference Series: Materials Science and Engineering. – 2018. – Vol. 302. – 012019.
4. Anshakov G.P., Belousov A.I., Sedelnikov A.V., Gorozhankina A.S., Efficiency Estimation of Electrothermal Thrusters Use in the Control System of the Technological Spacecraft Motion, Russian Aeronautics. 2018. – Vol. 61. – № 3. P. 347–354. (Q4)
5. Belousov A.I., Sedelnikov A.V., Gorozhakina A.S. The simulation results of the operation of a small spacecraft motion control system with an electrothermal microdrive. Journal of Physics: Conference Series. – 2019. – Vol. 1368. – 042031. (Q4)
6. Sedelnikov A.V., Safronov S.L., Khnyreva E.S. Control of rotational motion of a partially inoperable small spacecraft using fuzzy sets. Journal of Physics: Conference Series. 2019. Vol. 1260. 032035. (Q4)
7. Anshakov G.P., Belousov A.I., Sedelnikov A.V. et al. Analysis of micro-acceleration requirements in the context of designing a small technological spacecraft. Journal of Physics: Conference Series. – 2021. – Vol. 1791. – 012001. (Q4)
8. Sedelnikov A.V., Orlov D.I., Khnyryova E.S., Nikolaeva A.S., Bratkova M.E. Using the -Bdot Algorithm to Reduce the Angular Velocity of Rotation for the Aist Small Spacecraft Pilot Model, Advances in Machinery, Materials Science and Engineering Application. – 2022. – doi:10.3233/ATDE220444.

4) Aerospace Instruments and Systems: Monitoring, Control, and Diagnostics.

1. Sedelnikov, A.V. Fast Analysis of Onboard Measurements of the Earth Magnetic Field for the Purpose of Microaccelerations Decrement on Board of the “AIST” Small Spacecraft During its Uncontrolled Orbital Flight. International Review of Aerospace Engineering. 2018. Vol. 11. № 2. P. 76–83. (Q2)

2. Sedelnikov A.V., Filippov A.S., Gorozhakina A.S. Evaluation of calibration accuracy of magnetometer sensors of Aist small spacecraft. Journal of Physics: Conference Series. 2018. Vol. 1015. 032045. (Q3)
3. Sedelnikov A.V., Filippov A.S., Ivashova T.A. Earth's magnetic field measurements data accuracy evaluation on board of the small spacecraft "Aist" flight model. Jordan Journal of Mechanical and Industrial Engineering. 2018. Vol. 12. № 4. P. 253–260. (Q2)
4. Sedelnikov A.V., Khnyryova E.S., Filippov A.S., Ivashova T.A. Measurements Analysis of the Earth's Magnetic Field Data Obtained from the Flight Model of AIST Small Spacecraft. International Journal of Mechanical Engineering and Robotic Research. 2019. Vol. 8. № 4. P. 542–546. (Q3)
5. Sedelnikov A.V., Khnyryova E.S., Ivashova T.A. Some features of a small spacecraft application as a technique for the world ocean exploration. IOP Conference Series: Earth and Environmental Science. 2019. Vol. 272. 032045.
6. Anshakov G.P., Belousov A.I., Sedelnikov A.V., Puzin Yu. Ya. Effect of the Mission and Supporting Equipment on Operation of the Magnetometer Sensors of the Foton-M No. 2 Spacecraft. Russian Aeronautics. 2019. Vol.62. № 4. P.571–576. (Q3)
7. Sedelnikov A.V., Safronov S.L., Khnyreva E.S. Significance estimation of the rejected part of the signal spectrum from the magnetometer sensors of the prototype of the AIST small spacecraft. Journal of Physics: Conference Series. 2019. Vol. 1333. 062024. (Q3)
8. Sedelnikov A.V., Ivashova T.A., Safronov S.L. Restoration of the current signal from solar panels of AIST small spacecraft for estimate the parameters of the rotational motion. Journal of Physics: Conference Series. 2020. Vol. 1441. 012112. (Q3)
9. Sedelnikov A.V. Algorithm for restoring information of current from solar panels of a small spacecraft prototype "Aist" with help of normality conditions, Journal of Aeronautics, Astronautics, and Aviation. 2022. Vol. 54. № 1. P. 67 – 76. (Q4)
10. Sedelnikov A.V., Salmin V.V. Modeling the disturbing effect on the aist small spacecraft based on the measurements data, Scientific Reports. 2022. Vol. 12. 1300. (Q1)
11. Sedelnikov A.V., Taneeva A.S. Dynamic characteristics modeling of rotary platform installed on board of a small spacecraft, Journal of Physics: Conference Series. 2022. Vol. 2182. 012061. (Q3)
12. Sedelnikov A.V., Orlov D.I., Bratkova M.E., Khnyryova E.S. Estimating the Inertia Tensor Components of an Asymmetrical Spacecraft When Removing It from the Operational Orbit at the End of Its Active Life, Sensors. 2023. Vol. 23. 9615. (Q1)

Journal editorial board members.
1. Journal of Aeronautics, Astronautics and Aviation. (https://www.ipress.tw/J0039?pWebID=77)
2. International Journal of Aerospace System Science and Engineering. (https://www.inderscience.com/jhome.php?jcode=ijasse&csid=mghgve6o5itrisdfqrqe1elfj2).
3. Complex Engineering Systems. (https://comengsys.com/editorsChief/index).
4. Guest Editor for Special Issue "Symmetry and Asymmetry in Complex Technical Systems" (**Symmetry**) (https://www.mdpi.com/journal/symmetry/special_issues/Q15XLJM8AC).
5. Guest Editor for Special Issue "Computational Advances in Aerospace Engineering: Modeling, Simulation and Aerospace Systems Testing" (**Computation**) (https://www.mdpi.com/journal/computation/special_issues/7U19JX4CJW).

Peer review in journals.
1. Microgravity Science and Technology.
2. Scientific Reports.
3. Measurement.
4. Aerospace.
5. Sensors.

6. Mathematics.
7. Micromachines.
8. Nanomaterials.
9. Applied Science.
10. Digital signal processing.
11. Coatings.
12. Computations.
13. Axiom.
14. Actuators.
15. International Journal of Modeling, Simulation, and Scientific Computing.
16. Mathematics and Statistics.
17. Journal of Applied Engineering Science.
18. American Journal of Aerospace Engineering.
19. Journal of Aeronautics, Astronautics and Aviation.
20. International Journal of Aerospace System Science and Engineering.
21. Complex Engineering Systems.
22. Contemporary Mathematics.

Peer review in conferences.

1. ITNT-2019.
2. ACMSE-2021.
3. ATCES-2021.
4. WSNA-21.
5. ATCES-2022.
6. ITNT-2022.
7. MAEM-2022.
8. ICPMS-2022.
9. ICECCME-2022.
10. EPES-2022.
11. ISCS-2022.
12. ITNT-2023.
13. ICECCME-2023.

TPC of conferences.

1. 9th Annual International Conference on Material Science and Engineering, Jul 23, 2021 - Jul 25, 2021, Guiyang, Guizhou, China (ACMSE-2021). (http://www.icmseei.org/?op=committee).
2. International conference on wireless communications, networking and applications December 17-19th, 2021, Berlin, Germany (WCNA2021). (http://www.wcna2021.org/com.html).
3. 7th Annual International Conference on Social Science and Contemporary Humanity Development, Nanjing, Jiangsu, China, November 26-28th, 2021 (SSCHD2021). (http://www.sschd.net/?op=committee).
4. 5th International Conference on Aerospace Technology, Communications and Energy Systems, Shanghai, China 23–25 September, 2021 (ATCES 2021) (https://www.atces.org/Committee.html).
5. 8th Advances in Machinery, Materials Science and Engineering Applications, July 24-25 2022, Hangzhou, China (MMSE22) (http://www.mmseconf.com/Committee.html).
6. 3th International Conference on Photonics Research, October 17-23, 2021, Muğla, Turkey (Interphotonics 2021) (http://www.interphotonics.org/speaker/committees).
7. 6th International Conference on Aerospace Technology, Communications and Energy Systems, Shanghai, China Sept. 23-25, 2022 (ATCES 2022) (https://www.atces.org/com.html).

8. 2nd Global Summit and Expo on Aerospace and Mechanical Engineering, Dubai, UAE, October 17-19, 2022. (GSEAME2022) (https://www.thescientistt.com/aerospace-mechanical-engineering/2022/organizing-committee.php).
9. 5th International Conference on Physics, Mathematics and Statistics, May 21-23, 2022, Sanya, China (http://www.pmsconf.org/Committee.aspx).
10. 8th Annual International conference on Social Science and Contemporary Humanity Development(SSCHD 2022), November 25-27th, 2022 in Nanjing, Jiangsu, China (http://www.sschd2022.com/?op=committee).
11. 9th International Conference on Advances in Machinery, Materials Science and Engineering Applications, July 22-23, 2023, Wuhan University of Science and Technology, (http://www.mmseconf.com/Committee.html)
12. International Conference on Applied Mathematics, Modeling and Artificial Intelligence (AMMAI 2025) 22-23 February 2025 in Hangzhou, China (https://ammai.easyaca.com.cn/page/509.html).

Grants and awards.

1. Determination of the microgravity field for a solid body orbiting an artificial satellite (Grant No. TM-4).
2. Development and substantiation of theoretical and experimental methods for ensuring the strength, reliability and performance of aircraft structures made of modern and advanced composite materials (Project No. 2738).
3. Development of design and construction methods for space monitoring and transport systems, computer technologies for creating virtual products for rocket and space technology (grant No. SI-1/01-2015).
4. Ministry of education and science of the Russian Federation in the framework of the State Assignments to higher education institutions and research organizations in the field of scientific activity (the project # 9.1616.2017/PCh).
5. Agreement No. 14.578.21.0229 of September 26, 2017 between the Ministry of Education and Science of the Russian Federation and Samara University (a unique identifier of the project is RFMEFI57817X0229).
6. Ministry of education and science of the Russian Federation in the framework of the State Assignments to higher education institutions and research organizations in the field of scientific activity (the project FSSS-2020-0017).
7. Russian Science Foundation: «Development of space debris contactless transportation systems by an ion beam» (the project 22-19-00160).
8. Ministry of education and science of the Russian Federation in the framework of the State Assignments to higher education institutions and research organizations in the field of scientific activity (the project FSSS-2023-0007).
9. Russian Science Foundation: «Design of space systems for highly detailed monitoring of the earth's surface using ultra-low-orbit small spacecraft» (the project 23-19-20025).

1. Scholarship of the Government of the Russian Federation.
2. Diploma of the best young teacher of Samara University of the Potanin.
3. Certificate of Honor of the Samara Provincial Duma.
4. Diploma of the Samara Provincial Duma.
5. Commemorative medal 50 years of cosmonautics.
6. Commemorative medal 60 years of cosmonautics.