

CURRICULUM VITAE

Yury S. Kachanov

Professor in Fluid and Plasma Mechanics, Dr. of Sciences, FInstP (Fellow of Institute of Physics, London)

1. Personal Data

Date and place of birth January 23, 1949, Kurgan, Russia
Citizenship Russian
Business address Institute of Theoretical and Applied Mechanics
Institutskaya str. 4/1
Novosibirsk, 630090
Russia
Telephone +7 (383) 330 42 78
Fax +7 (383) 330 72 68
E-mail kachanov@itam.nsc.ru

2. Education, Academic Degrees, and Titles

Physical and Mathematical School at Novosibirsk State University (specialized secondary school), Novosibirsk 1964-1966
Novosibirsk State University, Department of Physics 1968-1973
Ph.D., Institute of Theoretical and Applied Mechanics (ITAM) of the USSR Academy of Sciences, Novosibirsk (awarded by High Certification Committee of the USSR) 1979
Title of Senior Research Scientist, Presidium of the USSR Academy of Sciences (awarded by High Certification Committee of the USSR) 1986
Academic Professor's Thesis (Dr. of Sciences), High Certification Committee of Russian Federation 1992
Title of Full Professor in Fluid and Plasma Mechanics, awarded by High Certification Committee of Russian Federation 1999
The laureate of the Alexander von Humboldt Research Award 2002
FInstP - Elected Fellow of The Institute of Physics, London 2004
The laureate of the Ludwig Prandtl-Ring for 2008 awarded by the German Society for Aeronautics and Astronautics Lilienthal-Oberth (DGLR) 2008
The laureate of the Prof. G.I. Petrov's Prize of the Russian National Committee on Theoretical and Applied Mechanics for 2010 2010

3. Employment History

Probationer-Researcher at the Institute of Theoretical and Applied Mechanics (ITAM) of Siberian Branch (SB) of the Russian Academy of Sciences (RAS), Novosibirsk 1973-1974
Junior Research Scientist at ITAM SB RAS, Novosibirsk 1974-1983
Senior Research Scientist at ITAM SB RAS, Novosibirsk 1983-1989
Leading Research Scientist and Head of Research Group at ITAM SB RAS, Novosibirsk 1989-2001
Main Research Scientist and Head of Research Group at ITAM SB RAS, Novosibirsk 2001-present

4. Languages

Russian fluent
English good

5. Professional Activities and Recognition

Awards and Prizes:

- Title of "Honorary Graduate of SESC NSU" ("Honorary Fymyshonok") awarded by Research Council of the Specialized Educational and Scientific Center (SESC) of Novosibirsk State University (NSU), 25.04.2019. <https://sesc.nsu.ru/school/academic-council/2019.php>
- "The Prof. G.I. Petrov's Prize" of the first degree for outstanding results in the theory of hydrodynamic instability and turbulence, 2010.
- The highest prize of the German Aerospace Society "The Ludwig Prandtl-Ring" for outstanding personal achievements in all areas of aerodynamics, 2008.
- Recipient of the Honorary Diploma of the Russian Academy of Sciences for a great contribution in development of basic research, in connection with 50th Anniversary of Siberian Branch of the Russian Academy of Sciences, 2007.
- Recipient of the First Prize of the Institute of Theoretical and Applied Mechanics in a competition of the best basic studies in the field of Aerogasdynamics, 2003.
- Recipient of "The Alexander von Humboldt Research Award for foreign scientists with internationally recognized academic qualifications", 2002.
- Recipient of the Second Prize of the Institute of Theoretical and Applied Mechanics in a competition of the best basic studies in the field of Aerogasdynamics, 2001.
- Recipient of the Personal State Award of the Russian Federation for Distinguished Scientists, 1993, 1996, 1999, and 2002.
- Recipient of Award of the NATO Program "Window-on-Science". Lectures in Wright Patterson Laboratory (Dayton) Purdue University (Lafayette), Boeing Commercial Airplane Group. (Seattle), and California Institute of Technology (Pasadena), May 1997.
- Recipient of the Personal Award (2 times) of the International Science Foundation, in 1992-1993 and 1994-1995.
- Recipient of the Prize of the Institute of Theoretical and Applied Mechanics (ITAM) for one of the best basic studies of ITAM, 1991.
- Recipient of the Prize of Siberian Branch of the USSR Academy of Sciences for one of the best basic studies in the field of Fluid Mechanics, 1984.

Memberships:

- Member of Scientific Committee of the "All-Russian Conference of Young Scientists in Mechanics", Sochi (Russia), September 3-13, 2020.

- Member of Scientific Committee of the “12th All-Russian Congress on Fundamental Problems of Theoretical and Applied Mechanics”, Ufa (Russia), August 20-24, 2019.
- Member of Scientific Committee of the IUTAM Symposium on Laminar-Turbulent Transition, London, UK, September, 2019.
- Member of Scientific Committee of the “XXIII International Conference on Hydrodynamic Instability and Turbulence (HIT-2018)”, Moscow, February-March, 2018.
- Member of Scientific Committee of the “XXII International Conference on Hydrodynamic Instability and Turbulence (HIT-2016)”, Moscow, February, 2016.
- Member of Scientific Committee of the “11th All-Russian Congress on Fundamental Problems of Theoretical and Applied Mechanics”, Kazan (Russia), the Kazan Federal University, August 20-24, 2015.
- Member of Advisory Committee of Intl. Conference on Jets, Wakes and Separated Flows, Stockholm, June 16-18, 2015
- Member of Scientific Committee of the “XXI International Conference on Hydrodynamic Instability and Turbulence (HIT-2014)”, Moscow, February-March, 2014.
- Member of Scientific Committee of the “XX International Conference on Hydrodynamic Instability and Turbulence (HIT-2012)”, Moscow, February, 2012.
- Member of Scientific Committee of the “10th All-Russian Congress on Fundamental Problems of Theoretical and Applied Mechanics”, Nizhny Novgorod (Russia), the University of Nizhny Novgorod, August 24-30, 2011.
- Member of Steering Committee of Project “RECEPT” within the “Framework Program 7 (FP7)” of the European Commission (EC) in 2010-present.
- Elected Member of “EUROMECH European Turbulence Conference Committee” in 2008-2013.
- Member of Scientific Committee of the International Conference on Hydrodynamic Instability and Turbulence (HIT-2010), Moscow, March, 2010.
- Member of “European Mechanics Society (EUROMECH)” in 2007-present.
- Associate Editor of the "European Journal of Mechanics, B/Fluids" in 2021-present.
- Member of Advisory Board of the "European Journal of Mechanics, B/Fluids" in 1996-2021.
- Member of Editorial Board of the “Journal of Engineering”, 2012-2017.
- Member of Advisory Board of “The Open Mechanics Journal”, 2007-2013.
- Associate Editor of the "Journal of Turbulence" in 2000-2013.
- Member of Advisory Board of the International Journal of Nonlinear Science "Chaos" in 1994-2003.
- Member of Editorial Board of the "Russian Journal of Engineering Thermophysics" in 1996-1998.
- Member of the Academic Council of the Institute of Theoretical and Applied Mechanics of the Russian Academy of Sciences (Novosibirsk), 1991-1995, 2000-2005, 2017-present.
- Project Referee for the Russian Science Foundation, Moscow, 2014-present.
- Project Referee for the Russian Foundation for Basic Research, Moscow, 2005-present.
- Elected Fellow of The Institute of Physics, London, 2004.
- Member of the Examination Board of the Institute of Theoretical and Applied Mechanics of the Russian Academy of Sciences for certification of research scientists (Novosibirsk), 1987-2016.
- Referee for: Journal of Fluid Mechanics; Physics of Fluids; European Journal of Mechanics, B/Fluids; Journal of Turbulence; Journal of Applied Mechanics and Technical Physics; Journal of Thermophysics and Aeromechanics, and other journals, 1990-present.
- Member of the Academic Council on Awarding the Research Degrees of Doctor of Sciences at the Institute of Thermophysics of the Russian Academy of Sciences (Novosibirsk), 1996-2001.
- Scientific Supervisor and Principal Project Investigator in the International Center of Aerophysical Research at ITAM, Novosibirsk, 1994-2005.
- Reviewer for the field record book “Mechanics” of the All-Russian Institute of Scientific and Technical Information, Moscow, 1990-2010.
- Member of International Scientific Committee of the IUTAM Symposium "Nonlinear Instability and Transition in 3D Boundary Layers", Manchester (U.K.), the University of Manchester, July 17-20, 1995.
- Member of International Scientific Committee of the Colloquium "Transitional Boundary Layers in Aeronautics", Amsterdam (the Netherlands), Royal Netherlands Academy of Arts and Sciences, December 6-8, 1995.
- Member of International Scientific Committee of the IUTAM Symposium "Nonlinear Instability of Nonparallel Flows", Potsdam (U.S.A.), Clarkson University, July, 1993.
- Principal Project Investigator of the Program of Research Cooperation between ITAM (USSR) and Bulgarian Ship Hydrodynamic Centre (Bulgaria) in 1981-1990.

Invitations:

- Principal Lecturer of the Online International Short Course “Turbulence Origins: Physical Nature” at China Ship Scientific Research Center (Wuxi), China, 2021.
- Invited guest (expert) of University of Nottingham (UK), September, 2019. Research work within international project “Deterministic Turbulence”.
- Invited guest (expert) of University of Nottingham (UK), June, 2018. Research work within international project “Deterministic Turbulence”.
- Invited guest (many times) of Chinese Academy of Sciences (Beijing), Pecking University (Beijing), China Aerodynamic Research and Development Center (Mian-yang), and Beijing University of Aeronautics and Astronautics (Beijing), Shanghai Jiao Tong University (Shanghai), China Ship Scientific Research Center (Wuxi) in 1996, 1997, 1998, 2002, 2003, 2006, 2009, 2014, and 2018. Gave lectures at five universities and research centers. Worked on improvement of characteristics of the low-turbulence water-channels and performed a set of joint experiments at State Key Laboratory for Turbulent Research in Peking University and at Beijing University of Aeronautics and Astronautics.
- Invited guest (expert) of University of Nottingham (UK), September, 2017. Research work within international project “Deterministic Turbulence”.

- Visiting professor of Stuttgart University, Institute of Aerodynamics and Gasdynamics, April-June, 2017, supported by A. von Humboldt Foundation. Course of Lectures. Research work.
- Invited guest (expert) of University of Nottingham, City University London, and Keele University (UK), October-November, 2016. Lectures at seminars. Research work within international project “Deterministic Turbulence”.
- Invited guest of Stuttgart University, Institute of Aerodynamics and Gasdynamics, June, 2015 Lecture at a seminar. Participation in the PhD examination procedure.
- Principal Lecturer of Short Course “Flow Transition and Turbulence - Physical Nature” at the Pontificia Universidade Católica do Rio de Janeiro, Brazil, 2014.
- Invited guest of Department of Mathematics, Imperial College London. Three lectures at Imperial College London, March, 2014.
- Invited guest of the Royal Institute of Technology. Stockholm, May, 2013. Lecture at a seminar. Participation in the PhD examination procedure.
- Invited guest of Stanford University (Center for Turbulence Research & Flow Physics and Computational Engineering). Stanford, July, 2012.
- Invited guest of Institute of Aerodynamics at RWTH Aachen University. Aachen, June, 2012.
- Invited guest of Stuttgart University, Institute of Aerodynamics and Gasdynamics, supported by DFG and RFBR, 19.07.2010 – 17.10.2010. Research work.
- Principal Lecturer of the International Short Course on Flow Transition and Turbulence (FTT09) held at the University of Texas at Arlington on 11.05.2009 – 15.05.2009.
- Invited guest of Flight Research Laboratory of Texas A&M University (College Station, USA). Lecture at a seminar. Discussions with specialists on transition and turbulence. May 2009.
- Visiting Professor of the University of Texas at Arlington, Mathematical Department, 10.01.2009 – 31.05.2009. Course of lectures, joint research work.
- Invited guest of Stuttgart University, Institute of Aerodynamics and Gasdynamics, supported by A. von Humboldt Foundation, 16.01.2007 – 15.04.2007. Research work.
- Visiting Professor of Stuttgart University, Institute of Aerodynamics and Gasdynamics, 04.04.2003 – 31.10.2003.
- Invited guest of Institute of Aerodynamics of Aachen University of Technology, RWTH Aachen. Lecture at a seminar. Discussions with specialists. October 2003.
- Invited guest of Berlin Technical University (many times in 1993-2003). Some trips were also supported by Deutscher Forschungsgemeinschaft (DFG). Worked on improvement of characteristics of a low-turbulence wind tunnel. Performed several sets of joint experiments. Gave several lectures.
- Visiting Professor of Stuttgart University, Institute of Aerodynamics and Gasdynamics, 01.06.2001 - 30.10.2001. Performed joint experiments at a low-turbulence wind tunnel.
- Invited guest of Institute of Fluid Mechanics of the Friedrich-Alexander-University, Erlangen-Nuernberg. Lecture at a seminar. Discussions with specialists on transition and turbulence. October 2001.
- Invited guest of Department of Mechanics and Aeronautics of Rome University "La Sapienza". Lectures in Rome University (Rome) and Institute for Ship Hydrodynamics (INSEAN) (Rome). March 2000.
- Visiting Professor of Stuttgart University, Institute of Aerodynamics and Gasdynamics, 01.11.1997 - 30.04.1998. Gave a course of lectures. Performed joint experiments at a low-turbulence wind tunnel.
- Invited guest of Department of Fluid Mechanics and Heat Transfer of Tel Aviv University. Lectures in Tel Aviv University (Tel Aviv), Israel Institute of Technology (Haifa), Israel Aeronautic Industry (Tel Aviv), February - March, 1996.

Invited Papers in:

- Russian Journal of Theoretical & Applied Mechanics, vol. 1, No 2, 1991;
- Annual Review of Fluid Mechanics, vol. 26, 1994.
- Theoretical and Applied Mechanics Letters, vol. 4, 2014.
- Invited papers in proceedings of 13 national and 24 international conferences.

Invited Lectures at Conferences:

- 25th International Congress of Theoretical and Applied Mechanics (“ICTAM, Milano 2020+1”), Milano, Italy, August 22-27, 2021.
- The “All-Russian Conference of Young Scientists in Mechanics”, Sochi (Russia), September 3-13, 2020.
- XIII All-Russian Conference of Young Scientists “Problems of Mechanics: Theory, Experiment, and New Technologies”, Novosibirsk – Sheregesh, Russia, March 15-22, 2019.
- 9th International Conference on Fluid Mechanics, Sendai, Japan, September 25-28, 2018.
- 19th International Conference on the Methods of Aerophysical Research, Novosibirsk, Russia, August 13-19, 2018.
- XII All-Russian Conference of Young Scientists “Problems of Mechanics: Theory, Experiment, and New Technologies”, Novosibirsk – Sheregesh, Russia, March 16-22, 2018.
- 18th International Conference on the Methods of Aerophysical Research, Novosibirsk, Russia, June 27 – July 3, 2016.
- International Conference on Hydrodynamic Instability and Turbulence (HIT-2016), Moscow, February, 2016.
- The 13th Asian Symposium on Visualization, Novosibirsk, Russia, June, 2015.
- 17th International Conference on the Methods of Aerophysical Research, Novosibirsk, Russia, June 30 – July 6, 2014.
- International Conference ‘Nonlinear stability theory: from weakly nonlinear theory to the verge of turbulence’, London Mathematical Society, London 20-21 March, 2014.
- International Conference on Hydrodynamic Instability and Turbulence (HIT-2014), Moscow, February-March, 2014.
- International Colloquium “100th Anniversary of the Institute of Aerodynamics at RWTH Aachen University” (100-Year-AIA Colloquium), Aachen, June, 2012.
- International Conference on Hydrodynamic Instability and Turbulence (HIT-2012), Moscow, February, 2012.
- “10th All-Russian Congress on Fundamental Problems of Theoretical and Applied Mechanics”, Nizhniy Novgorod, August, 2011.
- International Conference on Hydrodynamic Instability and Turbulence (HIT-2010), Moscow, March, 2010.
- “International Symposium on Turbulence”, Beijing, China, September 2009.

- Ten invited lectures at the International Short Course on Flow Transition and Turbulence (FTT09), Arlington (Texas), May 2009.
- International Conference on Hydrodynamic Instability and Turbulence (HIT-2008), Moscow, February, 2008.
- International Conference on Hydrodynamic Instability and Turbulence (HIT-2006), Moscow, February-March, 2006.
- IUTAM Symposium "One Hundred Years of Boundary Layer Research", Göttingen, Germany, August, 2004.
- Intl. China-U.K.-Russia Workshop "Laminar-Turbulent Transition and Control", Beijing, China, December 2003.
- The 5th Euromech Fluid Mechanics Conference, Toulouse, France, August, 2003.
- Concluding Colloquium of Deutscher Forschungsgemeinschaft DFG-Verbundschwerpunktprogramm (VSPP) "Transition", Stuttgart, Germany, April, 2002.
- The International Conference on Turbulence in Commemoration of Professor P.-Y. Chou's 100th Anniversary, Beijing, China, August 2002.
- Workshop of National Aerospace Laboratory of Japan "Prediction of Laminar-Turbulent Transition in Boundary Layers", Tokyo, Japan, September, 2000.
- 10th International Conference on Methods of Aerophysical Research, Novosibirsk, Russia, July, 2000.
- 2nd ERCOFTAC SIG33 Workshop "Late Stages of Transition in Internal Flows Versus Boundary Layer Flows." October, Netherlands, 1999, Delft.
- 14th International Symposium "Models in Mechanics of Continuous Media", Zhukovsky, Russia, August, 1997.
- 8th International Conference on Methods of Aerophysical Research, Novosibirsk, Russia, September, 1996.
- Workshop of Beijing University of Aeronautics and Astronautics "Transition and Turbulent Structures in Boundary Layer", Beijing, China, August, 1996.
- 27th AIAA Fluid Dynamics Meeting, New Orleans, U.S.A., June, 1996.
- The Eighth Beer-Sheva International Seminar "MHD-Flows and Turbulence", Jerusalem, Israel, February, 1996.
- Colloquium "Transitional Boundary Layers in Aeronautics", Amsterdam, The Netherlands, December, 1995.
- IUTAM Symposium "Nonlinear Instability and Transition in 3D Boundary Layers", Manchester, U.K., July, 1995.
- Second European Fluid Mechanics Conference, Warsaw, Poland, September, 1994.
- International Conference of American Institute of Physics "Chaos V", Woods Hole, U.S.A., July, 1993.
- IUTAM Symposium "Nonlinear Instability of Nonparallel Flows", Potsdam, U.S.A., July, 1993.
- International School-Seminar "Nonlinear Problems in Hydrodynamic Stability Theory", Moscow, Russia, March, 1992.
- 11th School-Seminar "Models in Mechanics of Continuous Media", Vladivostok, USSR, September, 1991.
- Annual TsAGI Scientific School-Seminar "Fluid Mechanics", Moscow, USSR, January, 1991.
- 9th Winter School on Mechanics of Continuous Media, Perm, USSR, January-February, 1991.
- Third IUTAM Symposium on Laminar-Turbulent Transition, Toulouse, France, September, 1989.
- School-Seminar "Models in Mechanics of Continuous Media", Yakutsk, USSR, July, 1987.
- Bulgarian National Seminar "Turbulence in Industrial Processes", Varna, Bulgaria, October, 1986.

6. Sponsored Research Activities

- Contract with the Boeing Company (USA), 1994-present. (Head of research group from Russian side.)
- Grant within the research project "Deterministic Turbulence" funded by UK's Engineering and Physical Sciences Research Council (no. EP/M028690/1), 2015-2020. (International expert.)
- Grant of the Russian Foundation for Basic Research No 14-01-00025, 2014-2016. (Head of the project.)
- Grant within the Project "RODTRAC" of "Clean Sky Initiative" of the "Framework Program 7 (FP7)" of the European Commission (EC), 2013-2015. (Leader of experimental part of the Project)
- Grant within the Project "RECEPT" of the "Framework Program 7 (FP7)" of the European Commission (EC), 2011-2015. (Leader of "Working Package I" – experimental part of the Project)
- Grant of the Russian Foundation for Basic Research No 10-01-00109, 2010-2012. (Head of the project.)
- International grant of Russian Foundation for Basic Research (No 08-01-91951) and Deutscher Forschungsgemeinschaft (together with Stuttgart University, Germany), 2008-2011. (Head of the project from Russian side.)
- Grant of the Russian Foundation for Basic Research No 06-01-00519, 2006-2009. (Head of the project.)
- Grant of the Russian Foundation for Basic Research No 03-01-00229, 2003-2005 (Head of the project.)
- International grant of Russian Foundation for Basic Research (No 03-01-04003) and Deutscher Forschungsgemeinschaft (together with Stuttgart University, Germany), 2003-2005. (Head of the project from Russian side.)
- Grant of the Russian Foundation for Basic Research No 00-01-00835, 2000-2002. (Head of the project.)
- Grant of the Russian Foundation for Basic Research No 00-15-96164, 2000-2001 (Participant of the project.)
- International grant of Russian Foundation for Basic Research (No 98-01-04090) and Deutscher Forschungsgemeinschaft (together with Berlin Technical University, Germany), 1998-2001. (Head of the project from Russian side.)
- International grant of Volkswagen Foundation No 1/71 675 (together with Stuttgart University, Germany), 1997-1999. (Head of group from Russian side.)
- International grant of the Russian Foundation for Basic Research (No 96-01-00001) and the Chinese National Natural Science Foundation (together with Beijing University of Aeronautics and Astronautics and Peking University, China), 1996-1999. (Head of the project from Russian side.)
- Grant of the Russian Foundation for Basic Research No 97-01-00638, 1997-1999. (Head of the project.)
- Grant of the Russian Foundation for Basic Research No 96-01-01654, 1996-1998. (Participant of the project.)
- Grant of the Russian Foundation for Basic Research No 94-01-00062-a, 1994-1996. (Head of the project.)
- Grant of the International Science Foundation No NQY300, 1994. (Head of the project.)
- Grant of the International Science Foundation No NQY000, 1993. (Head of the project.)

7. Teaching Experience

- Short course of lectures for graduate students, research scientists, and engineers "Turbulence Origins: Physical Nature" at China Ship Scientific Research Center (Wuxi), China, 2021

- Short course of lecturers for graduate students, research scientists, and engineers “Turbulence Origins: Physical Nature” at Stuttgart University, Institute of Aerodynamics and Gasdynamics, Germany, 2017.
- Short course of lecturers for graduate students, research scientists, and engineers “Flow Transition and Turbulence - Physical Nature” at the Pontificia Universidade Católica do Rio de Janeiro, Brazil, 2014.
- Short course of lecturers for graduate students, research scientists, and engineers at the “International Short Course on Flow Transition and Turbulence (FTT09)”, the University of Texas at Arlington in 2009.
- Graduate course “Turbulence Origins” at the University of Texas at Arlington in 2009.
- Graduate course "Laminar-Turbulent Transition" at Stuttgart University in 1997-98.
- Undergraduate courses in Experimental fluid mechanics at Tomsk University during eight years in 1977 - 1985.

Scientific supervisor (or co-supervisor) of 14 M.S. and graduate students and 12 Ph.D. students and doctors of scientists at ITAM SB RAS, Berlin Technical University, Stuttgart University, Novosibirsk State University (NSU), and Novosibirsk State Technical University (NSTU):

Supervised academic professor's thesis (Dr. of Sciences):

- V.I. Borodulin, 2008, November. “Nonlinear Mechanisms of Turbulence Production in Boundary Layers” (ITAM SB RAS).

Supervised students defended their Ph.D. dissertations:

- D.A. Mischenko, 2010, December. “Experimental Study of Excitation and Development in Boundary Layer of Modes of Unsteady Görtler Instability” (ITAM SB RAS).
- D.W. Sartorius, 2007, April. “Experimental Investigation of Weakly Nonlinear Interactions of Instability Waves in a Non Self-Similar Boundary Layer on an Airfoil” (Stuttgart University).
- A.P. Roschektayev, 2005, September. “Investigation of Nonlinear Mechanisms of Turbulence Production in Transitional Boundary Layers. The Possibility of Creation of Deterministic Wall Turbulence” (ITAM SB RAS).
- S. Herr, 2003, October. “Experimental Investigation of Airfoil Boundary-Layer Receptivity and a Method for the Characterization of the Relevant Free-Stream Disturbances” (Stuttgart University).
- D.B. Koptsev, 2001, September. “Generation, Development, and Resonant Interaction of 3D Instability Waves in an Adverse-Pressure-Gradient Boundary Layer” (ITAM SB RAS).
- S. Bake, 2000, June. “Boundary-Layer Receptivity and Transition Control” (Berlin Technical University).
- A.V. Ivanov, 1999, February. “Experimental Investigation of Mechanisms of Excitation of Cross-Flow Instability Modes in a Swept-Wing Boundary Layer” (ITAM SB RAS).
- V.R. Gaponenko, 1998, December. “Experimental Study of Development and Interaction of Cross-Flow Instability Modes in a Three-Dimensional Boundary Layer” (ITAM SB RAS).
- T.G. Obolentseva, 1998, February. “Experimental Study of Receptivity and Stability to 3D Perturbations of a Boundary Layer Developing on a Flat Plate” (ITAM SB RAS).
- V.I. Borodulin, 1995, September. “Experimental Study of Nonlinear Mechanisms of Breakdown of Laminar Boundary Layers” (ITAM SB RAS).
- O.I. Tararykin, 1990, June. “Three-Dimensional Instability and Transition of Spatial Boundary Layers” (ITAM SB RAS).

Supervised students defended their M.S. dissertations:

- D.A. Mischenko, 2007, June. “Characteristics of Boundary-Layer Goertler Instability. Experimental Substantiation of Theory.” (NSU).
- A.A. Fedenkova, 2005, June. “Distributed Boundary-Layer Receptivity to Three-Dimensional Unsteady Perturbations” (NSTU).
- V.Y. Komarova, 2005, February. “Experimental Study of Boundary-Layer Receptivity to Unsteady Vortical Perturbations with Spanwise Vorticity at Scattering on Surface Non-Uniformities” (NSTU).
- A.P. Roschektayev, 2002, June. “Formation of Vortical Structures at Late Stages of Transition in an Adverse-Pressure-Gradient Boundary Layer” (NSU).
- D.B. Koptsev, 1998, June. “Experimental Investigation of Excitation and Development of 3D Disturbances in an Adverse-Pressure-Gradient Boundary Layer” (NSU).
- V.R. Gaponenko, 1994, June. “Experimental Study of Cross-Flow Stability in Boundary Layer of a Swept-Wing Model” (NSU).
- A.V. Ivanov, 1992, December. “Development of a Wave Packet on a Swept Wing” (NSTU).
- S.V. Dryganets, 1989, June. “Investigation of Mechanisms of Randomization of a Laminar Boundary Layer” (NSU).
- V.I. Borodulin, 1981, June. “Boundary-Layer Transition Initiated by Wave-Trains” (NSU).

Graduate students supervised:

- D.A. Mischenko, 2005, June. “Experimental Study of Stability of Non-Gradient Boundary Layer on Concave Wall to Unsteady Goertler Vortices” (NSU).
- V.Y. Komarova, 2003, June. “Experimental Investigation of Boundary-Layer Receptivity to Unsteady Vortical Disturbances with Spanwise Vorticity at Scattering on Surface Non-Uniformities” (NSTU).
- A.A. Fedenkova, 2003, June. “Experimental Study of Distributed Boundary-Layer Receptivity to Vortical Freestream Disturbances in Presence of Surface Non-Uniformity” (NSTU).
- A.P. Roschektayev, 2000, June. “Influence of Distributed Surface Roughness on Transition of a 3D Boundary Layer” (NSU).
- D.B. Koptsev, 1996, June. “Experimental Study of Excitation of Instability Waves in a 3D Boundary Layer at Scattering of Acoustic Waves on a Vibrator” (NSU).

8. Current Fields of Interest

Key words: viscous fluid mechanics, boundary layer flows, subsonic speeds, laminar flow receptivity, laminar flow instabilities, vortex instabilities, laminar-turbulent transition, coherent structures, mechanisms of turbulence production, structure of turbulence.

Experimental studies of the following problems. Receptivity characteristics of 2D and 3D boundary layers (with and without pressure gradients) to various 3D external perturbations (roughness, vibrations, acoustics, vortices, etc.). Stability characteristics of 2D and 3D boundary layers with respect to traveling and steady three-dimensional instability modes. Cooperative instability of vortical systems.

Nonlinear mechanisms of breakdown of 2D and 3D laminar boundary layers. Nonlinear interactions of instability modes in 2D and 3D boundary layers. Mechanisms of formation, development and breakdown of coherent structures in transitional and turbulent flows. Mechanisms of flow randomization at transition and turbulence production. Interaction of coherent structures with each other and with background perturbations. Physical nature of turbulence.

9. Publications

Numerous publications in Russian and non-Russian archival journals. Complete list of scientific publications consists of more than 500 papers (in journals and conference proceedings), reports, and abstracts, including a book: Kachanov Y.S., Kozlov V.V. & Levchenko V.Y. 1982. *Onset of Turbulence in Boundary Layers*. Novosibirsk: Nauka Publ. and articles: Kachanov Y.S. 1994. Physical mechanisms of laminar-boundary-layer transition. *Ann. Rev. Fluid Mech.*, vol. 26, pp. 411-482 and Borodulin V.I. & Kachanov Y.S. 2014 On properties of the deterministic turbulence and reproducibility of its instantaneous and statistical characteristics. *Theoretical and Applied Mechanics Letters*, vol. 4, pp. 062004-1 – 062004-19.

Citation

Obtained results are cited in many hundreds of scientific papers including review papers and books, for example in reviews by: A.D.D. Craik (1985), M. Nishioka & M.V. Morkovin (1986), A.H. Nayfeh (1987), T. Herbert (1988), E.J. Kerschen (1989), H. Fasel (1990), F.T. Smith (1990), H. Bippes (1991), L. Kleiser & T.A. Zang (1991) and many others, and in books: A.D.D. Craik. *Wave Interactions and Fluid Flows*. Cambridge: Cambridge Univ. Press, 1985; V.N. Zhigulyov & A.M. Tumin. *Origin of Turbulence*. Novosibirsk: Nauka Publ., 1987; D.J. Tritton *Physical Fluid Dynamics*. Oxford: Clarendon Press, 1988; F.S. Sherman *Viscous Flow*. New York: McGraw-Hill, 1990; and many others.

Based on Research Gate recent information the Kachanov's citation index is 2950, Research Gate score is 32.18 and Hirsch index $h=25$ (excluding self-citations $h = 20$) (https://www.researchgate.net/profile/Yury_Kachanov/scores). This statistics is based on 252 publications indicated at present at the Research Gate site. Total number of Kachanov's publications is more than 500.

List of most important publications

1. Kachanov, Y.S., Kozlov, V.V. & Levchenko, V.Y. 1974. Experimental investigation of the influence of cooling on the stability of laminar boundary layer. *Proc. Siberian Div. USSR Acad. Sci., Ser. Tech. Sci.* 8(2): 75-79 (in Russian).
2. Kachanov, Y.S., Kozlov, V.V. & Levchenko, V.Y. 1974. Experimental study of laminar-boundary-layer stability on a wavy surface. *Proc. Siberian Div. USSR Acad. Sci., Ser. Tech. Sci.* 13(3): 2-6 (in Russian).
3. Kachanov, Y.S., Kozlov, V.V. & Levchenko, V.Y. 1975. Generation and development of small disturbances in laminar boundary layer under the action of acoustic fields. *Proc. Siberian Div. USSR Acad. Sci., Ser. Tech. Sci.* 13(3): 18-26 (in Russian).
4. Kachanov, Y.S., Kozlov, V.V. & Levchenko, V.Y. 1975. The development of small-amplitude oscillations in a laminar boundary layer. *Uchyon. Zapiski TsAGI*. 6(5): 137-140 (in Russian). (Transl. *Fluid Mech. Sov. Res.* 1979, 8: 152-156.)
5. Kachanov, Y.S., Kozlov, V.V. & Levchenko, V.Y. 1977. Nonlinear development of a wave in a boundary layer. *Proc. USSR Acad. Sci., Fluid Mech.* 3: 49-53 (in Russian). (Transl. *Fluid Dyn.* 1978, 12: 383-390.)
6. Kachanov, Y.S., Kozlov, V.V. & Levchenko, V.Y. 1978. Origin of Tollmien-Schlichting waves in boundary layer under the influence of external disturbances. *Proc. USSR Acad. Sci., Fluid Mech.* 5: 85-94 (in Russian). (Transl. *Fluid Dyn.* 1979, 13: 704-711.)
7. Kachanov, Y.S., Kozlov, V.V., Levchenko, V.Y. & Maksimov, V.P. 1979. Transformation of external disturbances into the boundary layer waves. *Proc. Sixth Int. Conf. on Numerical Methods in Fluid Dyn.*, pp. 299-307. Berlin: Springer.
8. Kachanov, Y.S., Kozlov, V.V. & Levchenko, V.Y. 1980. Experiments on nonlinear interaction of waves in boundary layer. In *Laminar-Turbulent Transition*, ed. R. Eppler & H. Fasel, pp. 135-152. Berlin: Springer.
9. Kachanov, Y.S., Kozlov, V.V. & Levchenko, V.Y. 1982. *Onset of Turbulence in Boundary Layers*. Novosibirsk: Nauka Publ., 152 p.
10. Gilyov, V.M., Kachanov, Y.S. & Kozlov, V.V. 1983. Development of a spatial wave packet in a boundary layer. *Proc. Siberian Div. USSR Acad. Sci., Ser. Tech. Sci.* 13(3): 27-37 (in Russian).
11. Kachanov, Y.S. & Levchenko, V.Y. 1984. The resonant interaction of disturbances at laminar-turbulent transition in a boundary layer. *J. Fluid Mech.* 138: 209-247. Doi: <https://doi.org/10.1017/S0022112084000100>.
12. Kachanov, Y.S., Kozlov, V.V., Levchenko, V.Y. & Ramazanov, M.P. 1985. On nature of K-breakdown of a laminar boundary layer. New experimental data. In *Laminar-Turbulent Transition*, ed. V.V. Kozlov, pp. 61-73. Berlin: Springer.
13. Kachanov, Y.S. 1985. Development of spatial wave packets in boundary layer. In *Laminar-Turbulent Transition*, ed. V.V. Kozlov, pp. 115-123. Berlin: Springer.
14. Kachanov, Y.S. 1985. On resonant breakdown of laminar boundary layer. *Proc. Fifth National Cong. on Theor. & Appl. Mech., Actual and Topical Problems of Ship Hydro- and Aerodynamics*, 1985. 3: 71-1 - 71-11. Varna: Bulgarian Ship Hydrodynamic Centre (in Russian).
15. Kachanov, Y.S. 1987. On the resonant nature of the breakdown of a laminar boundary layer. *J. Fluid Mech.* 184: 43-74. Doi: <https://doi.org/10.1017/S0022112087002805>.
16. Kachanov, Y.S. & Tararykin, O.I. 1987. Experimental study of stability of a relaxing boundary layer. *Proc. Siberian Div. USSR Acad. Sci., Ser. Tech. Sci.* 18(5): 9-19 (in Russian).
17. Borodulin, V.I. & Kachanov, Y.S. 1988. Role of the mechanism of local secondary instability in K-breakdown of boundary layer. *Proc. Siberian Div. USSR Acad. Sci., Ser. Tech. Sci.* 18: 65-77 (in Russian). (Transl. in Soviet J. Appl. Phys. 1989, 3(2): 70-81.)
18. Gilyov, V.M., Dovgal, A.V., Kachanov, Y.S. & Kozlov, V.V. 1988. Development of spatial disturbances in a boundary layer with pressure gradient. *Proc. USSR Acad. Sci., Fluid Mech.* 3: 85-91 (in Russian). (Transl. in Fluid Dyn.)
19. Kachanov, Y.S., Kozlov, V.V., Levchenko, V.Y. & Ramazanov, M.P. 1989. The nature of K-breakdown of laminar boundary layer. *Proc. Siberian Div. USSR Acad. Sci., Ser. Tech. Sci.* 2: 124-158 (in Russian). (Transl. Soviet J. Appl. Phys. 1990, vol. 4.)
20. Kachanov, Y.S., Tararykin, O.I. & Fyodorov, A.V. 1989. Experimental simulation of swept-wing boundary layer in the region of secondary flow formation. *Proc. Siberian Div. USSR Acad. Sci., Ser. Tech. Sci.* 3: 44-53 (in Russian).
21. Kachanov, Y.S. 1990. Secondary and cascade resonant instabilities of boundary layers. Wave-resonant concept of a breakdown and its substantiation. In *Laminar-Turbulent Transition*, ed. D. Arnal & R. Michel, pp. 65-80. Berlin: Springer.
22. Kachanov, Y.S. & Tararykin, O.I. 1990. The experimental investigation of stability and receptivity of a swept-wing flow. In *Laminar-Turbulent Transition*, ed. D. Arnal & R. Michel, pp. 499-509. Berlin: Springer.
23. Borodulin, V.I. & Kachanov, Y.S. 1990. Experimental study of soliton-like coherent structures in boundary layer. *Proc. Scientific & Methodological Seminar on Ship Hydrodynamics, 19th Session.* 2: 99-1 - 99-10. Varna: Bulgarian Ship Hydrodynamic Centre.

24. Dryganets, S.V., Kachanov, Y.S., Levchenko, V.Y. & Ramazanov, M.P. 1990. Resonant flow randomization in K-regime of boundary layer transition. *J Appl. Mech. Tech. Phys.* 31(2): 239-249.
25. Kachanov, Y.S., Tararykin, O.I. & Fyodorov, A.V. 1990. Investigation of stability to stationary boundary-layer disturbances in a model of a swept wing. *Proc. Siberian Div. USSR Acad. Sci., Ser. Tech. Sci.* 5: 11-21 (in Russian).
26. Kachanov, Y.S. 1991. Resonant-soliton nature of boundary layer transition. *Russian J. Theor. & Appl. Mech.* 1(2): 141-173.
27. Kachanov, Y.S. 1991. The mechanisms of formation and breakdown of soliton-like coherent structures in boundary layer. In *Advance in Turbulence 3*, eds. A.V. Johansson & P.H. Alfredsson, pp. 42-51. Berlin: Springer.
28. Kachanov, Y.S. & Ryzhov, O.S. 1992. Formation of solitons in transitional boundary layer, theory and experiment. *Siberian Phys.-Tech. J.* 1: 34-52 (in Russian).
29. Kachanov, Y.S., Ryzhov, O.S. & Smith, F.T. 1993. Formation of solitons in transitional boundary layers: theory and experiment. *J. Fluid Mech.* 251: 273-297. Doi: <https://doi.org/10.1017/S0022112093003416>.
30. Kachanov, Y.S. & Kalchev, R.Z. 1993. Computer-aided measurement of instantaneous flow structure by means of hydrogen bubble visualization. *Journal of Flow Visualization and Image Processing.* 1(1): 121-130.
31. Kachanov, Y.S., Michalke, A. 1994. Three-dimensional instability of flat-plate boundary layers: Theory and experiment. *Eur. J. Mech. B/Fluids* 13(4):401-422
32. Kachanov Y.S. 1994. Nonlinear Breakdown of Laminar Boundary Layer. In: *Nonlinear Instability of Nonparallel Flows*, Berlin: Springer, pp. 21-51.
33. Borodulin V.I. & Kachanov Y.S. 1994. An experimental study of the nonlinear stages of boundary layer breakdown. In: *Nonlinear Instability of Nonparallel Flows*. Berlin: Springer, pp. 69-80.
34. Gaponenko V.R., Kachanov Y.S. 1994. New method of generation of controlled spectrum instability waves in the boundary layer. *7th Int. Conference on Methods of Aerophysical Research. Proceedings. Part I.* Novosibirsk: Inst. Theor. & Appl. Mech., pp. 90-97.
35. Ivanov A.V., Kachanov Y.S. 1994. A method of study of the stability of 3D boundary layers using a new disturbance generator. *7th Int. Conference on Methods of Aerophysical Research. Proceedings. Part I.* Novosibirsk: Inst. Theor. & Appl. Mech., pp. 125-130.
36. Kachanov, Y.S. 1994. Physical mechanisms of laminar-boundary-layer transition. *Ann. Rev. Fluid Mech.*, 26: 411-482.
37. Ivanov A.V., Kachanov Y.S. 1994. Excitation and development of spatial packets of instability waves in a three-dimensional boundary layer. *Thermophysics and Aeromechanics.* 1(4): 287-305.
38. Gaponenko V.R., Ivanov A.V., Kachanov Y.S. 1995. Experimental study of cross-flow instability of a swept-wing boundary layer with respect to traveling waves. In: *Laminar-Turbulent Transition*. ed. R. Kobayashi, pp. 373-380. Berlin: Springer.
39. Kachanov Y.S., Michalke A. 1995. Three-dimensional instability of the Blasius boundary layer. In: *Laminar-Turbulent Transition*. ed. R. Kobayashi, pp. 473-480. Berlin: Springer.
40. Rist U., Kachanov Y.S. 1995. Numerical and experimental investigation of the K-regime of boundary-layer transition. In: *Laminar-Turbulent Transition*. ed. R. Kobayashi, pp. 405-412. Berlin: Springer.
41. Borodulin V.I., Kachanov Y.S. 1995. Formation and development of coherent structures in transitional boundary layer. *J. Appl Mech. Tech. Phys.* 36(4): 532-564.
42. Gaponenko V.R., Ivanov A.V., Kachanov Y.S. 1995. Experimental study of a swept-wing boundary-layer stability with respect to unsteady disturbances. *Thermophysics and Aeromechanics.* 2(4): 287-312.
43. Kachanov Y.S., Obolentseva T.G. 1996. Development of three-dimensional disturbances in the Blasius boundary layer. 1. Wave-trains. *Thermophysics and Aeromechanics.* 3(3): 225-243.
44. Kachanov Y.S., Obolentseva T.G. 1996. A method of study of influence of the flow nonparallelism on the 3D stability of Blasius boundary layer. In: *8th Int. Conference on Methods of Aerophysical Research. Proceedings. Part II.* Novosibirsk: Inst. Theor. & Appl. Mech., pp. 100-105.
45. Borodulin V.I., Gaponenko V.R., Kachanov Y.S. 1996. Method of introduction of normal instability modes into the 3D boundary layer. In: *8th Int. Conference on Methods of Aerophysical Research. Proceedings. Part 2.* Novosibirsk: Inst. Theor. & Appl. Mech., pp. 39-45.
46. Kachanov Y.S. 1996. Experimental studies of receptivity, stability and nonlinear breakdown of boundary layers at controlled disturbance conditions. In: *8th Int. Conference on Methods of Aerophysical Research. Proceedings. Part 3.* Novosibirsk: Inst. Theor. & Appl. Mech., p. 122-129.
47. Gaponenko V.R., Ivanov A.V., Kachanov Y.S. 1996. Experimental study of 3D boundary-layer receptivity to surface vibrations. In: *Nonlinear Instability and Transition in Three-Dimensional Boundary Layers*, ed. P.W. Duck & P. Hall, p. 389-398. Dordrecht: Kluwer.
48. Kachanov Y.S. 1996. Generation development and interaction of instability modes in swept-wing boundary layer. In: *Nonlinear Instability and Transition in Three-Dimensional Boundary Layers*, ed. P.W. Duck & P. Hall, p. 115-132. Dordrecht: Kluwer.
49. Kachanov Y.S. 1996. Experimental studies of three-dimensional instability of boundary layers. *AIAA Pap. 96-1978*.
50. Bake S., Kachanov Y.S., Fernholz H.H. 1996. Subharmonic K-regime of boundary-layer breakdown. In: *Transitional Boundary Layers in Aeronautics*, eds. R.A.W.M. Henkes and J.L. van Ingen, pp. 81-88. Amsterdam: North-Holland.
51. Kachanov Y.S. 1996. Three-dimensional instabilities in boundary layers. In: *Transitional Boundary Layers in Aeronautics*, eds. R.A.W.M. Henkes and J.L. van Ingen, pp. 55-70. Amsterdam: North-Holland.
52. Kachanov Y.S., Obolentseva T.G. 1997. Development of three-dimensional disturbances in the Blasius boundary layer. 2. Stability characteristics. *Thermophysics and Aeromechanics.* 4(4): 403-415.
53. Ivanov A.V., Kachanov Y.S., Koptsev D.B. 1997. An experimental investigation of instability wave excitation in three-dimensional boundary layer at acoustic wave scattering on a vibrator. *Thermophysics and Aeromechanics.* 4(4): 359-372.
54. Kachanov Y.S. 1997. Laminar-turbulent transition in 3D boundary layer on swept wings. In: *Proc. 14th International Symposium on Models in Mechanics of Continuous Media. Invited Lectures*, ed. V.N. Zhigulyov. Moscow: Moscow Physical & Technical Institute, pp. 79-88 (in Russian).
55. Crouch J.D., Gaponenko V.R., Ivanov A.V., Kachanov Y.S. 1997. Theoretical and experimental comparisons for the stability and receptivity of swept-wing boundary layers. *Bull. Amer. Phys. Soc.* 42: 2174.
56. Borodulin V.I., Gaponenko V.R., Kachanov Y.S. 1998. Investigation of normal instability modes in a three-dimensional boundary layer. *Thermophysics and Aeromechanics.* 5(1): 21-31.
57. Bake S., Ivanov A.V., Kachanov Y.S., Fernholz H.H. 1998. A method of experimental study of vibrational receptivity of a boundary layer on a curved wall. *9th International Conference on Methods of Aerophysical Research. Proceedings. Part I.* Novosibirsk: Inst. Theor. & Appl. Mech., pp. 17-22.

58. Ivanov A.V., Kachanov Y.S., Obolentseva T.G., Michalke A. 1998. Receptivity of the Blasius boundary layer to surface vibrations. Comparison of theory and experiment. *9th International Conference on Methods of Aerophysical Research. Proceedings. Part I*. Novosibirsk: Inst. Theor. & Appl. Mech., pp. 93-98.
59. Lee C.B., Du X.D., Lian Q.X., Borodulin V.I., Gaponenko V.R., Kachanov Y.S. 1998. Combined study of mechanisms of evolution and breakdown of coherent structures in transitional boundary layer at controlled conditions. *9th International Conference on Methods of Aerophysical Research. Proceedings. Part I*. Novosibirsk: Inst. Theor. & Appl. Mech., pp. 135-140.
60. Borodulin V.I., Gaponenko V.R., Kachanov Y.S., Lee C.B., Lian Q.X. 1998. Experimental investigation of spatial flow structure at late stages of laminar-turbulent transition in a boundary layer. *9th International Conference on Methods of Aerophysical Research. Proceedings. Part II*. Novosibirsk: Inst. Theor. & Appl. Mech., pp. 24-29.
61. Crouch J.D., Gaponenko V.R., Ivanov A.V., Kachanov Y.S. 1998. A method of experimental determination of the linear receptivity coefficients of a 3D boundary layer subjected to microscopic surface non-uniformities. Verification of theory. *9th International Conference on Methods of Aerophysical Research. Proceedings. Part II*. Novosibirsk: Inst. Theor. & Appl. Mech., pp. 30-35.
62. Ivanov A.V., Kachanov Y.S., Koptsev D.B. 1998. Method of phased roughness for determining the acoustic receptivity coefficients. *9th International Conference on Methods of Aerophysical Research. Proceedings. Part II*. Novosibirsk: Inst. Theor. & Appl. Mech., pp. 89-94.
63. Kachanov Y.S., Koptsev D.B. 1998. Experimental simulation of a boundary layer with a constant negative Hartree parameter and its 3D stability. *9th International Conference on Methods of Aerophysical Research. Proceedings. Part II*. Novosibirsk: Inst. Theor. & Appl. Mech., pp. 95-100.
64. Kachanov Y.S., Obolentseva T.G. 1998. Development of three-dimensional disturbances in the Blasius boundary layer. 3. Nonparallelism effects. *Thermophysics and Aeromechanics*. 5(3): 331-338.
65. Gaponenko V.R., Ivanov A.V., Kachanov Y.S. 1999. An experimental study of receptivity of a three-dimensional boundary layer to surface vibrations. *Thermophysics and Aeromechanics*. 6(1): 15-24.
66. Ivanov A.V., Kachanov Y.S., Obolentseva T.G. 1999. Experimental study of the Blasius boundary layer receptivity to localized surface vibrations. *Thermophysics and Aeromechanics*. 6(2): 179-192.
67. Würz W., Herr S., Wagner S., Kachanov Y.S. 1999. Experimental investigation on 3D acoustic receptivity of a laminar boundary layer in the presence of surface non-uniformities. In: *New Results in Numerical and Experimental Fluid Mechanics / Nitsche W., Heinemann H.J. & Hilbig R., eds. - Wiesbaden: Vieweg-Verlag.*
68. Kachanov Y.S., Koptsev D.B. 1999. Three-dimensional stability of self-similar boundary layer with a negative Hartree parameter. 1. Wave-trains. *Thermophysics and Aeromechanics*. Vol. 6(4): 443-456.
69. Borodulin V.I., Gaponenko V.R., Kachanov Y.S. 2000. Interaction of stationary and traveling instability modes of cross-flow in a swept-wing boundary layer. *Thermophysics and Aeromechanics*. 7(1): 37-45.
70. Kachanov Y.S., Koptsev D.B., Smorodsky B.V. 2000. Three-dimensional stability of self-similar boundary layer with a negative Hartree parameter. 2. Characteristics of stability. *Thermophysics and Aeromechanics*. Vol. 7(3): 341-351.
71. Kachanov Y.S. 2000. On a universal nonlinear mechanism of breakdown to turbulence in wall bounded shear flows. In: *20th International Congress of Theoretical and Applied Mechanics (ICTAM 2000). Abstract Book. Chicago, 27 August - 2 September, 2000, Abstract OD1.*
72. Borodulin V.I., Kachanov Y.S., Koptsev D.B. 2000. Study of resonant instability wave interaction in self-similar boundary layer with adverse pressure gradient. In: *X International Conference on Methods of Aerophysical Research. Proceedings. Part I. - Novosibirsk: Inst. Theor. & Appl. Mech., p. 47-52.*
73. Kachanov Y.S., Koptsev D.B., Smorodsky B.V. 2000. Suppression of 3D vibration receptivity of boundary layer by an adverse pressure gradient. In: *X International Conference on Methods of Aerophysical Research. Proceedings. Part I. - Novosibirsk: Inst. Theor. & Appl. Mech., p. 134-139.*
74. Borodulin V.I., Gaponenko V.R., Kachanov Y.S. 2000. Generation and development of coherent structures in boundary layer at pulse excitation. In: *X International Conference on Methods of Aerophysical Research. Proceedings. Part II. - Novosibirsk: Inst. Theor. & Appl. Mech., p. 37-42.*
75. Würz W., Herr S., Wörner A., Rist U., Wagner S., Kachanov Y.S. 2000. Experimental and numerical investigation of 3D acoustic receptivity due to localized wall roughness. In: *X International Conference on Methods of Aerophysical Research. Proceedings. Part II. - Novosibirsk: Inst. Theor. & Appl. Mech., p. 195-200.*
76. Ivanov A.V., Kachanov Y.S., Bake S., Neemann K. 2000. Influence of favorable pressure gradient on 3D vibrational receptivity of boundary layer. In: *X International Conference on Methods of Aerophysical Research. Proceedings. Part II. - Novosibirsk: Inst. Theor. & Appl. Mech., p. 78-83.*
77. Kachanov Y.S. 2000. On a universal nonlinear mechanism of turbulence production in wall shear flows. In: *X International Conference on Methods of Aerophysical Research. Proceedings. Part II. - Novosibirsk: Inst. Theor. & Appl. Mech., p. 84-91.*
78. Würz W., Herr S., Wörner A., Rist U., Wagner S., Kachanov Y.S. 2000. Study of 3D wall roughness acoustic receptivity on an airfoil. In: *Laminar-Turbulent Transition*. ed. H. Fasel & W.S. Saric. Berlin: Springer, pp. 91-96.
79. Kachanov Y.S., Koptsev D.B., Smorodsky B.V. 2000. 3D stability and receptivity of two-dimensional self-similar boundary layer with adverse pressure gradient. In: *Laminar-Turbulent Transition*. Ed. H. Fasel & W.S. Saric. Berlin: Springer, pp. 571-582.
80. Meyer D.G.W., Rist U., Borodulin V.I., Gaponenko V.R., Kachanov Y.S., Lian Q.X., Lee C.B. 2000. Late-stage transitional boundary-layer structures. Direct numerical simulation and experiment. In: *Laminar-Turbulent Transition*. Ed. H. Fasel & W.S. Saric. Berlin: Springer, pp. 167-172.
81. Kachanov Y.S. 2000. Three-dimensional receptivity of boundary layers to external perturbations. In: *Laminar-Turbulent Transition*. Ed. H. Fasel & W.S. Saric. Berlin: Springer, pp. 65-70.
82. Wörner A., Rist U., Herr S., Würz W., Wagner S., Kachanov Y.S. 2000. Study of the acoustic receptivity of a Blasius boundary layer in the presence of a surface non-uniformity. In: *European Congress on Computational Methods in Applied Sciences and Engineering ECCOMAS 2000*. Barcelona, 11-14 September, CD-ROM Proceedings, pp. 1-9.
83. Borodulin V.I., Kachanov Y.S., Koptsev D.B. 2000. Experimental study of tuned and detuned resonant interactions of instability waves in self-similar boundary layer with an adverse pressure gradient. In: *Advances in Turbulence VIII. Proc. of Eighth European Turbulence Conference*. (C.Dopazo et al. eds.) - Barcelona: CIMNE Publ., pp. 149-152.
84. Bake S., Fernholz H.H., Kachanov Y.S. 2000. Resemblance of K- and N-regimes of boundary-layer transition at late stages. *Eur. J. Mech., B/Fluids*. 19(1): 1-22. Doi: [https://doi.org/10.1016/S0997-7546\(00\)00108-4](https://doi.org/10.1016/S0997-7546(00)00108-4).

85. Kachanov Y.S. 2000. Three-dimensional receptivity of boundary layers. *Eur. J. Mech., B/Fluids*. Vol. 19, N 5, pp. 723-744. Doi: [https://doi.org/10.1016/S0997-7546\(00\)90102-X](https://doi.org/10.1016/S0997-7546(00)90102-X).
86. Ivanov A.V., Kachanov Y.S., Koptsev D.B. 2001. Excitation of cross-flow instability waves by acoustic field in presence of a surface roughness. *Thermophysics and Aeromechanics*. 8(3), pp. 371-389.
87. Kachanov Y.S. 2001. Boundary layer receptivity to 3D perturbations. In: *Prediction-Turbulent Transition in Boundary Layers* / N. Itoh ed. - Tokyo: National Aerospace Laboratory, SP-48T, p. 65-66.
88. Borodulin V.I., Kachanov Y.S., Gaponenko V.R., Roschektayev A.P. Universal coherent structures in a transitional boundary layer // *Advances in Turbulence IX. Proc. of 9th European Turbulence Conference. Southampton, U.K.* / I.P. Castro, P.E. Hancock & T.G. Thomas eds. - Barcelona: CIMNE pub., 2002, pp. 719-722.
89. Bake S. Borodulin V.I., Kachanov Y.S., Roschektayev A.P. Experimental study of 3D localized boundary-layer receptivity to free-stream vortices by means of two-source method // *XI International Conference on Methods of Aerophysical Research. Proceedings. Part I* - Novosibirsk: Inst. Theor. & Appl. Mech., 2002, pp. 28-33.
90. Borodulin V.I., Kachanov Y.S., Koptsev D.B. Experimental investigation of a resonant mechanism of amplification of continuous-spectrum disturbances in an APG boundary layer by means of a deterministic noise method // *XI International Conference on Methods of Aerophysical Research. Proceedings. Part I* - Novosibirsk: Inst.Theor. & Appl. Mech.,2002,pp.45-50.
91. Borodulin V.I., Kachanov Y.S., Roschektayev A.P. Comparative study of coherent vortex structures in a boundary layer with adverse pressure gradient by means of a new experimental method // *XI International Conference on Methods of Aerophysical Research. Proceedings. Part II* - Novosibirsk: Inst. Theor. & Appl. Mech., 2002, pp. 33-38.
92. Borodulin V.I., Kachanov Y.S., Koptsev D.B., Roschektayev A.P. Resonant amplification of instability waves in quasi-subharmonic triplets with frequency and wavenumber detunings // *XI International Conference on Methods of Aerophysical Research. Proceedings. Part II* - Novosibirsk: Inst. Theor. & Appl. Mech., 2002, pp. 39-44.
93. Ivanov A.V., Wuerz W., Herr S., Wagner S., Kachanov Y.S. Experimental study of essentially non-stationary acoustic receptivity of a boundary layer on an airfoil due to surface non-uniformities // *XI International Conference on Methods of Aerophysical Research. Proceedings. Part II* - Novosibirsk: Inst. Theor. & Appl. Mech., 2002, pp. 85-90.
94. Wuerz W., Herr S., Wagner S., Kachanov Y.S. A first experimental approach to the distributed 3D-vortex receptivity of a boundary layer on an airfoil // *XI International Conference on Methods of Aerophysical Research. Proceedings. Part II* - Novosibirsk: Inst. Theor. & Appl. Mech., 2002, pp. 173-178.
95. Kachanov Y.S., Koptsev D.B., Smorodsky B.V. 2002. Study of three-dimensional receptivity of a 2D boundary layer with a positive pressure gradient to surface vibrations. Experiment and theory. *Thermophysics and Aeromechanics*. 9(3): 371-392.
96. Gaponenko V.R., Ivanov A.V., Kachanov Y.S. 2002 An experimental study of swept-wing boundary-layer receptivity. 1. Surface vibrations. *Thermophysics and Aeromechanics*. 9(1): 55-72.
97. Gaponenko V.R., Ivanov A.V., Kachanov Y.S. 2002 Experimental study of swept-wing boundary-layer receptivity. Part 2. Surface roughness. *Thermophysics and Aeromechanics*. 9(2): 181-192.
98. Borodulin V.I., Gaponenko V.R., Kachanov Y.S., Meyer D.G.W., Rist U., Lian Q.X., Lee C.B. 2002. Late-stage transitional boundary-layer structures. Direct numerical simulation and experiment. *Theoret. Comput. Fluid Dynamics*. 15: 317-337.
99. Bake S., Ivanov A.V., Fernholz H.H., Neeman K., Kachanov Y.S. 2002. Receptivity of boundary layers to three-dimensional disturbances. *Eur. J. Mech., B/Fluids*. 21(1), pp. 29-48. Doi: [https://doi.org/10.1016/S0997-7546\(01\)01156-6](https://doi.org/10.1016/S0997-7546(01)01156-6).
100. Gaponenko V.R., Ivanov A.V., Kachanov Y.S., Crouch J.D. 2002 Swept-wing boundary-layer receptivity to surface non-uniformities. *J. Fluid Mech.* 461: 93-126. Doi: <https://doi.org/10.1017/S0022112002008297>.
101. Borodulin V.I., Kachanov Y.S., Koptsev D.B. 2002. Experimental study of resonant interactions of instability waves in self-similar boundary layer with an adverse pressure gradient: I. Tuned resonances. *Journal of Turbulence*. 3: 062. Doi: <https://doi.org/10.1088/1468-5248/3/1/062>.
102. Borodulin V.I., Kachanov Y.S., Koptsev D.B., Roschektayev A.P. 2002. Experimental study of resonant interactions of instability waves in self-similar boundary layer with an adverse pressure gradient: II. Detuned resonances. *Journal of Turbulence*. 3: 063. Doi: <https://doi.org/10.1088/1468-5248/3/1/063>.
103. Borodulin V.I., Kachanov Y.S., Koptsev D.B. 2002. Experimental study of resonant interactions of instability waves in self-similar boundary layer with an adverse pressure gradient: III. Broadband disturbances. *Journal of Turbulence*. 3: 064. Doi: <https://doi.org/10.1088/1468-5248/3/1/064>.
104. Herr S., Wuerz W., Wagner S., Woerner A., Rist U., Kachanov Y.S., Ivanov A.V. 2003. Systematic investigations of 3D acoustic receptivity with respect to steady and unsteady disturbances. Experiment and DNS. *Notes on Numerical Fluid Mechanics and Multidisciplinary Design. Vol. 86. Recent Results in Laminar-Turbulent Transition*. - Berlin: Springer, pp. 75-90.
105. Kachanov Y.S. 2003. On a universal mechanism of turbulence production in wall shear flows. *Notes on Numerical Fluid Mechanics and Multidisciplinary Design. Vol. 86. Recent Results in Laminar-Turbulent Transition*. - Berlin: Springer, pp. 1-12.
106. Borodulin V.I., Kachanov Y.S., Roschektayev A.P. 2003. "Experimental study of late stages of the laminar-turbulent transition in a boundary layer with an adverse pressure gradient. *Thermophysics and Aeromechanics*. 10(1): 1-26.
107. Wuerz W., Herr S., Woerner A., Rist U., Wagner S., Kachanov Y.S. 2003. Three-dimensional acoustic-roughness receptivity of a boundary layer on an airfoil: experiment and direct numerical simulations. *J. Fluid Mech.* 478: 135-163. Doi: <https://doi.org/10.1017/S0022112002003348>.
108. Guo H., Wang J.J., Lian Q.X., Wang S.F., Borodulin V.I., Kachanov Y.S. Spatial reconstruction of vortical structures in transitional boundary layer based on synchronous hydrogen-bubble visualization // *XII International Conference on Methods of Aerophysical Research. Proceedings. Part I* - Novosibirsk: Inst. Theor. & Appl. Mech., 2004, pp. 118-124.
109. Borodulin V.I., Ivanov A.V., Kachanov Y.S., Komarova V.Y. An experimental approach to investigation of distributed boundary-layer receptivity at scattering of non-stationary 2D free stream vortices on surface waviness // *XII International Conference on Methods of Aerophysical Research. Proceedings. Part II* - Novosibirsk: Inst. Theor. & Appl. Mech., 2004, pp. 24-30.
110. Borodulin V.I., Ivanov A.V., Kachanov Y.S., Fedenkova A.A. A new method for experimental obtaining of coefficients of the 3D boundary-layer distributed receptivity to free-stream vortices with wall-normal vorticity in presence of surface roughness // *XII International Conference on Methods of Aerophysical Research. Proceedings. Part II* - Novosibirsk: Inst. Theor. & Appl. Mech., 2004, pp. 17-23.
111. Borodulin V.I., Kachanov Y.S., Roschektayev A.P. Application of deterministic noise method to investigation of turbulence production mechanisms in an adverse-pressure-gradient boundary layer // *XII International Conference on Methods of Aerophysical Research. Proceedings. Part II* - Novosibirsk: Inst. Theor. & Appl. Mech., 2004, pp. 31-36.

112. Wuerz W., Sartorius D., Wagner S., Borodulin V.I., Kachanov Y.S. Experimental study of weakly nonlinear interactions of instability waves in a non self-similar boundary layer on an airfoil. Part I: Base flow and initially tuned resonances // *XII International Conference on Methods of Aerophysical Research. Proceedings. Part II* - Novosibirsk: Inst. Theor. & Appl. Mech., 2004, pp. 201-206.
113. Sartorius D., Wuerz W., Wagner S., Borodulin V.I., Kachanov Y.S. Experimental study of weakly nonlinear interactions of instability waves in a non self-similar boundary layer on an airfoil Part II: Influence of frequency and spanwise-wavenumber detunings // *XII International Conference on Methods of Aerophysical Research. Proceedings. Part II* - Novosibirsk: Inst. Theor. & Appl. Mech., 2004, pp. 207-212.
114. Borodulin V.I., Kachanov Y.S., Roschektayev A.P., Bake S. 2004. Experimental study of 3D receptivity of a boundary layer to free-stream vortices during their scattering on localized surface vibrations. *Thermophysics and Aeromechanics*. 11(2): 185-198.
115. Borodulin V.I., Ivanov A.V., Kachanov Y.S., Fedenkova A.A. 2004. Distributed boundary-layer receptivity to non-stationary vortical perturbations with wall-normal vorticity in presence of surface roughness. *Thermophysics and Aeromechanics*. 11(3): 365-403.
116. Borodulin V.I., Fedenkova A.A., Ivanov A.V., Kachanov Y.S., Komarova V.Y. 3D distributed boundary-layer receptivity to non-stationary free-stream vortices in presence of surface roughness // *21st International Congress of Theoretical and Applied Mechanics. ICTAM Proceedings (Extended Summaries on CD-ROM)* / W. Gutkowski & T.A. Kowalewski eds. – Berlin: Springer-Verlag, 2005, paper FM2L_10275.
117. Sartorius D., Wuerz W., Wagner S., Borodulin V.I., Kachanov Y.S. Resonant interactions of 3D instability waves in an airfoil boundary layer for harmonic and broadband perturbations // *21st International Congress of Theoretical and Applied Mechanics. ICTAM Proceedings (Extended Summaries on CD-ROM)* / W. Gutkowski & T.A. Kowalewski eds. – Berlin: Springer-Verlag, 2005, paper FM24L_12675.
118. Ivanov A.V., Wuerz W., Herr S., Wagner S., Kachanov Y.S. Experimental investigation of 3D acoustic receptivity of an airfoil boundary layer due to surface vibrations // *Eur. J. Mech. - B/Fluids*. – 2005. – V. 24, No 5. – P. 621-641. Doi: <https://doi.org/10.1016/j.euromechflu.2004.12.004>.
119. Kachanov Y.S. Laminar-turbulent transition in swept-wing boundary layers // *Aerodynamics and Solidity of Flying Vehicles' Structures*. Proc. All-Russian Sci. Tech. Conf. Dedicated to 60th Anniv. of FVA and SAC Depts. of SibNIA (15-17 June, 2004). / A.N. Serjoznov ed. – Novosibirsk: SibNIA, 2005, pp. 92-101.
120. Sartorius D., Wuerz W., Ries T., Kloker M., Wagner S., Borodulin V.I., Kachanov Y.S. Experimental study of resonant interactions of instability waves in an airfoil boundary layer // *Sixth IUTAM Symposium on Laminar-Turbulent Transition. Series: Fluid Mechanics and Its Applications* / R. Govindarajan (ed.) – Dordrecht: Springer, 2006, pp. 159-166.
121. Borodulin V.I., Kachanov Y.S., Roschektayev A.P. 2006. Wall turbulence: stochastic or deterministic? // *SD-ROM Proc. Intl Conf "Hydrodynamic Instability and Turbulence"* – Moscow, Russia (in Russian).
122. Boiko A.V., Ivanov A.V., Kachanov Y.S., Mischenko D.A. 2006. Unsteady Goertler instability // *SD-ROM Proc. Intl Conf "Hydrodynamic Instability and Turbulence"* – Moscow, Russia (in Russian).
123. Borodulin V.I., Ivanov A.V., Kachanov Y.S., Komarova V.Y. 2006. Distributed two-dimensional boundary-layer receptivity to non-stationary vortical disturbances in the presence of surface roughness. *Thermophysics and Aeromechanics*. 13(2): 183-208.
124. Kachanov Y.S. Routes of boundary-layer transition // *IUTAM Symposium on One Hundred Years of Boundary Layer Research. Solid Mechanics and Its Applications, Vol. 129* / Meier, G.E.A.; Sreenivasan, K.R.; Heinemann, Hans-Joachim (Eds.) – Berlin: Springer, 2006, pp. 95-104.
125. Borodulin V.I., Kachanov Y.S., Roschektayev A.P. Turbulence production in an APG-boundary-layer transition induced by randomized perturbations // *Journal of Turbulence*. – 2006. – Vol. 7, No 8. – P. 1-30. Doi: <https://doi.org/10.1080/14685240500331645>.
126. Boiko A.V., Ivanov A.V., Kachanov Y.S., Mischenko D.A. Quasi-steady and unsteady Goertler vortices on concave wall: experiment and theory // *In: Advances in Turbulence XI. Proceedings of 11th EUROMECH European Turbulence Conference, June 25–28, 2007, Porto, Portugal* / J.M.L.M. Palma and A. Silva Lopes, eds. – Heidelberg: Springer, 2007, pp. 173–175.
127. Borodulin V.I., Kachanov Y.S., Roschektayev A.P. The deterministic wall turbulence is possible // *In: Advances in Turbulence XI. Proceedings of 11th EUROMECH European Turbulence Conference, June 25–28, 2007, Porto, Portugal* / J.M.L.M. Palma and A. Silva Lopes, eds. – Heidelberg: Springer, 2007, pp. 176–178.
128. Guo H., Lian X.Q., Pan C., Wang J.J., Wang S.F., Borodulin V.I., Kachanov Y.S. Sweep and Ejection Events in Transitional Boundary Layer. Synchronous Visualization and Spatial Reconstruction // *XIII International Conference on Methods of Aerophysical Research. Proceedings. Part V*. – Novosibirsk: Publ. House "Parallel", 2007, p. 192–197.
129. Borodulin V.I., Kachanov Y.S., Roschektayev A.P. A method of creation of deterministic wall turbulence // *XIII International Conference on Methods of Aerophysical Research. Proceedings. Part I*. – Novosibirsk: Inst. Publ. House "Parallel", 2007, p. 46–52.
130. Smorodsky B.V., Borodulin V.I., Kachanov Y.S., Würz W., Sartorius D. and Kloker M. Study of resonant interactions of disturbances in a non self-similar boundary layer. Verification of direct numerical simulation and weakly nonlinear theory. // *XIII International Conference on Methods of Aerophysical Research. Proceedings. Part I*. – Novosibirsk: Publ. House "Parallel", 2007, p. 46–52.
131. Boiko A.V., Ivanov A.V., Kachanov Y.S., Mischenko D.A. A new approach to investigation of Goertler instability. Verification of theory. // *XIII International Conference on Methods of Aerophysical Research. Proceedings. Part III*. – Novosibirsk: Publ. House "Parallel", 2007, p. 33–38.
132. Borodulin V.I., Ivanov A.V., Kachanov Y.S., Fedenkova A.A. Three-dimensional distributed receptivity of a boundary layer to unsteady vortex disturbances // *XIII International Conference on Methods of Aerophysical Research. Proceedings. Part III*. – Novosibirsk: Publ. House "Parallel", 2007, p. 45–50.
133. Boiko A.V., Ivanov A.V., Kachanov Y.S., Mischenko D.A. 2007. Unsteady Goertler instability // *Bulletin of Novosibirsk State University. Series: Physics*. 2(3): 8-15 (in Russian).
134. B. De Paula, D. Sartorius, W. Würz, E. Krämer, Y. S. Kachanov Experimental Study of Multi-Wave Resonant Interactions in a Non-Self-Similar Boundary Layer on an Airfoil // *XIV International Conference on Methods of Aerophysical Research. Proceedings* / Ed. V.M. Fomin — Novosibirsk: ITAM SB RAS 2008. — 8 pp.
135. Boiko A.V., Ivanov A.V., Kachanov Y.S., Mischenko D.A. Study of Nonlinear Development of Görtler Vortices by Method of Controlled Unsteady Perturbations // *XIV International Conference on Methods of Aerophysical Research. June 30 – July 6, 2008. Proceedings* / Ed. V.M. Fomin — Novosibirsk: ITAM SB RAS 2008. — 10 pp.
136. Borodulin V.I., Ivanov A.V., Kachanov Y.S., Roschektayev A.P. Excitation of Cross-Flow Instability Modes at Scattering of Free-Stream Vortices on Surface Roughness // *XIV International Conference on Methods of Aerophysical Research. June 30 – July 6, 2008. Proceedings* / Ed. V.M. Fomin — Novosibirsk: ITAM SB RAS 2008. — 10 pp.

137. V.I. Borodulin, A.V. Ivanov, Y.S. Kachanov, A.P. Roschektayev Vortex Receptivity Of A Swept-Wing Boundary Layer In Presence Of Surface Vibrations // *XIV International Conference on Methods of Aerophysical Research. June 30 – July 6, 2008. Proceedings* / Ed. V.M. Fomin — Novosibirsk: ITAM SB RAS 2008. — 10 pp.
138. V.I. Borodulin, Y.S. Kachanov, A.P. Roschektayev Investigation Of LEBU-Device Effect On Turbulent Boundary Layer Structure By Means Of ‘Deterministic Turbulence Method’ // *XIV International Conference on Methods of Aerophysical Research. June 30 – July 6, 2008. Proceedings* / Ed. V.M. Fomin — Novosibirsk: ITAM SB RAS 2008. — 10 pp.
139. V.I. Borodulin, Y.S. Kachanov, A.P. Roschektayev Application of the deterministic turbulence method to study of LEBU-device mechanism // In: *Advances in Turbulence XII. Springer Proceedings in Physics 132, Proceedings of 12th EUROMECH European Turbulence Conference, September 7–10, 2009, Marburg, Germany* / B. Eckhardt, ed. – Berlin, Heidelberg: Springer, 2009, pp. 313–316. https://link.springer.com/content/pdf/10.1007%2F978-3-642-03085-7_76.pdf
140. De Paula I.B., Würz W., Krämer E., Borodulin V.I., Kachanov Y.S. Experimental study of resonant interactions of modulated waves in a non self-similar boundary layer // *Proc. Seventh IUTAM Symposium on Laminar-Turbulent Transition, Stockholm, Sweden, 2009. Series: IUTAM Bookseries, Vol. 18* / P. Schlatter and D.S. Henningson (Eds.). – Berlin: Springer, 2010, pp. 549-552. https://link.springer.com/content/pdf/10.1007%2F978-90-481-3723-7_97.pdf.
141. De Paula I.B., Würz W., Krämer E., Borodulin V.I., Kachanov Y.S. Generation of seeds for subharmonic resonances in an airfoil boundary layer transition initiated by modulated TS waves // *XV Intl. Conf. on Methods of Aerophysical Research. Proceedings* / Ed. V.M. Fomin — Novosibirsk: ITAM SB RAS, 2010, 10 pp.
142. Borodulin V.I., Ivanov A.V., Kachanov Y.S. Distributed receptivity of swept-wing boundary layer to streamwise vortices. Part. 1. Experimental approach // *XV Intl. Conf. on Methods of Aerophysical Research. Proceedings* / Ed. V.M. Fomin — Novosibirsk: ITAM SB RAS, 2010, 10 pp.
143. Borodulin V.I., Ivanov A.V., Kachanov Y.S. Distributed receptivity of swept-wing boundary layer to streamwise vortices. Part. 2. Receptivity characteristics // *XV Intl. Conf. on Methods of Aerophysical Research. Proceedings* / Ed. V.M.Fomin - Novosibirsk: ITAM SBRAS, 2010, 10 pp.
144. Ivanov A.V., Kachanov Y.S., Mischenko D.A. A method of excitation of Görtler vortices by means of surface non-uniformities // *XV Intl. Conf. on Methods of Aerophysical Research. Proceedings* / Ed. V.M. Fomin — Novosibirsk: ITAM SB RAS, 2010, 10 pp. (in Russian).
145. Ivanov A.V., Kachanov Y.S., Mischenko D.A. Experimental study of a mechanism of generation of Görtler vortices // *XV Intl. Conf. on Methods of Aerophysical Research. Proceedings* / Ed. V.M. Fomin — Novosibirsk: ITAM SB RAS, 2010, 10 pp. (in Russian).
146. A.V. Boiko, A.V. Ivanov, Y.S. Kachanov, D.A. Mischenko. Steady and unsteady Görtler boundary-layer instability on concave wall // *Eur. J. Mech., B/Fluids*. – 2010. – V. 29, N 2. – P. 61-83. Doi: <https://doi.org/10.1016/j.euromechflu.2009.11.001>.
147. H. Guo, V.I. Borodulin, Y.S. Kachanov, J.J. Wang, C. Pan, Q.X. Lian, S.F. Wang Nature of sweep and ejection events in transitional and turbulent boundary layers // *Journal of Turbulence*. – 2010. – V. 11, N 34. – P. 1-51. Doi: <https://doi.org/10.1080/14685248.2010.498425>.
148. X.B. Liu, L. Chen, Y.S. Kachanov, C.Q. Liu DNS for ring-like vortices formation and roles in positive spikes formation // *AIAA Paper 2010-1471*, 2010.
149. A.V. Boiko, A.V. Ivanov, Y.S. Kachanov, D.A. Mischenko 2010. Study of weakly-nonlinear development of unsteady Görtler vortices // *Thermophysics and Aeromechanics*. 17(4): 487-514.
150. Borodulin V.I., Kachanov Y.S., Roschektayev A.P. 2011. Experimental detection of deterministic turbulence // *Journal of Turbulence* Vol. 12, N 23, pp. 1-34. Doi: <https://doi.org/10.1080/14685248.2011.573792>.
151. Würz W., Sartorius D., Kloker M., Borodulin V.I., Kachanov Y.S., Smorodsky B.V. Nonlinear instabilities of a non-self-similar boundary layer on an airfoil: Experiments, DNS, and theory // *Eur. J. Mech., B/Fluids*. – Vol. 31. – 2012. – P. 102-128; <https://doi.org/10.1016/j.euromechflu.2011.07.006>.
152. Wuerz W., Sartorius D., Kloker M., Borodulin V.I., Kachanov Y.S., Smorodsky B.V. Detuned resonances of Tollmien-Schlichting waves in an airfoil boundary layer: Experiment, theory, and direct numerical simulation // *Physics of Fluids*. – Vol. 24, Issue 9, 094103 (2012); doi: <http://dx.doi.org/10.1063/1.4751246>.
153. Ivanov A.V., Kachanov Y.S., Mischenko D.A. Generation of nonstationary Görtler vortices by localized surface nonuniformities. Receptivity coefficients // *Thermophysics and Aeromechanics* // 2012. – Vol. 19, No. 4. – PP. 523–540. DOI: <http://dx.doi.org/10.1134/S0869864312040014>
154. Ivanov A.V., Kachanov Y.S., Mischenko D.A. On excitation of Görtler vortices due to scattering of free-stream vortices on surface non-uniformities // *Journal of Physics: Conference Series*. – 2011. – Vol. 318, doi: <http://dx.doi.org/10.1088/1742-6596/318/3/032029>, 10 p.
155. Ivanov A.V., Kachanov Y.S., Mischenko D.A. Boundary-layer receptivity to surface non-uniformities leading to generation of Görtler vortices // *Journal of Physics: Conference Series*. – 2011. – Vol. 318, doi: <https://doi.org/10.1088/1742-6596/318/3/032031>, 10 p.
156. De Paula I.B., Würz W., Krämer E., Borodulin V.I., Kachanov Y.S. Introduction of initial seeds for subharmonic resonance by modulation of T-S waves in an airfoil boundary layer // In: *New Results in Numerical and Experimental Fluid Mechanics. Series: Notes on Numerical Fluid Mechanics and Multidisciplinary Design* - Berlin: Springer, 2013, Vol. 121, pp. 245-252. ISBN: 978-3-642-35679-7. DOI: http://dx.doi.org/10.1007/978-3-642-35680-3_30
157. Borodulin V.I., Kachanov Y.S. Experimental Study of Reproducibility of Instantaneous Structure of the Deterministic Wall Turbulence // *Proceedings of 8th Intl. Symposium on Turbulence and Shear Flow Phenomena – TSFP-8. E.N.S.M.A. Poitiers, France, 2013*, pp. 1–6.
158. Borodulin V.I., Kachanov Y.S., Mischenko D.A. Comparative Analysis of Relationship between Instantaneous and Statistical Properties of the Deterministic Turbulence // *Proceedings of 8th Intl. Symp. on Turbulence and Shear Flow Phenomena – TSFP-8. E.N.S.M.A. Poitiers, France, 2013*, pp. 1–6.
159. Romano D.G., Alfredsson P.H., Hanifi, A., Örlü R., Tillmark N., Borodulin V.I., Ivanov A.V., Kachanov Y.S., Minervino M. Design and tests of wind-tunnel sidewalls for receptivity experiments on a swept wing // *Applied Mechanics and Materials*. - 2013. - Vol. 390. - PP. 96-102. Doi: <http://dx.doi.org/10.4028/www.scientific.net/AMM.390.96>
160. Kachanov Y.S. Hypothesis on deterministic turbulence // *Eur. J. Mech., B/Fluids*. – 2013. - V. 32. - P. 1-4. DOI: <http://dx.doi.org/10.1016/j.euromechflu.2013.02.003>
161. Borodulin V.I., Kachanov Y.S. Experimental evidence of deterministic turbulence // *Eur. J. Mech., B/Fluids*. - 2013. - V. 32. - P. 5-11. DOI: <http://dx.doi.org/10.1016/j.euromechflu.2013.02.004>

162. Borodulin V.I., Ivanov A.V., Kachanov Y.S., Roschektayev A.P. Receptivity coefficients at excitation of cross-flow waves by free-stream vortices in the presence of surface roughness // *J. Fluid Mech.* – 2013. – Vol. 716. – P. 487-527. DOI: <http://dx.doi.org/10.1017/jfm.2012.555>
163. De Paula I.B., Würz W., Krämer E., Borodulin V.I., Kachanov Y.S. Weakly nonlinear stages of boundary-layer transition initiated by modulated Tollmien–Schlichting waves // *J. Fluid Mech.* – 2013. – Vol. 732. – P. 571-615. DOI: <http://dx.doi.org/10.1017/jfm.2013.420>
164. Borodulin V.I., Ivanov A.V., Kachanov Y.S. Experimental approach to investigation of excitation of instability modes in a swept-wing boundary layer at scattering of freestream vortices on surface nonuniformities // *XVII Intl. Conf. on Methods of Aerophysical Research. June 30 – July 6, 2014. Proceedings* / Ed. V.M. Fomin. Novosibirsk: Inst. Theor. & Appl. Mech., 2014, paper No 8, 10 pp. http://www.itam.nsc.ru/users/libr/eLib/confer/ICMAR/2014/pdf/Borodulin%20et%20al_256.pdf
165. Borodulin V.I., Ivanov A.V., Kachanov Y.S., Mischenko D.A., Fedenkova A.A. Distributed excitation of 3D Tollmien-Schlichting waves in a boundary layer with adverse pressure gradient by freestream vortices in presence of surface nonuniformities // *XVII Intl. Conf. on Methods of Aerophysical Research. June 30 – July 6, 2014. Proceedings* / Ed. V.M. Fomin, 2014, paper No 9, 10 pp. http://www.itam.nsc.ru/users/libr/eLib/confer/ICMAR/2014/pdf/Borodulin%20et%20al_240.pdf
166. Borodulin V.I., Ivanov A.V., Kachanov Y.S., Mischenko D.A. Experimental investigation of characteristics of steady and unsteady crossflow-instability modes developing in a 35-degree swept-airfoil boundary layer // *XVII Intl. Conf. on Methods of Aerophysical Research. June 30 – July 6, 2014. Proceedings* / Ed. V.M. Fomin, 2014, paper No 10, 10 pp. <http://www.itam.nsc.ru/users/libr/eLib/confer/ICMAR/2014/pdf/Borodulin254.pdf>
167. Borodulin V.I., Kachanov Y.S. Reproducibility of instantaneous and statistical characteristics of the deterministic wall turbulence // *XVII Intl. Conf. on Methods of Aerophysical Research. June 30 – July 6, 2014. Proceedings* / Ed. V.M. Fomin, 2014, paper No 11, 10 pp. http://www.itam.nsc.ru/users/libr/eLib/confer/ICMAR/2014/pdf/Borodulin-Kachanov_121.pdf
168. Borodulin V.I., Ivanov A.V., Kachanov Y.S., Crouch J.D., Ng L.L. Criteria of swept-wing boundary-layer transition and variable N-factor methods of transition prediction // *Intl. Conf. on Methods of Aerophysical Research. June 30–July 6, 2014. Proceedings* / Ed. V.M. Fomin. Novosibirsk: Inst. Theor. & Appl. Mech., 2014, paper No 12, 10 pp. http://www.itam.nsc.ru/users/libr/eLib/confer/ICMAR/2014/pdf/Borodulin%20et%20al_106.pdf
169. Hanifi A., Hein S., Romano D.G., Minervino M., Würz W., Borodulin V.I., Ivanov A.V., Kachanov Y.S. Numerical and experimental realization of an infinite-swept-wing boundary-layer flow in a wind tunnel // *Intl. Conf. on Methods of Aerophysical Research. June 30 – July 6, 2014. Proceedings* / Ed. V.M. Fomin, 2014, paper No 29, 8 pp. http://www.itam.nsc.ru/users/libr/eLib/confer/ICMAR/2014/pdf/Hanifi%20et%20al_89.pdf
170. Ivanov A.V., Kachanov Y.S., Mischenko D.A. Excitation of Görtler-instability modes in concave-wall boundary layer by longitudinal freestream vortices // *Intl. Conf. on Methods of Aerophysical Research. June 30 – July 6, 2014. Proceedings* / Ed. V.M. Fomin, 2014, paper No 30, 10 pp. http://www.itam.nsc.ru/users/libr/eLib/confer/ICMAR/2014/pdf/Ivanov%20et%20al_238.pdf
171. Ivanov A.V., Kachanov Y.S., Mischenko D.A. Quantitative study of excitation of unsteady Goertler instability modes of a boundary layer on concave wall by free-stream turbulence // *Vestnik NGU. Seriya Fizika.* – 2014, Vol. 9, No 2, pp 84-94.
172. Ivanov A.V., Kachanov Y.S., Mischenko D.A. Mechanisms of distributed and localized excitation of unsteady Goertler modes by free-stream vortices // *Thermophysics and Aeromechanics* // 2014. – Vol. 21, No. 6, pp. 695-710. http://www.sibran.ru/journals/issue.php?ID=162377&ARTICLE_ID=162378
173. Borodulin V.I., Kachanov Y.S. On the reproducibility of instantaneous and statistical characteristics of the deterministic turbulence // *Theoretical and Allied Mechanics Letters* // 2014. – Vol. 4, 062004. Doi: <http://dx.doi.org/10.1063/2.1406204>
174. V.I. Borodulin, A.V. Ivanov, Y.S. Kachanov. Scenarios of swept-wing boundary-layer transition in presence of various kinds of freestream turbulence and surface roughnesses // *Procedia IUTAM, 2015. Vol. 14. IUTAM_ABCM Symposium on Laminar Turbulent Transition* / Eds.: M.A.F. Medeiros & J.R. Meneghinipp, pp. 283 – 294. <http://www.sciencedirect.com/science/article/pii/S2210983815000772/pdf?md5=83a59ffc2dcfe4e41bef1b595f073f6a&pid=1-s2.0-S2210983815000772-main.pdf>
175. J.D. Crouch, L.L. Ng, Y.S. Kachanov, V.I. Borodulin, A.V. Ivanov. Influence of surface roughness and free-stream turbulence on crossflow-instability transition // *Procedia IUTAM, 2015. Vol. 14. IUTAM_ABCM Symposium on Laminar Turbulent Transition* / Eds.: M.A.F. Medeiros & J.R. Meneghinipp, pp. 295 – 302. <http://www.sciencedirect.com/science/article/pii/S2210983815000784/pdf?md5=dbbca35742df4341d4272445ba5d1bf5&pid=1-s2.0-S2210983815000784-main.pdf>
176. Igor B. de Paula, Werner Wuerz, Vladimir I. Borodulin, Yury S. Kachanov. Weakly-nonlinear interactions of modulated T-S waves in the boundary layer of an airfoil // *Procedia IUTAM, 2015. Vol. 14. IUTAM_ABCM Symposium on Laminar Turbulent Transition* / Eds.: M.A.F. Medeiros & J.R. Meneghinipp, pp. 433 – 437. <http://www.sciencedirect.com/science/article/pii/S2210983815000978/pdf?md5=104d7b8e0386b454f1d5cdb58f985f27&pid=1-s2.0-S2210983815000978-main.pdf>
177. V.I. Borodulin, Y.S. Kachanov Quantitative visualization of instantaneous structure of post- transitional wall turbulence // *The 13th Asian Symposium on Visualization. Novosibirsk, Russia. Proceedings.* – Novosibirsk: Inst. Theor. & Appl. Mech., 2015, paper No 9, 8 p. http://itam.nsc.ru/conferences/13asv/pdf/009_Borodulin%20et%20al.pdf
178. V.I. Borodulin, A.V. Ivanov, Y.S. Kachanov Quantitative visualization of transition scenarios in swept-wing boundary layers // *The 13th Asian Symposium on Visualization. Novosibirsk, Russia. Proceedings.* – Novosibirsk: Inst. Theor. Appl. Mech., 2015, paper No 73, 10 pp. http://itam.nsc.ru/conferences/13asv/pdf/073_Borodulin%20et%20al.pdf
179. V.I. Borodulin, A.V. Ivanov, Y.S. Kachanov, A. Hanifi Visualization of transition control in a 45-degree swept-wing boundary layer // *13th Asian Symp. on Visualization. Novosibirsk, Russia. Proceedings.* – Novosibirsk: Inst. Theor. Appl. Mech., 2015, paper No 74, 10 pp. http://itam.nsc.ru/conferences/13asv/pdf/074_Borodulin%20et%20al.pdf
180. Dong Xue, Chong Pan, Jinjun Wang, Vladimir I. Borodulin, Yury S. Kachanov Determining time-scale of laminar wing-tip vortex instability by visualization // *The 13th Asian Symposium on Visualization. Novosibirsk, Russia. Proceedings.* – Novosibirsk: Inst. Theor. Appl. Mech., 2015, paper No73, 10 pp., http://itam.nsc.ru/conferences/13asv/pdf/124_Xue%20et%20al.pdf
181. Y.S. Kachanov, V.I. Borodulin and A.V. Ivanov. Problem of calculation of swept-wing boundary-layer transition to turbulence at elevated freestream turbulence levels // *AIP Conf. Proc.* 2016, Vol. 1770, pp. 020010-1–020010-39, ISBN: 978-0-7354-1428-0, doi: <http://dx.doi.org/10.1063/1.4963933>

182. V.I. Borodulin, A.V. Ivanov, Y.S. Kachanov, D.A. Mischenko and A.A. Fedenkova. Comparison of distributed vortex receptivity coefficients at excitation of 3D TS-waves in presence and absence of surface waviness and pressure gradient // *AIP Conf. Proc.* 2016, Vol. 1770, pp. 030041-1–030041-7, ISBN: 978-0-7354-1428-0, doi: <http://dx.doi.org/10.1063/1.4963983>
183. V.I. Borodulin, A.V. Ivanov, Y.S. Kachanov, R. Örlü, A. Hanifi and S. Hein. Characteristics of 3D instability of a 35-degree swept wing to CF and TS modes. Experiment and theory // *AIP Conf. Proc.* 2016, Vol. 1770, pp. 030054-1–030054-18, ISBN: 978-0-7354-1428-0, doi: <http://dx.doi.org/10.1063/1.4963996>
184. V.I. Borodulin, A.V. Ivanov, Y.S. Kachanov and A. Hanifi. Laminar-turbulent transition delay on a swept wing // *AIP Conf. Proc.* 2016, Vol. 1770, pp. 030065-1–030065-12, ISBN: 978-0-7354-1428-0, doi: <http://dx.doi.org/10.1063/1.4964007>
185. Borodulin V.I., Ivanov A.V., Kachanov Y.S., Roschektayev A.P. Receptivity coefficients at excitation of cross-flow waves due to scattering of free-stream vortices on surface vibrations // *J. Fluid Mech.* – 2016. – Vol. 793, pp. 162-208. DOI: <http://dx.doi.org/10.1017/jfm.2016.129> .
186. A.V. Boiko, A.V. Ivanov, Y.S. Kachanov, D.A. Mischenko, Y.M. Nechepurenko. Excitation of unsteady Görtler vortices by localized surface nonuniformities // *Theor. Comput. Fluid Dyn.* – 2017. – Vol. 31, issue 1, pp. 67-88. Doi: <http://dx.doi.org/10.1007/s00162-016-0404-y>
187. V.I. Borodulin, A.V. Ivanov, Y.S. Kachanov. Swept-wing boundary-layer transition at various external perturbations: Scenarios, criteria, and problems of prediction // *Physics of Fluids* – 2017. – Vol. 29, pp. 094101-1 – 094101-26. Doi: <http://dx.doi.org/10.1063/1.4999952> .
188. V.I. Borodulin, A.V. Ivanov, Y.S. Kachanov, D.A. Mischenko. Systematic study of distributed excitation of unsteady Görtler modes by freestream vortices // *Eur. J. Mechanics / B Fluids* – Vol. 68 (2018) 167–183. Doi: <https://doi.org/10.1016/j.euromechflu.2017.11.008>
189. Y.S. Kachanov, V.I. Borodulin, A.V. Ivanov, D.A. Mischenko, R. Örlü, A. Hanifi, S. Hein. Generation of unsteady CF-instability modes by vibrational and vibration-vortex localized receptivity mechanisms // *AIP Conference Proceedings 2027, 020010 (2018)*. Doi: <https://doi.org/10.1063/1.5065088> .
190. V.I. Borodulin, A.V. Ivanov, Y.S. Kachanov, D.A. Mischenko, R. Örlü, A. Hanifi, S. Hein. Excitation of 3D TS-waves in a swept-wing boundary layer by surface vibrations and freestream vortices // *AIP Conference Proceedings 2027, 030136 (2018)*. Doi: <https://doi.org/10.1063/1.5065230> .
191. V.I. Borodulin, A.V. Ivanov, Y.S. Kachanov, D.A. Mischenko, K.-S. Choi, Y. Wang. New method of excitation of 3D instability modes in boundary layers and its application to experiments on control of unsteady Görtler vortices // *AIP Conference Proceedings 2027, 030117 (2018)*. Doi: <https://doi.org/10.1063/1.5065211> .
192. V.I. Borodulin, A.V. Ivanov, Y.S. Kachanov, D.A. Mischenko, R. Örlü, A. Hanifi, S. Hein. Quantitative study of localized mechanisms of excitation of cross-flow instability modes in a swept-wing boundary layer // *Journal of Physics: Conf. Series 1129 (2018) 012008*. Doi: <https://doi.org/10.1088/1742-6596/1129/1/012008> .
193. W. Würz, D. Sartorius, V.I. Borodulin, Y.S. Kachanov Weakly-nonlinear interactions of broadband Tollmien–Schlichting waves in a non-self-similar boundary layer on an airfoil // *Eur. J. Mechanics / B Fluids*, Vol 77 (2019) pp. 48–70; <https://doi.org/10.1016/j.euromechflu.2019.03.002> .
194. V.I. Borodulin, A.V. Ivanov, Y.S. Kachanov, D.A. Mischenko, R. Örlü, A. Hanifi, and S. Hein Receptivity coefficients of vortex-vibrational type at excitation of 3D Tollmien-Schlichting waves in a boundary layer on a swept wing // *AIP Conference Proceedings* 2125, 030044 (2019); <https://doi.org/10.1063/1.5117426>
195. V.I. Borodulin, Y.S. Kachanov Detection of the laminar-turbulent transition line in a three-dimensional boundary layer by observing of evolving thermograms // *AIP Conference Proceedings* 2125, 030038 (2019); <https://doi.org/10.1063/1.5117420> .
196. V.I. Borodulin, A.V. Ivanov, Y.S. Kachanov, D.A. Mischenko, R. Örlü, A. Hanifi, and S. Hein Experimental and theoretical study of swept-wing boundary-layer instabilities. Unsteady crossflow instability // *Phys. Fluids* 31, No 6, 064101 (2019); <https://doi.org/10.1063/1.5094609> .
197. V.I. Borodulin, A.V. Ivanov, Y.S. Kachanov, D.A. Mischenko, R. Örlü, A. Hanifi, and S. Hein Experimental and theoretical study of swept-wing boundary-layer instabilities. Three-dimensional Tollmien-Schlichting instability // *Phys. Fluids* 31, No 11, 114104 (2019); <https://doi.org/10.1063/1.5125812> .
198. V.I. Borodulin, A.V. Ivanov, Y.S. Kachanov, A.P. Roschektayev (2020) Distributed vortex receptivity of swept-wing boundary layer. Part 1. Efficient excitation of CF modes // *J. Fluid Mech.* Vol. 908, A14. DOI: <https://doi.org/10.1017/jfm.2020.846> .
199. V.I. Borodulin, A.V. Ivanov, Y.S. Kachanov, A.P. Roschektayev (2020) Distributed vortex receptivity of swept-wing boundary layer. Part 2. Receptivity characteristics // *J. Fluid Mech.* Vol. 908, A15. DOI: <https://doi.org/10.1017/jfm.2020.847> .
200. Borodulin V.I., Ivanov A.V., Kachanov Y.S. (2022) Distributed excitation of crossflow waves due to scattering of freestream vortices by surface waviness. In: Sherwin S., Schmid P., Wu X. (eds.) IUTAM Laminar-Turbulent Transition. IUTAM Bookseries, vol. 38, pp. 327-336. Springer, Cham. https://doi.org/10.1007/978-3-030-67902-6_28 .
201. Mischenko D.A., Borodulin V.I., Ivanov A.V., Kachanov Y.S. (2022) Control of unsteady Görtler instability modes by steady görtler vortices. In: Sherwin S., Schmid P., Wu X. (eds.) IUTAM Laminar-Turbulent Transition. IUTAM Bookseries, vol. 38, pp. 227-232. Springer, Cham. https://doi.org/10.1007/978-3-030-67902-6_19 .
202. Y.X. Wang, K.-S. Choi, M. Gaster, C. Atkin, V. Borodulin and Y. Kachanov. Early development of artificially initiated turbulent spots // *J. Fluid Mech.* (2021), vol. 916, A1. DOI: <https://doi.org/10.1017/jfm.2021.152> .
203. M.V. Ustinov, Y.S. Kachanov. Comparison of amplitude method of roughness-induced swept-wing transition prediction with experiment // *Phys. Fluids*. Vol. 33, 094105 (2021); <https://doi.org/10.1063/5.0057853> .