

CURRICULUM VITAE of Alexei A. Mailybaev

Birth date and place

March 17, 1975. Vilnius, USSR.

Professional Address

Instituto Nacional de Matemática Pura e Aplicada – IMPA
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Scientific interests

Fluid dynamics and turbulence
Nonlinear waves in conservation laws
Reactive flows in porous media
Spectral singularities in mathematics and physics
Stability and vibrations of mechanical systems

Spoken languages

Russian, English, Portuguese, German

Education/Scientific degrees

- 1997 M.Sc. (with honors), Faculty of Mechanics and Mathematics,
Lomonosov Moscow State University, Russia
Advisor: Alexander P. Seyranian
- 1999 Ph.D., Faculty of Mechanics and Mathematics,
Lomonosov Moscow State University, Russia
Thesis: Singularities of stability domain boundaries: analysis and applications
Advisor: Alexander P. Seyranian
- 2009 D.Sc. (Doctor of Sciences in Mathematics and Physics)
Institute of Mechanics, Lomonosov Moscow State University, Russia
Thesis: Multiparameter problems of stability theory

Professional Experience

- 1996-2015 Junior Researcher (from 1996), Researcher (from 1999),
Senior Researcher (from 2003), Chief Researcher (from 2009).
Institute of Mechanics, Lomonosov Moscow State University, Russia

- 2011-2016 Associate Professor (Pesquisador Associado),
Instituto Nacional de Matemática Pura e Aplicada – IMPA,
Rio de Janeiro, Brazil
- 2016- Full Professor (Pesquisador Titular),
Instituto Nacional de Matemática Pura e Aplicada – IMPA,
Rio de Janeiro, Brazil

Scientific collaboration and long term research visits

University of Rome – Tor Vergata, Italy
 Vienna University of Technology, Austria
 Université Nice Sophia Antipolis, France
 P.P. Shirshov Institute of Oceanology, Moscow, Russia
 Lebedev Physical Institute, Moscow, Russia
 Lomonosov Moscow State University, Russia
 Universidade Federal do Rio de Janeiro, Brazil
 Universidade Federal de Juiz de Fora, Brazil
 Technical University of Delft, The Netherlands
 DISAT, University of L'Aquila, Italy
 Technion – Israel Institute of Technology, Haifa, Israel
 Department of Engineering Mechanics, Dalian University of Technology, Dalian, China
 Institute of Engineering Mechanics and Systems, University of Tsukuba, Japan
 Polytechnic University of Catalonia, Barcelona, Spain
 Faculty of Nonlinear Processes, Saratov State University, Russia
 Department of Solid Mechanics, Technical University of Denmark, Lyngby, Denmark

Member of Editorial Board of Scientific Journal

Mathematical Problems in Engineering (2010-2014).

Scientific Journal Referee

Linear Algebra and its Applications, Linear and Multilinear Algebra, Journal of Physics A: Mathematical and General, Numerical Linear Algebra with Applications, Mathematical Reviews, International Journal of Solids and Structures, Journal of Applied Mathematics and Mechanics, Bulletin Brazilian Mathematical Society, Mathematical Problems in Engineering, Structural and Multidisciplinary Optimization, IMA Journal of Mathematical Control and Information, Journal of Porous Media, Journal of Sound and Vibration, Applied Mathematical Modelling, Fuel, Mathematics and Mechanics of Complex Systems, Nonlinear Dynamics, Acta Mechanica, International Journal of Green Energy, Applied Mathematics and Computation, Advances in Water Resources, Applicable Analysis, Matemática Aplicada e Computacional, Combustion Science and Technology, Physical Review E, Energy & Fuels, New Journal of Physics, Zeitschrift für Angewandte Mathematik und Physik (ZAMP), Nonlinearity, The European Physical Journal. E, Soft Matter, Europhysics Letters.

Awards

- 2017 InterPore Rosette for very significant contributions to InterPore activities, The International Society for Porous Media (InterPore).
- 2005 Young scientist prize of the EUROMECH Nonlinear Oscillation Conference, Eindhoven, The Netherlands
- 2002 Elsevier Science Publishers Award for the best paper of the year 2001 in the Journal of Applied Mathematics and Mechanics
- 2000 Second Prize of the All-Russian Young Scientists Competition on Mechanics and Control dedicated to the 100th Anniversary of A.I. Lurie

Grants and Fellowships

FAPERJ Pensa Rio grant (2015-2018)

CNPq Bolsa de Produtividade em Pesquisa (2012-2015, 2016-2018)

CNPq Universal 477907/2011-3 (Apoio a Projetos de Pesquisa, 2011-2013)

Grants of the President of Russian Federation (2004-2009)

Research grant of the International Association for the promotion of cooperation with scientists from the independent states of the former Soviet Union (INTAS), 2007-2008, within a group

Grants of the Russian Foundation of Basic Research, 1999-2001, 2003-2005, 2012-2015

U.S. Civilian Research & Development Foundation (CRDF) and the Russian Federation Ministry of Education BRHE post-doctoral fellowship, 2003-2006

Russian-Chinese research grant of the Russian Foundation for Basic Research (RFBR) and the National Science Foundation of China, 2002-2004 and 2009-2011, within a group

Japan Society for the Promotion of Science (JSPS)
Invitation Fellowship for Research in Japan, 2003

Individual grant of the RSCI project “Young Scientists of Russia”, 2001

Young Scientists Fellowship of the International Association for the promotion of cooperation with scientists from the independent states of the former Soviet Union (INTAS), 2001-2002.

Stipendium of Moscow State Lomonosov University for Talented Young Researchers and Teachers, 2001.

Fellowship of the first MIT Conference on Computational Fluid and Solid Mechanics, Massachusetts Institute of Technology (USA), 2001.

Stipendium of Russian Federation for young talented scientists, 2000-2003

Invited/plenary lectures

Workshop “Geometrical and Statistical Fluid Dynamics”, Simons Center for Geometry and Physics, Stony Brook, 2017.

Workshop on Turbulent Dissipation, Mixing and Predictability, IPAM, UCLA, Los Angeles, 2017.

IMPA-Bath Workshop in Mathematics, Rio de Janeiro, 2017.

II Congresso Brasileiro de Jovens Pesquisadores em Matemática Pura e Aplicada, Rio de Janeiro, 2016.

Fourth Workshop on Fluids and PDE, Rio de Janeiro, 2014.

Congresso Nacional de Matemática Aplicada e Computacional. Águas de Lindóia, Brazil, 2012.

Workshop “Non-Hermitian Degeneracies: new directions of research and applications”. Haifa, Israel, 2012.

XXXVII International Summer School – Conference “Advanced Problems in Mechanics”. Saint Petersburg, Russia, 2009.

10th International Conference Stability, Control and Rigid Bodies Dynamics. Donetsk, Ukraine, 2008.

3rd International Workshop on Pseudo-Hermitian Hamiltonians in Quantum Physics. Istanbul, Turkey, 2005.

International Conference: Mathematical Ideas of P.L.Chebyshev and their applications to modern problems. Obninsk, Russia, 2002.

Organization of scientific events

Mini-symposium at 9th International Conference on Porous Media & Annual Meeting. Rotterdam, The Netherlands, 2017.

2nd IMPA-InterPore Conference on Porous Media: Conservation Laws, Numerics and Applications.
IMPA, Rio de Janeiro, 2016.

Workshop on Instantons and Extreme Events in Turbulence and Dynamical Systems.
IMPA, Rio de Janeiro, 2015.

Workshop on Simulation of Complex Processes in Porous Media.
IMPA, Rio de Janeiro, 2015.

Colóquio Brasileiro de Matemática.
Sessão Temática: Leis de Conservação, Escoamento em Meios Porosos e Aplicações.
IMPA, Rio de Janeiro, 2015.

1st IMPA-InterPore Workshop on Porous Media.
IMPA, Rio de Janeiro, 2014.

5th International Conference on Physics and Control (PhysCon 2011).
Invited Mini-symposium: “Stability Problems with Applications in Physics and Mechanics”.
Leon, Spain, 2011.

Membership in scientific societies

The International Society of Structural and Multidisciplinary Optimization ISSMO (since 1997)

American Mathematical Society AMS (since 2000)

International Physics and Control Society IPACS (since 2005)

International Society for Porous Media InterPore (since 2012), (Founder and chair of the Brazilian InterPore Chapter)

Courses taught

Stability and Catastrophes in Mechanical Systems

Lectures on Boundaries of Stability Domains (mini-course)

Thermal Flow of Fluids

Introduction to the Theory of Oscillations and Waves

Measure and Integration

Partial Differential Equations

Fluid Dynamics

Bifurcation Theory

Introduction to Lattice Boltzmann Method in Fluid Dynamics

Supervision of students/postdocs

Grigori Chapiro (PhD, 2009)

Negar Khoshnevis Gargar (PhD, 2014; project with TU Delft, The Netherlands)

Jorg Doppler (PhD, 2016; project with TU Wien, Austria)

Guilherme Tegoni Goedert (MSc, 2016, IMPA)

Pablo Javier Antuña Benitez (MSc, 2016, IMPA)

Massimo de Pietro (PhD, 2017; project with University of Rome – Tor Vergata, Italy).

Daniel Magalhães Moura Neto (MSc, 2017, IMPA)

Ciro Sobrinho Campolina Martins (MSc, ongoing, IMPA)

Hugo Saraiva Tavares (PhD, ongoing, IMPA)

Jose Manuel Escorcía Tafur (PhD, ongoing, IMPA)

Max Akira Endo Kokubun (postdoc 2014-2016, IMPA)

Fabio Pereira dos Santos (postdoc 2014-2015, IMPA)

LIST OF PUBLICATIONS

Books

- B1. A.P. Seyranian and A.A. Mailybaev, *Multiparameter Stability Theory with Mechanical Applications*, World Scientific, New Jersey, 2004.

Book reviews: <http://www.worldscientific.com/worldscibooks/10.1142/5305#t=reviews>

- B2. A.A. Mailybaev and A.P. Seyranian, *Multiparameter Stability Problems. Theory and Applications in Mechanics*, Fizmatlit, Moscow, 2009 (in Russian).

Publications in scientific journals

- P1. A.A. Mailybaev, Toward analytic theory of the Rayleigh-Taylor instability: lessons from a toy model, *Nonlinearity* **30** (2017), 2466-2484.
- P2. M.A. Endo Kokubun and A.A. Mailybaev, Singularity of a combustion wave profile: a clue to the multi-component theory for liquid-gas filtration, *SIAM Journal on Applied Mathematics* **77** (2017), 1375-1396.
- P3. L. Biferale, A.A. Mailybaev and G. Parisi, Optimal subgrid scheme for shell models of turbulence, *Physical Review E* **95** (2017), 043108.
- P4. D.S. Agafontsev, E.A. Kuznetsov and A.A. Mailybaev, Asymptotic solution for high-vorticity regions in incompressible three-dimensional Euler equations. *Journal of Fluid Mechanics* (2017) **813**, R1.
- P5. M. de Pietro, A.A. Mailybaev, L. Biferale, Chaotic and regular instantons in helical shell models of turbulence. *Physical Review Fluids* (2017) **2**, 034606.
- P6. J. Doppler, A.A. Mailybaev, J. Böhm, U. Kuhl, A. Girschik, F. Libisch, T.J. Milburn, P. Rabl, N. Moiseyev, S. Rotter, Dynamically encircling an exceptional point for asymmetric mode switching, *Nature* (2016) **537**:7618, 76-79.
Selected for *Nature Physics News&Views (Math.Phys.)*: <http://dx.doi.org/10.1038/nphys3864>
- P7. D.S. Agafontsev, E.A. Kuznetsov and A.A. Mailybaev, Development of high vorticity in incompressible 3D Euler equations: influence of initial conditions, *JETP Letters* (2016) **104**:10, 685-689.
- P8. F.P. Santos, A.A. Mailybaev and D. Marchesin, Oxidation wave structure and oxygen breakthrough for air injection into light oil reservoirs, *Computational Geosciences* (2016) **20**, 1095-1107.
- P9. A.A. Mailybaev, Spontaneously stochastic solutions in one-dimensional inviscid systems, *Nonlinearity* **29** (2016), 2238-2252.
- P10. M.A. Endo Kokubun, N. Khoshnevis Gargar, H. Bruinning, A.A. Mailybaev, Multicomponent effects in liquid-gas filtration combustion, *Combustion & Flame* **169** (2016), 51-62.
- P11. A.A. Mailybaev, Spontaneous stochasticity of velocity in turbulence models, *Multiscale Modeling and Simulation (SIAM)* **14** (2016), 96-112.
- P12. A.A. Mailybaev, Continuous representation for shell models of turbulence. *Nonlinearity* **28** (2015), 2497-2514.
- P13. N.K. Gargar, A.A. Mailybaev, D. Marchesin, J. Bruining, Recovery of light oil by air injection at medium temperature: Experiments. *Journal of Petroleum Science & Engineering* **133** (2015), 29-39.
- P14. D.S. Agafontsev, E.A. Kuznetsov, A.A. Mailybaev, Development of high vorticity structures in incompressible 3D Euler equations, *Physics of Fluids* **27** (2015), 085102.
- P15. G. Spelsberg-Korspeter, A. Wagner, A.A. Mailybaev, Stability analysis of a rotating disk with rotating and nonrotating asymmetries in translatory and rotational degrees of freedom, *Journal of Sound and Vibration* **359** (2015), 107-115.

- P16. M. de Pietro, L. Biferale, A.A. Mailybaev, Inverse energy cascade in nonlocal helical shell models of turbulence, *Physical Review E* **92** (2015), 043021.
- P17. A.A. Mailybaev, G. Spelsberg-Korspeter, Combined effect of spatially fixed and rotating asymmetries on stability of a rotor, *Journal of Sound and Vibration* **336** (2014), 227-239.
- P18. N.K. Gargar, A.A. Mailybaev, D. Marchesin, J. Bruining, Compositional effects in light/medium oil recovery by air injection: vaporization vs. combustion, *Journal of Porous Media* **17** (2014), 937-952.
- P19. N.K. Gargar, A.A. Mailybaev, D. Marchesin, J. Bruining, Effects of water on light oil recovery by air injection, *Fuel* **137** (2014), 200-210.
- P20. N.K. Gargar, A.A. Mailybaev, D. Marchesin, J. Bruining, Diffusive Effects on Recovery of Light Oil by Medium Temperature Oxidation, *Transport in Porous Media* **105** (2014), 191-209.
- P21. A.A. Mailybaev, Bifurcations of blowup in inviscid shell models of convective turbulence, *Nonlinearity* **26** (2013), 1105-1124. (Included in Highlights of 2013).
- P22. A.A. Mailybaev, J. Bruining, D. Marchesin, Recovery of Light Oil by Medium Temperature Oxidation, *Transport in Porous Media* **97** (2013), 317-343.
- P23. A.A. Mailybaev, Blowup as a driving mechanism of turbulence in shell models, *Physical Review E* **87** (2013), 053011.
- P24. I. Gilyar, A.A. Mailybaev, N. Moiseyev, Time-asymmetric quantum-state-exchange mechanism, *Physical Review A* **88** (2013), 010102.
- P25. E.-M. Graefe, A.A. Mailybaev, N. Moiseyev, Breakdown of adiabatic transfer of light in waveguides in the presence of absorption, *Physical Review A* **88** (2013), 033842.
- P26. A.A. Mailybaev and A.P. Seyranian, Instability of a general rotating system with small axial asymmetry and damping, *Journal of Sound and Vibration* **332** (2013), 346-360.
- P27. G. Chapiro, A.A. Mailybaev, A.J. Souza, D. Marchesin, J. Bruining, Asymptotic approximation of long-time solution for low-temperature filtration combustion, *Computational Geosciences* **16** (2012), 799-808.
- P28. A.A. Mailybaev, Computation of anomalous scaling exponents of turbulence from self-similar instanton dynamics, *Physical Review E* **86** (2012), 025301(R).
- P29. A.A. Mailybaev, Renormalization and universality of blowup in hydrodynamic flows, *Physical Review E* **85** (2012), 066317.
- P30. A.P. Seyranian and A.A. Mailybaev, A remark to the paper by O. N. Kirillov and F. Verhulst Paradoxes of dissipation-induced destabilization or who opened Whitney's umbrella? [ZAMM 90, No. 6, 462-488 (2010)]. *Zeitschrift für Angewandte Mathematik und Mechanik* **92** (2012), 253-253.
- P31. A.A. Mailybaev, J. Bruining, D. Marchesin, Analytical Formulas for In-Situ Combustion. *SPE Journal* **16** (2011), 513-523.
- P32. A.A. Mailybaev and A.P. Seyranian, The effect of nonconservative forces on the stability of systems with multiple frequencies and the Nicolai paradox, *Doklady Physics* **56** (2011), 32-38.
- P33. A.A. Mailybaev, J. Bruining, D. Marchesin, Analysis of in situ combustion of oil with pyrolysis and vaporization, *Combustion and Flame* **158** (2011), 1097-1108.
- P34. A.P. Seyranian and A.A. Mailybaev, Paradox of Nicolai and related effects, *Zeitschrift für Angewandte Mathematik und Physik* **62** (2011), 539-548.

- P35. A.A. Mailybaev, D. Marchesin, J. Bruining, Resonance in Low-Temperature Oxidation Waves for Porous Media, *SIAM Journal on Mathematical Analysis* **43** (2011), 2230-2252.
- P36. R. Uzdin, A.A. Mailybaev, N. Moiseyev, On the observability and asymmetry of adiabatic state flips generated by exceptional points, *Journal of Physics A* **44** (2011), 435302.
- P37. J. Bruining, A.A. Mailybaev and D. Marchesin, Filtration combustion in wet porous medium, *SIAM Journal on Applied Mathematics* **70** (2009), 1157-1177.
- P38. A.A. Mailybaev and A.P. Seyranian, Stabilization of statically unstable columns by axial vibration of arbitrary frequency, *Journal of Sound and Vibration* **328** (2009), 203-212.
- P39. A.A. Mailybaev and A.P. Seyranian, Stabilization of statically unstable systems by parametric excitation, *Journal of Sound and Vibration* **323** (2009), 1016-1031.
- P40. A.P. Seyranian and A.A. Mailybaev, Vibrational stabilization of statically unstable systems, *Doklady Physics* **54** (2009), 294-300.
- P41. A.A. Mailybaev and D. Marchesin, Lax shocks in mixed-type systems of conservation laws, *Journal of Hyperbolic Differential Equations* **5** (2008), 295-315.
- P42. A.A. Mailybaev and D. Marchesin, Hyperbolicity singularities in rarefaction waves, *Journal of Dynamics and Differential Equations* **20** (2008), 1-29.
- P43. S.P. Kuznestov, A.A. Mailybaev, I.R. Sataev, Birth of a New Class of Period-Doubling Scaling Behavior as a Result of Bifurcation in the Renormalization Equation, *Journal of Statistical Physics* **130** (2008), 599-616.
- P44. A.A. Mailybaev and A.P. Seyranian, Bifurcations of equilibria in potential systems at bimodal critical points, *Journal of Applied Mechanics* **75** (2008), 021016.
- P45. A.P. Seyranian and A.A. Mailybaev, Bimodal bifurcations of equilibria in symmetric potential systems, *Doklady Physics* **52** (2007), 600-606.
- P46. W. Kliem, A.A. Mailybaev and C. Pommer, Conditions revisited for asymptotic stability of pervasive damped linear systems, *Journal of Sound and Vibration* **298** (2006), 471-474.
- P47. D. Marchesin and A.A. Mailybaev, Dual-family viscous shock waves in n conservation laws with application to multi-phase flow in porous media, *Archive for Rational Mechanics and Analysis* **182** (2006), 1-24.
- P48. A.A. Mailybaev, Computation of multiple eigenvalues and generalized eigenvectors for matrices dependent on parameters, *Numerical Linear Algebra with Applications* **13** (2006), 419-436.
- P49. A.A. Mailybaev, O.N. Kirillov and A.P. Seyranian, Berry phase around degeneracies, *Doklady Mathematics* **73** (2006), 129-133.
- P50. O.N. Kirillov, A.A. Mailybaev and A.P. Seyranian, Singularities of energy surfaces under non-Hermitian perturbations, *Doklady Physics* **50** (2005), 577-582.
- P51. S.P. Kuznetsov, A.A. Mailybaev and I.R. Sataev, Bifurcation of universal regimes at the boundary of chaos, *Applied Nonlinear Dynamics (Saratov)* **13** (2005), No. 3, 27-47 (in Russian).
- P52. A.A. Mailybaev, O.N. Kirillov, A.P. Seyranian, Geometric phase around exceptional points, *Physical Review A* **72** (2005), 014104.
- P53. O. N. Kirillov, A. A. Mailybaev, and A. P. Seyranian, Unfolding of eigenvalue surfaces near a diabolic point due to a complex perturbation, *Journal of Physics A: Mathematical and General* **38** (2005), 5531-5546.

- P54. A.P. Seyranian, O.N. Kirillov and A.A. Mailybaev, Coupling of eigenvalues of complex matrices at diabolic and exceptional points, *Journal of Physics A: Mathematical and General* **38** (2005), 1723-1740.
- P55. A.A. Mailybaev, H. Yabuno, and H. Kaneko, Optimal shapes of parametrically excited beams, *Structural and Multidisciplinary Optimization* **27** (2004), 435-445.
- P56. A.A. Mailybaev and A.P. Seyranian, Interaction of eigenvalues under variation of parameters, *Doklady Mathematics* **68** (2003), 466-470.
- P57. A.A. Mailybaev, Uncontrollability for linear autonomous multi-input dynamical systems depending on parameters, *SIAM Journal on Control and Optimization* **42** (2003), 1431-1450.
- P58. M.I. Garcia-Planas and A.A. Mailybaev, Reduction to versal deformations of matrix pencils and matrix pairs with application to control theory, *SIAM Journal on Matrix Analysis and Applications* **24** (2003), 943-962.
- P59. A.P. Seyranian and A.A. Mailybaev, Interaction of eigenvalues in multi-parameter problems, *Journal of Sound and Vibration* **267** (2003), 1047-1064.
- P60. A.P. Seyranian and A.A. Mailybaev, Three-dimensional domains of parametric resonance, *Proceedings of Steklov Mathematical Institute* **236** (2002), 291-304.
- P61. A.A. Mailybaev, On stability domains of nonconservative systems under small parametric excitation, *Acta Mechanica*, **154** (2002), 11-33.
- P62. A.A. Mailybaev, Uncontrollability sets of linear systems depending on parameters, *Doklady Mathematics* **66** (2002), 290-293.
- P63. A.P. Seyranian and A.A. Mailybaev, On stability boundaries of conservative systems, *Journal of Applied Mathematics and Physics (ZAMP)* **52** (2001), 669-679.
- P64. A.A. Mailybaev, Evaluation of multiple eigenvalues and Jordan chains of vectors for matrices depending on parameters, *Doklady Mathematics* **64** (2001), 36-40.
- P65. A.A. Seyranian and A.A. Mailybaev, Parametric resonance in systems with weak dissipation, *Doklady Physics* **46** (2001), 434-439.
- P66. A.A. Mailybaev, Transformation to versal deformations of matrices, *Linear Algebra and its Applications* **337** (2001), 87-108.
- P67. A.A. Mailybaev and A.P. Seyranian, Parametric resonance in systems with small damping, *Journal of Applied Mathematics and Mechanics* **65** (2001), 755-767.
- P68. S.S. Grigoryan and A.A. Mailybaev, On the Weierstrass preparation theorem, *Mathematical Notes* **69** (2001), 170-174.
- P69. A.A. Mailybaev, Transformation of families of matrices to normal forms and its application to stability theory, *SIAM Journal on Matrix Analysis and Applications* **21** (2000), 396-417.
- P70. A.A. Mailybaev and A.P. Seyranian, On Singularities of a Boundary of the Stability Domain, *SIAM Journal on Matrix Analysis and Applications* **21** (2000), 106-128.
- P71. A.A. Mailybaev and A.P. Seyranian, On singularities of boundaries for parametric resonance, *Doklady Physics* **45** (2000), 405-409.
- P72. A.A. Mailybaev and A.P. Seyranian, On the boundaries of the parametric resonance domain, *Journal of Applied Mathematics and Mechanics* **64** (2000), 909-923.
- P73. A.A. Mailybaev, On stability of polynomials depending on parameters, *Journal of Computer and Systems Sciences International* **39** (2000), 165-172.

- P74. A.A. Mailybaev, Transference of instability between branches in non-conservative mechanical systems, *Vestnik Molodykh Uchenykh, Series PMM* **3** (2000), 70-76 (in Russian).
- P75. A.P. Seiranyan and A.A. Mailybaev, On singularities of stability domain boundaries for Hamiltonian and gyroscopic systems, *Doklady Physics* **44** (1999), 251-255.
- P76. A.A. Mailybaev, Transformation of matrix families to normal forms and its application to stability problems, *Fundamental and Applied Mathematics* **5** (1999), 1111-1133 (in Russian).
- P77. A.A. Mailybaev, A method for reducing families of matrices to normal forms, *Doklady Mathematics* **60** (1999), 39-43.
- P78. A.A. Mailybaev and A.P. Seiranyan, On stability domains of Hamiltonian systems, *Journal of Applied Mathematics and Mechanics* **63** (1999), 545-555.
- P79. A.A. Mailybaev and A.P. Seiranyan, Singularities of a stability-domain boundary, *Doklady Physics* **43** (1998), 248-252.
- P80. A.A. Mailybaev and A.P. Seiranyan, Singularities of the boundaries of stability domains, *Journal of Applied Mathematics and Mechanics* **62** (1998), 909-920.
- P81. A.A. Mailybaev and A.P. Seiranyan, Aeroelastic stability of a wing with bracing struts (Keldysh problem), *Fluid Dynamics* **33** (1998), 124-134.
- P82. A.A. Mailybaev, On tangent cones to the stability domain of a family of real matrices, *Moscow University Mechanics Bulletin* **53** (1998), No.6, 20-22.
- P83. A.A. Mailybaev and A.P. Seiranyan, The effect of a strut attachment point on aeroelastic stability of a frame right angle, *Uchenie zapiski TsAGI* **28** (1997), No. 3-4, 171-187 (in Russian).
- P84. A.A. Mailybaev and A.P. Seiranyan, The Keldysh problem on aeroelastic stability of a strut-braced wing, *Physics-Doklady* **41** (1996), 484-487.

Papers in conference proceedings and books

- C1. D.S. Agafontsev, E.A. Kuznetsov and A.A. Mailybaev, Overturning of vorticity lines as a precursor of Kolmogorov turbulence. In: *Nonlinear Waves*, IPF RAS, Nizhnii Novgorod, 2017, P. 304-319. (in Russian)
- C2. A.A. Mailybaev, Renormalization and universal structure of blowup in 1D conservation laws. In: *Hyperbolic Problems: Theory, Numerics, Applications*. USA: AIMS, 2012. P. 783-789.
- C3. A.P. Seyranian and A.A. Mailybaev, Paradox of Nicolai and similar effects in stability problems. *Proceedings of the International Conference "Topical Problems of Continuum Mechanics"*. Yerevan, Armenia, 2012. Vol. 2. p. 306-309.
- C4. A.P. Seyranian and A.A. Mailybaev, Paradox of Nicolai and related effects. *Proceedings of the 7th European Nonlinear Dynamics Conference (ENOC 2011)*. Rome, Italy, 2011.
- C5. A.A. Mailybaev and A.P. Seyranian, Stabilization by parametric excitation with arbitrary frequency. *Proceedings of the 7th European Nonlinear Dynamics Conference (ENOC 2011)*. Rome, Italy, 2011.
- C6. A.A. Mailybaev and A.P. Seyranian, Singularities of stability boundaries and paradox of Nicolai. *Proceedings of the 5th International Conference on Physics and Control (PhysCon 2011)*. Leon, Spain 2011.

- C7. A.A. Mailybaev, J. Bruining, D. Marchesin, Analytical Formulae for In-Situ Combustion, *Proceedings of the SPE Improved Oil Recovery Symposium, Tulsa, Oklahoma, USA, 2010. Paper 129904-MS. P. 1-16.*
- C8. G. Chapiro, G. Hime, A.A. Mailybaev, D. Marchesin, A.J. de Souza, Global asymptotic effects of the structure of combustion waves in porous media. *In: Hyperbolic Problems: Theory, Numerics, and Applications: Plenary and Invited Talks: Twelfth International Conference on Hyperbolic Problems. AMS, 2009. P. 487-496.*
- C9. A.A. Mailybaev, J. Bruining, G. Chapiro, D. Marchesin, Analytical study of in-situ combustion in a wet porous medium, *Proceedings of the 15th European Symposium on Improved Oil Recovery. Paris, France, 2009. P. 1-17.*
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Outreach (interview)

- O1. Como uma onda.rar (interview written by N. Fernandes). *Galileu* (March 2017), p. 56-59. Globo, Rio de Janeiro.

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