

CURRICULUM VITAE¹

JUNE 2013

NAME:

Stanislav Ivanovich Pohozaev (Pokhozhaev)

ADDRESS:

Steklov Mathematical Institute
Gubkina str., 8
Moscow, 119991 Russia
telephones: +7-495-9383777 (office)
 +7-495-1409594 (home)
fax: +7-499-1350555
e-mail: pokhozhaev@mi.ras.ru
<http://www.mi.ras.ru/~pokhozhaev/>

ACADEMIC STATUS:

Corresponding Member of the Russian Academy of Sciences (since 1984)

AMS CITATION INDEX: 1744

HIRSCH INDEX (ACCORDING TO MATHSciNET): 21

ACADEMIC EMPLOYMENT:

1986–present:	Principal Researcher at the Steklov Mathematical Institute
1971–1986:	Full Professor, Moscow Power Institute
1971–1986:	Head of the Mathematical Department, Moscow Power Institute
1963–1971:	Associate Professor, Moscow Power Institute
1961–1963:	Research scientist, Institute of Hydrodynamics, USSR Acad. Sci.
1958–1961:	Instructor–Assistant, Novosibirsk University

CURRENT RESEARCH INTERESTS:

- Nonlinear Functional Analysis
- Nonlinear Variational Problems
- Nonlinear Partial Differential Equations

1) see also *Russian Mathematical Surveys*, vol. 51, no. 2 (1996), pp. 363–369; *Differential Equations*, vol. 41, no. 12 (2005), pp. 1659–1663; *Proceedings of the Steklov Institute of Mathematics*, vol. 260 (2008), pp. 1–2

MAIN SCIENTIFIC ACHIEVEMENTS:

- Normal solvability of nonlinear equations and Nonlinear Fredholm Alternative
- Nonlinear variational identities (Pokhozhaev identities)
- Embeddings of nonlinear operators and general theory of a priori estimates for solutions of weakly nonlinear equations
- Global fibering method in nonlinear variational problems
- Nonlinear elliptic, parabolic and hyperbolic capacity and its application to the global solvability of nonlinear problems
- Fundamentally new results in the global solvability theory for a wide class of nonlinear problems, including elliptic, parabolic and nonlinear multidimensional hyperbolic problems
- “Mendeleev’s table” of nonlinear equations and systems for which blow-up criteria have been found. This laid the foundations of a general blow-up theory for global solutions of nonlinear problems. In particular, the dependence of critical exponents on force terms (right-hand side) and initial conditions was established for the first time
- Blow-up of smooth solutions of the KdV equation (with infinite energy)
- Existence of local and global smooth solutions to the (3D) Navier–Stokes equations

RECENT TALKS AND CONFERENCES:

- 2012: • International Conference on Differential Equations and Dynamical Systems, Suzdal (Vladimir region), Russia, June 29–July 04, 2012.
- Conference “Differential Equations and Optimal Control” dedicated to the 90th anniversary of E.F. Mishchenko, Steklov Mathematical Institute, Moscow, Russia, April 16–17, 2012.
- 2011: • Sixth International Conference on Differential and Functional Differential Equations (DFDE–2011), Moscow, Russia, August 14–21, 2011, talk: “Blow-up solutions to the Korteweg–de Vries equation.”
- International conference “Differential Equations and Related Topics” dedicated to I.G. Petrovskii, Moscow, Russia, May 29–June 4, 2011, talk: “On singular solutions of the Korteweg–de Vries equation.”
- 2010: • International Conference “Nonlinear PDE and Boundary Value Problems with Measure Data,” Technion – Israel Institute of Technology, Haifa, Israel, March 1–5, 2010, talk: “Critical nonlinearities in partial differential equations.”
- 2009: • Second International Conference “Mathematical Modeling and Differential Equations,” talk: “Critical nonlinearities of evolution PDEs,” Minsk (Belarus), August 24–28, 2009.
- International Conference at the University of Trieste (Italy), talk: “General theory of eigenfunctions of nonlinear elliptic problems,” May 21, 2009.
 - **Leonardo da Vinci Lecture, University of Milan**, talk: “The critical nonlinearities in PDEs,” May 12, 2009.
 - International Conference “Trends in Nonlinear PDEs,” talk: “Embedding of Sobolev spaces in the limit cases and its applications,” University of Trieste (Italy), May 7, 2009.

- International Conference “Modern Problems of Mathematics, Mechanics and Their Applications,” talk: “Blow-up for PDEs with nonlocal nonlinearities,” Moscow State University, March 30–April 02, 2009.
- Steklov Mathematical Institute Seminar, “Blow-up Theory for Nonlinear Partial Differential Equations. Critical Nonlinearities,” February 26, 2009.
- 2008: • International Conference “Mathematical Modelling and Nonlinear Dynamical Systems in Natural Sciences” dedicated to the 80th birthday of S.P. Kurdyumov, Moscow, November 17–21, 2008.
- The Fifth International Conference on Differential and Functional Differential Equations, Moscow, August 17–24, 2008.
- Liouville Theorems and Detours, Cortona (Italy), May 18–24, 2008.
- International Conference “Function Spaces, Differential Operators, and General Topology. Problems of Mathematical Education” dedicated to the 85th birthday of L.D. Kudryavtsev, Moscow, March 25–28, 2008.
- 2007: • International Conference on Mathematical Modelling and Differential Equations, Minsk, Belarusian State Univ., October 1–5, 2007.
- University of Trieste (Italy), June 25–29, 2007.
- University of Bologna (Italy), June 19–22, 2007.
- University of Padua (Italy), June 11–15, 2007.

PUBLICATIONS:

- (1) On a question on supersonic flow. Trudy MPTI. (1958), 1, 167-172
- (2) On the Dirichlet problem for the equation $\Delta u = u^2$. Doklady Acad. Sci. USSR, 136, (1960), no. 3, 769-772
- (3) The analog of the Schmidt method for a nonlinear equation. Doklady Acad. Sci. USSR 136, (1960), 546-548
- (4) On the boundary value problem for the equation $\Delta u = u^2$. Doklady Akademii Nauk SU, 138, (1961), no. 2, 305-308
- (5) The setting of the problem on the strong explosion on the fluid surface, (with A.A.Deribas). Doklady Acad. Sci. USSR. 144, (1962) 3, 524-526
- (6) On the Sobolev imbedding theorem for $pl = n$. Doclady Conference, Section Math., Moscow Power Inst. (1965), 158-170
- (7) On eigenfunctions of $\Delta u + \lambda f(u) = 0$, Doklady Acad. Sci. SU, 165, (1965), 1, 36-39
- (8) On a class of operators and solvability of elliptic equations, (with Yu.A.Dubinski). Matemat. Sbornik. 72, (1967), N 2, 226-236
- (9) On the solvability of nonlinear equations with odd operators. Funct. Analysis and Prilozheniya, 1 (1967), N 3, 66-73
- (10) On eigenfunctions of some nonlinear problems. Doklady Sci.-Tech. Conference MPI, Section Math. (1967), 186-191.
- (11) On a set of critical values for the functionals. Matemat. Sbornik. 75, (1968) N 1, 106-111
- (12) On normal solvability of nonlinear equations. Doklady Acad. Sci. USSR. 184, (1968) N 1, 40-43
- (13) On nonlinear operators possessing weakly closed range and quasilinear elliptic equations. Matemat. Sbornik. 78, (1968), N 2, 237-259
- (14) Normal solvability of nonlinear equations in uniformly convex Banach spaces, Funct. Analysis and Prilozheniya, 3, (1969), N 2, 90-94
- (15) On a set of the functional level. Doklady Sci.-Tech. Conference MPI, Section Math. (1968), 63-68.

- (16) Conservation laws and a priori estimates for some parabolic equations. *Differentsialnyje Uravnenija*. 6, (1970) N 1, 129-136
- (17) On eigenfunctions of quasilinear elliptic problems, *Matemat. Sbornik*, 82, (1970), N 2, 192-212
- (18) On weakly nonlinear hyperbolic systems. *Trudy Moscow Math. Society*. 23, (1970), 161-76
- (19) On solvability of quasilinear hyperbolic systems. *Doklady Acad. Sci. USSR*. 192, (1970), N 6, 1217 - 1220
- (20) On a quasilinear parabolic equation. *Differentsialnyje Uravnenija*. 7, (1971), N 1, 73-80
- (21) On periodic solutions of some nonlinear hyperbolic equations. *Doklady Acad. Sci. USSR*. 198, (1971), N 6, 1274-1277
- (22) On some noncoercive quasilinear elliptic problems. *Trudy MPI, Mathematics*. Iss 89, (1971), 11-19
- (23) Quasilinear hyperbolic Kirchhoff equations. *Trudy MPI, Researches on Differential Equations and Appl.* Iss. 201, (1974)
- (24) On a class of quasilinear hyperbolic equations. *Mat. Sbornik*, v. 138 (1975), N 1, pp. 152-166
- (25) Studies of hyperbolic systems of quasilinear equations by the continuation method. *Trudy MPI. Iss.* 260, (1975), 74-88
- (26) Questions of nonexistence of solutions for nonlinear boundary problems. *Trudy of SU Conference on partial differential equations*. MSU Press. (1978) 200-203
- (27) On an equation for nonisotropic gas flow. *Trudy MPI, Appl. Problems of Math.*, Iss. 357, (1978), 81-87
- (28) On equations of the form $\Delta u = f(x, u)$ (Abstract) *Uspehi Mat. Nauk*. 33, (1978), N 3, 149-149
- (29) On an approach to nonlinear equations, *Doklady Acad. Sci. USSR*. 247, (1979), N 6, 1327-1331
- (30) A comparison theorem and nonexistence of solutions for nonlinear boundary problems. *Trudy MPI, Appl. Problems of Math.*, Iss. 499, (1980), 42-48
- (31) On periodical solutions of some nonlinear systems of ordinary differential equations. *Differentsialnyje Uravnenija*, 16, (1980), N 1, 109-116
- (32) On equations of the form $\Delta u = f(x, u, Du)$. *Matemat. Sbornik*. 113, (1980), N 2, 324-338
- (33) On a new programm on mathematics for ingeneers, (with S.M. Nikolskii, L.D.Kudrjavcev, L.A.Kuznecov). *Sci.-Meth. Iss. in Mathematics*. Iss. 9, (1981) 5-12
- (34) On regional seminars and conferences for heads of the mathematical departments, (with L.D.Kudrjavcev, L.A.Kuznecov). *Sci.-Meth. Iss. in Mathematics*. Iss. 9, (1981) 113-122
- (35) On quasilinear elliptic equations of higher order. *Differentsialnyje Uravnenija*. 17, (1981), N 1, 115-128
- (36) On subordinate operators for nonlinear equations. *Doklady Acad. Sci. USSR*. 257, (1981), N 6, 282-286
- (37) Nonlinear partial differential equations. *Math. Encycl.* 3, (1982), 950-956 (p. 147-152 of English translation)
- (38) On solvability of quasilinear elliptic equations of arbitrary order. *Matemat. Sbornik*. 117, (1982), N 2, 251-265

- (39) On the general theory of a priori estimates for solutions of nonlinear equations. Trudy MPI, Appl. Problems of Math., Iss. 566, (1982), 62-69
- (40) On solvability of quasilinear elliptic equations of higher order. Differentsialnyje Uravnenija. 18, (1982), N 1, 100-109
- (41) On the general theory of a priori estimates for quasilinear equations. Doklady 7 Soviet-Czech Seminar Math. Phys. Probl. Erevan. (1982), 280-285
- (42) On an approach to nonlinear equations and its applications. Uspechi Mat. Nauk. 37, (1982), N 2, 261-261
- (43) On the general theory of a priori estimates for nonlinear equations (Abstract). Uspechi Mat. Nauk. 37, (1982), N 4, 90
- (44) Embedding of nonlinear operators and a priori estimates for solutions of nonlinear equations. Doklady Acad. Sci. USSR. 266, (1982), N 5, 1063-1066
- (45) On a priori estimates for solutions of nonlinear equations. Abstracts of USSR Lavrentijev Conference. Novosibirsk. (1982), 24-25
- (46) On a priori estimates for solutions of quasilinear elliptic equations of arbitrary order. Differentsialnyje Uravnenija. 19, (1983), N 1, 101-110
- (47) On a fibering method in nonlinear problems. Mezhvedomstvennyi Sbornik po Matemat. MPI. (1985), 5
- (48) On a quasilinear hyperbolic Kirchhoff equation, Differentsialnyje Uravnenija. 21, (1985), N 1, 101-108
- (49) On embedding of nonlinear operators and a priori estimates for solutions of nonlinear equations. Partial Differential Equations and Applications. Trudy of USSR symposium (1982), Tbilisi, 203-210
- (50) On a class of nonlinear noncoercive problems. Researches in nonlinear operators. Ufa. Ural branch of RAS USSR. Bashkirija Sci. Center. Inst. Math. (1988), 5-17
- (51) On a constructive method of variational calculus, Doklady Acad. Sci. USSR. 298, (1988), N 6, 1330-1333
- (52) On a Obsjannikov problem. Journal Appl. Mech. Tech. Physics (Russian) (1989), N 2, 5-10
- (53) Nonlinear Applied Functional Analysis (with V.V. Zharinov, M.A. Illarionov, V.P. Pikulin). MPI Press. (1989)
- (54) Practical Course in Equations of Mathematical Physics, (with V.P. Pikulin). MPI Press. (1989)
- (55) On the fibering method of the solvability of the nonlinear boundary problems, Proc. Steklov Math. Inst., 192, (1990), 146-163
- (56) On solvability of an elliptic problem in \mathbb{R}^N with supercritical exponent. Doklady Acad. Sci. USSR 313, (1990), N 6, 1356-1360
- (57) On positivity classes for elliptic operators in \mathbb{R}^N with supercritical exponent. Doklady Acad. Sci. USSR. 314, (1990), N 3, 558-561
- (58) On a new integral relation and its application to nonlinear elliptic problems. In: Abstracts. III International Lavrentijev Conference in Math., Mech. and Phys. 10-14 September 1990. (1990) 34
- (59) On elliptic problems in R^N with supercritical exponent of nonlinearity. Matemat. Sbornik. 182, (1991), N 4, 467-489
- (60) On entire solutions of quasilinear elliptic equations. Doklady Acad. Sci. USSR. 318, (1991), N 4, 815-820
- (61) On entire solutions of a class of the quasilinear elliptic equations. Doklady Acad. Sci. USSR. v. 318 (1991), N 6, 1319-1324

- (62) On the asymptotic of entire radial solutions of quasilinear elliptic equations. Doklady Acad. Sci. USSR. 320, (1991), N 4, 808-813
- (63) On entire solutions of semilinear elliptic equations. Progress in Partial Differential Equations: Elliptic and Parabolic Problems. Proceedings of I-st European Conference on Elliptic-Parabolic Problems. Ed. C.Bandle et al. Pitman Research Notes in Mathematics. V. 266. (1992), Longman Scientific Technical New York. P. 56-69.
- (64) On smoothness of solutions to some superlinear elliptic equations. Doklady Acad. Sci. USSR. 327, (1992), N 3, 299-302
- (65) On sharp a priori estimates for some superlinear elliptic equations. Doklady Acad. Sci. USSR. 327, (1992), N 4-6, 433-437
- (66) On quasilinear elliptic problems in \mathbb{R}^N in the supercritical case. Proc. Steklov Math. Inst. 201, (1992), 324-341
- (67) On entire radial solutions to some nonlinear elliptic equations. Matemat. Sbornik. 183, (1992), N 11, 3-18
- (68) On a mathematical model of electrolysis. Doklady Acad. Sci. USSR. 332, (1993), N 6, 18-20
- (69) On entire radial solutions to quasilinear elliptic equations. Proc. Steklov Math. Inst. 204, (1993), 251-273
- (70) Sharp a priori estimates for a quasilinear degenerate elliptic problem. Matemat. Sbornik. 184, (1993), N 8, 3-16
- (71) The sharp a priori estimates for some quasilinear elliptic equations. Differentsialnyje Uravnenija. 29, (1993), N 3, 472-486
- (72) The sharp a priori estimates for some superlinear degenerate elliptic problems. "Function spaces, Differential operators and Nonlinear Analysis", Teubner - Texte zur Mathematik, Bd. 133, (1993), 200-217
- (73) On a nonlinear problem of electrolysis. Matemat. Sbornik. 185, (1994), N 5, 103-118
- (74) On a nonlinear elliptic problem of H.Amann. Differentsialnyje Uravnenija. 30, (1994), N 4, 675-690
- (75) On a quasilinear system of equations of electric-chemical diffusion. Proc. Steklov Math. Inst. 210, (1995), 239-263
- (76) On the Maslov equations. Differentsialnyje Uravnenija. 31, (1995), N 2, 338-349
- (77) Practical Course in the Equations of Mathematical Physics, (with V.P.Pikulín). Moscow: Nauka. (1995)
- (78) Positive solutions for the p -Laplacian: application of the fibering method (with P. Drabek) Proc. of Roy. Soc. Edinburgh, v.127A (1997), N 3, 703-726
- (79) The fibering method in nonlinear variational problems, Russian Mathematical Surveys, v.51, N 5 (1996), 204
- (80) The fibering method in nonlinear variational problems, Pitman Research Notes in Mathematics, v. 365 (1997), 35-88
- (81) On the Reaction-Diffusion-Electrolysis nonlinear elliptic equations, Lectures Notes in Pure and Applied Mathematics Series, v.194 (1997), 255-288
- (82) Entire Solutions of Semilinear Elliptic Equations (with I. Kuzin), 1997, Birkhäuser, 245 pp.
- (83) Essential nonlinear capacities induced by differential operators, Doklady Russ. Acad. Sci., v.357, N5 (1997), 592-594.
- (84) On the global fibering method in nonlinear variational problems, Proc. Steklov Math. Institute, v.219 (1997), 286-334.

- (85) Nonexistence of global positive solutions to quasilinear elliptic inequalities (with E. Mitidieri), *Doklady Russ.Acad.Sci.*, v.359, N4 (1998), 456-460.
- (86) On the nonexistence of periodic radial solutions for semilinear wave equations in unbounded domain (with V. Mustonen), *Differential and Integral Equations*, v.11, N1 (1998), 133-145.
- (87) On the existence and nonexistence of periodic solutions for some quasilinear hyperbolic equations, *Doklady Russ.Acad.Sci.*, v.363, N3 (1998), 304-307.
- (88) Existence of positive solution for some Nonlinear Neumann problems (with A. Tesei), *Doklady Russ.Acad.Sci.*, v.363, N4 (1998), 450-453.
- (89) The Cauchy problem for the Extended Fisher-Kolmogorov (EFK) equation, (with L.A. Peletier), *Differentsialnyie Uravnenija (Russian)*, v.35, N3 (1999), 351-366.
- (90) Nonexistence of positive solutions for quasilinear elliptic problems on \mathbb{R}^N (with E. Mitidieri), *Proc. Steklov Math. Institute*, v.227 (1999), 192-222.
- (91) Existence and Nonexistence of periodic solutions to some Nonlinear Hyperbolic Equations, *Proc. Steklov Math. Institute*, v.227 (1999), 260-285.
- (92) The Fiberings method and its Applications to Nonlinear Boundary value problems, *Rendiconti dell'Istituto di Matematica dell'Universita di Trieste*, 1999. *Rend. Inst. Math. Univ. Trieste*, v. XXXI, 235-305 (1999)
- (93) Nonexistence of positive solutions for a system of quasilinear elliptic equations and inequalities in \mathbb{R}^N (with E. Mitidieri), *Doklady Russ.Acad.Sci.* v.366, N1 (1999), 13-17.
- (94) On a class of Nonlinear Dirichlet Problems with First Order Terms, *Nota Scientifica*, 99/33, *Dip.Mat. "G.Castelnuovo"*, Universite' di Roma "La Sapienza" (1999)
- (95) Existence and Nonexistence of Solutions of Nonlinear Neumann Problems (with A.Tesei), *SIAM Journal of Math. Analysis*, v. 31 (1999), 119-133.
- (96) On the Necessary Conditions of Global Existence of Solutions to a Quasilinear Inequality in the Half-space (with Yu.Egorov, V.Galaktionov, and V.Kondratiev), *C. R. Acad. Sci. Paris*, t. 330, Ser. 1 (2000), 93-98
- (97) Multiple Positive Solutions of Some Quasilinear Neumann Problems (with L.Veron), *Applicable Analysis*, v. 74 (3-4), 363-391 (2000)
- (98) On Conditions of the Existence of Solutions to a Quasilinear Inequality in the Half-space (with V. Galaktionov, Yu. Egorov, and V. Kondratiev), *Matemat. Zametki*, v. 67, no. 1 (2000), 150-152
- (99) Nonexistence results of solutions of semilinear differential inequalities on the Heisenberg group (with L. Veron), *Manuscripta Math.* 102 (2000), 85-99
- (100) Blow-up of nonnegative solutions to quasilinear parabolic inequalities (with A. Tesei), *Rend. Mat. Acc. Lincei*, s.9, v.11 (2000), 99-109
- (101) Existence and Nonexistence of Solutions of Nonlinear Dirichlet Problems with First Order Terms (with Luisa Moschini, A.Tesei), *Journal of Functional Analysis* 177 (2000), 365-382.
- (102) Blow-up results for nonlinear hyperbolic inequalities (with L. Veron), *Ann. Scuola Norm. Sup. Pisa, Cl. Sci.* (4), v. 29 (2000), pp. 393-420
- (103) Nonexistence Results and Estimates for Some Nonlinear Elliptic Problems (with M.F. Bidaut-Veron), *Journal d'Analyse Mathématique*, vol. 84 (2001), 1-49.
- (104) Nonexistence of Weak Solutions for Some Degenerate Elliptic and Parabolic Problems on \mathbb{R}^N (with E. Mitidieri), *J. Evolution Equations*, vol. 2 (2001), 189-220.
- (105) Nonexistence of weak solutions for some degenerate and singular hyperbolic problems on \mathbb{R}_+^{N+1} (with E.Mitidieri), *Proc. Steklov Math. Institute*, v.232 (2001), 248-267.

- (106) A priori estimates and blow-up of solutions to nonlinear partial differential equations and inequalities (with E. Mitidieri), Proc. Steklov Math. Institute, v. 234 (2001), pp. 1–383.
- (107) Equations in mathematical physics: A practical course (with V.P. Pikulin), Basel: Birkhäuser, 2001.
- (108) On the critical exponent for nonexistence of solutions to the systems of quasilinear parabolic inequalities (with A. Tesei), Diff. Equat., v. 37, no. 4 (2001), pp. 521–528.
- (109) On a Class of Nonlinear Dirichlet Problems with First Order Terms (with L. Moschini and A. Tesei), Funct. Diff. Equat., v. 8, no.3-4 (2001), pp. 345–352.
- (110) General approach to the theory of nonexistence of global solutions to nonlinear PDE’s and inequalities, Proc. Steklov Math. Institute, v. 236 (2002), pp. 285–297.
- (111) Instantaneous Blow-up of Solutions to a Class of Hyperbolic Inequalities (with A. Tesei), Proc. Conf. “Quasilinear Elliptic and Parabolic Equations and Systems” (Luminy, Sept. 3–7, 2001), Electronic Journal of Differential Equations, Conference 08.2002, pp. 155–165.
- (112) On the nonexistence of solutions to elliptic systems with dynamical boundary conditions (with M. Kirane, E. Nabana), Dif. Eq. (Russian), v. 38, no. 6 (2002), pp. 768–774.
- (113) Some generalizations of the Bernstein theorem (with E. Mitidieri), Dif. Eq. (Russian), v. 38, no. 3 (2002), pp. 373–378.
- (114) The Fujita type theorems for quasilinear parabolic inequalities with nonlinear gradient (with E. Mitidieri), Dokl. Akad. Nauk, v. 386, no. 2 (2002), pp. 160–164.
- (115) On the asymptotics of global solutions of higher-order semilinear parabolic equations in the supercritical range (with Yu.V. Egorov, V.A. Galaktionov, V.A. Kondratiev), C. R. Acad. Sci. Paris, Ser. 1, v. 335 (2002), pp. 805–810.
- (116) On systems of quasilinear singular parabolic equations and inequalities (with E. Mitidieri), Proc. Petrovskii Seminars, v. 22 (2002), pp. 232–260.
- (117) Existence and blow-up for higher-order semilinear parabolic equations: Majorizing order-preserving operators (with V.A. Galaktionov), Indiana Univ. Math. J., v. 51, no. 6 (2002), pp. 1321–1338.
- (118) The General Blow-up Theory for Nonlinear PDE’s, in “Function Spaces, Differential Operators and Nonlinear Analysis: The Hans Triebel Anniversary Volume”, Basel: Birkhäuser, 2003, pp. 141–159.
- (119) On the multidimensional scalar conservation laws, Mat. Sbornik, v. 194, no. 1 (2003), pp. 147–160.
- (120) Blow-up and critical exponents for nonlinear hyperbolic equations. I (with V. Galaktionov), Nonlinear Anal. TMA, v. 53 (2003), pp. 453–466.
- (121) On the a priori estimates and gradient catastrophes of smooth solutions to hyperbolic systems of conservation laws, Proc. Steklov Inst. Math., vol. 243 (2003), pp. 257–288 [Engl. transl.: 247–277].
- (122) The positivity property of solutions of some nonlinear elliptic inequalities on \mathbb{R}^n (with E. Mitidieri), Dokl. Akad. Nauk, v. 393, no. 2 (2003), pp. 159–164 [Engl. transl.: v. 68, no. 3 (2003), pp. 339–344].
- (123) On the hyperbolic systems of conservation laws, Dif. Eq. (Russian), vol. 39, no. 5 (2003), pp. 663–673.
- (124) On similarity solutions and blow-up spectra for a semilinear wave equation (with V.A. Galaktionov), Quart. Appl. Math., vol. 61, no. 3 (2003), pp. 583–600.
- (125) Nonexistence of local solutions to semilinear partial differential inequalities (with A. Tesei), Ann. Inst. Poincare, vol. 21, no. 4 (2004), pp. 487–502.

- (126) Towards a unified approach to nonexistence of solutions for a class of differential inequalities (with E. Mitidieri), *Milan J. Math.*, vol. 72, (2004), pp. 129–162.
- (127) On some integral inequalities associated with Riesz potentials (with E. Mitidieri), *Dokl. Akad. Nauk*, vol. 397, no. 6 (2004), pp. 737–742 [Engl. Transl.: *Dokl. Math.*, vol. 70, no. 1 (2004), pp. 623–627].
- (128) Liouville-type theorems for certain nonlinear nonlocal problems (with E. Mitidieri), *Dokl. Akad. Nauk*, vol. 399, no. 6 (2004), pp. 732–736 [Engl. Transl.: *Dokl. Math.*, vol. 70, no. 3 (2004), pp. 954–958].
- (129) A practical course in equations of mathematical physics (with V.P. Pikulin), Moscow: Moscow Center for Continuous Math. Education, 2004 (in Russian).
- (130) Global solutions of higher-order semilinear parabolic equations in the supercritical range (with Yu.V. Egorov, V.A. Galaktionov, and V.A. Kondratiev), *Adv. Diff. Eq.*, vol. 9 (2004), pp. 1009–1038.
- (131) Nonexistence of global solutions to an elliptic equation with a dynamical boundary condition (with M. Kirane and E. Nabana), *Bol. Soc. Parana. Mat.* (3), vol. 22, no. 2 (2004), pp. 9–16.
- (132) Liouville theorems for some classes of nonlinear nonlocal problems (with E. Mitidieri), *Proc. Steklov Inst. Math.*, vol. 248 (2005), pp. 158–178.
- (133) Representation formulae and inequalities for solutions of a class of second order partial differential equations (with L. D’Ambrosio and E. Mitidieri), *Trans. Amer. Math. Soc.*, vol. 358, no. 2 (2005), pp. 893–910.
- (134) Blow-up and critical exponents for parabolic equations with non-divergent operators: dual porous medium and thin film operators (with V.A. Galaktionov), *J. Evol. Eq.*, vol. 6, no. 1 (2006), pp. 45–69.
- (135) Multiple positive solutions to nonlinear Neumann problems via the fibering method, *Proc. Int. Workshop “Current Trends in Nonlinear Analysis,” Otranto, June 12–16, 2006*.
- (136) Convergence in gradient systems with branching of equilibria (with V.A. Galaktionov and A.E. Shishkov), *Mat. Sbornik*, vol. 198, no. 6 (2007), pp. 65–88 [Engl. Transl.: *Sb. Math.*, vol. 198, no. 6 (2007), pp. 817–838]; arXiv:0902.0286v1 [math.AP].
- (137) On the absence of global solutions of nonlinear mixed problems (with V.A. Galaktionov), *Trudy Seminara imeni I.G. Petrovskogo*, No. 26 (2007), pp. 71–89 [Engl. Transl.: *J. Math. Sci.*, vol. 143, no. 4 (2007), pp. 3226–3238].
- (138) Blowup for nonlinear initial-boundary value problems (with V.A. Galaktionov), *Dokl. Akad. Nauk*, vol. 412, no. 4 (2007), pp. 444–447 [Engl. Transl.: *Dokl. Math.*, vol. 75, no. 1 (2007), pp. 76–79].
- (139) Nonlinear variational problems via the fibering method, in: *Handbook of Differential Equations. Stationary Partial Differential Equations* (ed. by M. Chipot), Amsterdam: Elsevier, 2008, vol. 5, pp. 49–209.
- (140) On the blow-up of solutions to nonlinear initial-boundary value problems, *Trudy Mat. Inst. im. V.A. Steklova, Ross. Akad. Nauk*, vol. 260 (2008), pp. 213–226 [Engl. Transl.: *Proc. Steklov Inst. Math.*, vol. 260 (2008), pp. 204–217].
- (141) Local estimates and Liouville theorems for a class of quasilinear inequalities (with G. Caristi and E. Mitidieri), *Dokl. Akad. Nauk*, vol. 418, no. 4 (2008), pp. 453–457 [Engl. transl.: *Dokl. Math.*, vol. 77, no. 1 (2008), pp. 85–89].
- (142) On blow-up of solutions of the Kuramoto–Sivashinskii equation, *Mat. Sb.* vol. 199, no. 9 (2008), pp. 97–106 [Engl. transl.: *Sb. Math.*, vol. 199, no. 9 (2008), pp. 1355–1365].

- (143) Existence and nonexistence of a global solution to the Kuramoto–Sivashinsky equation (with V.A. Galaktionov and E. Mitidieri), *Dokl. Akad. Nauk*, vol. 419, no. 4 (2008), pp. 439–442 [Engl. Transl.: *Dokl. Math.* vol. 77, no. 2 (2008), pp. 238–242].
- (144) Capacity induced by a nonlinear operator and applications (with V.A. Galaktionov and E. Mitidieri), *Georgian Math. J.*, vol. 15, no. 3 (2008), pp. 501–516.
- (145) Third-order nonlinear dispersive equations: Shocks, rarefaction, and blowup waves (with V.A. Galaktionov), *Zh. Vychisl. Mat. Mat. Fiz.*, vol. 48, no. 10 (2008), pp. 1819–1846 [Engl. Transl.: *J. Comput. Math. Math. Phys.*, vol. 48, no. 10 (2008), pp. 1784–1810]; arXiv:0902.0253v1 [math.AP].
- (146) On the nonexistence of global solutions of the Hamilton–Jacobi equation, *Diff. Uravn.*, vol. 44, no. 10 (2008), pp. 1405–1415 [Engl. Transl.: *Diff. Eqns.*, vol. 44, no. 10 (2008), pp. 1467–1477].
- (147) Variational approach to complicated similarity solutions of higher order nonlinear evolution partial differential equations (with V.A. Galaktionov and E. Mitidieri), in: *Sobolev Spaces in Mathematics. II: Applications in Analysis and Partial Differential Equations*. New York: Springer, 2009, pp. 147–197 (*Int. Math. Ser.*, vol. 9); arXiv:0902.1425v1 [math.AP].
- (148) On the blow-up of positive solutions to elliptic equations in plane unbounded domains, *Mat. Zametki*, vol. 85, no. 2 (2009), pp. 261–272 [Engl. Transl.: *Math. Notes*, vol. 85, no. 2 (2009), pp. 240–250].
- (149) Global solvability of the Kuramoto–Sivashinsky equation with bounded initial data, *Mat. Sb.*, vol. 200, no. 7 (2009), pp. 131–144 [Engl. Transl.: *Sb. Math.*, vol. 200, no. 7 (2009), pp. 1075–1088].
- (150) On global solutions and blow-up for Kuramoto–Sivashinsky-type models, and well-posed Burnett equations (with V.A. Galaktionov and E. Mitidieri), *Nonlinear Anal., Theory Methods Appl.*, vol. 70, no. 8 (2009), 2930–2952; arXiv:0902.0257v1 [math.AP].
- (151) Multiple positive solutions of nonlinear boundary value problems, in: *Nonlinearity in Modern Natural Science*. Moscow: URSS, 2009, pp. 59–69 [in Russian].
- (152) Some Liouville theorems for quasilinear elliptic inequalities (with G. Caristi and E. Mitidieri), *Dokl. Akad. Nauk*, vol. 424, no. 6 (2009), pp. 741–747 [Engl. transl.: *Dokl. Math.*, vol. 79, no. 1 (2009), pp. 118–124].
- (153) Lifespan estimates for solutions of some evolution inequalities (with E. Mitidieri), *Diff. Uravn.*, vol. 45, no. 10 (2009), pp. 1441–1451 [Engl. Transl.: *Diff. Eqns.*, vol. 45, no. 10 (2009), pp. 1473–1484].
- (154) Critical nonlinearities in partial differential equations, *Milan J. Math.*, vol. 77, no. 1 (2009), pp. 127–150.
- (155) On the blow-up of sign-changing solutions to semilinear parabolic equations, *Dokl. Akad. Nauk*, vol. 431, no. 1 (2010), pp. 22–24 [Engl. Transl.: *Dokl. Math.*, vol. 81, no. 2 (2010), pp. 185–187].
- (156) On a class of singular solutions to the Korteweg–de Vries equation, *Dokl. Akad. Nauk*, vol. 435, no. 4 (2010), pp. 460–462 [Engl. Transl.: *Dokl. Math.*, vol. 82, no. 3 (2010), pp. 936–938].
- (157) Concerning an equation in the theory of combustion, *Mat. Zametki*, vol. 88, no. 1 (2010), pp. 53–62 [Engl. Transl.: *Math. Notes*, vol. 88 (2010), pp. 48–56].
- (158) On the singular solutions of the Korteweg–de Vries equation, *Mat. Zametki*, vol. 88, no. 5 (2010), pp. 770–777 [Engl. Transl.: *Math. Notes*, vol. 88 (2010), pp. 741–747].
- (159) On stationary solutions of the Vlasov–Poisson equations, *Diff. Uravn.*, vol. 46, no. 4 (2010), pp. 527–534 [Engl. Transl.: *Diff. Eqns.*, vol. 46, no. 4 (2010), pp. 530–537].

- (160) Blow-up of sign-changing solutions to quasilinear parabolic equations, *Trudy Mat. Inst. im. V.A. Steklova, Ross. Akad. Nauk*, vol. 269 (2010), pp. 215–224 [Engl. Transl.: *Proc. Steklov Inst. Math.*, vol. 269 (2010), pp. 208–217].
- (161) On critical nonlinearities in PDEs, in: *Mathematics, Informatics, Their Applications and Role in Education: Proc. School–Conf., Moscow, 2009*.
- (162) Blow-up of sign-changing solutions of a quasilinear heat equation, *Diff. Uravn.*, vol. 47, no. 3 (2011), pp. 376–384 [Engl. Transl.: *Diff. Eqns.*, vol. 47, no. 3 (2011), pp. 373–381].
- (163) On the nonexistence of global solutions of some initial-boundary value problems for the Korteweg–de Vries equation, *Diff. Uravn.*, vol. 47, no. 4 (2011), pp. 493–498 [Engl. Transl.: *Diff. Eqns.*, vol. 47, no. 4 (2011), pp. 488–493].
- (164) On the dependence of the critical exponent of the nonlinear heat equation on the initial function, *Diff. Uravn.*, vol. 47, no. 7 (2011), pp. 946–953 [Engl. Transl.: *Diff. Eqns.*, vol. 47, no. 7 (2011), pp. 955–962].
- (165) Weighted identities for solutions of generalized Korteweg–de Vries equations, *Mat. Zametki*, vol. 89, no. 3 (2011), pp. 393–409 [Engl. Transl.: *Math. Notes*, vol. 89 (2011), pp. 382–396].
- (166) Riemann quasi-invariants, *Mat. Sb.*, vol. 202, no. 6 (2011), pp. 111–132 [Engl. Transl.: *Sb. Math.*, vol. 202, no. 6 (2011), pp. 887–907].
- (167) Variational approach to complicated similarity solutions of higher-order nonlinear PDEs. II (with V.A. Galaktionov and E. Mitidieri), *Nonlinear Anal., Real World Appl.*, vol. 12, no. 4 (2011), pp. 2435–2466; arXiv:1103.2643v1 [math.AP].
- (168) On the existence and nonexistence of solutions of some quasilinear hyperbolic equations, *Diff. Uravn.*, vol. 47, no. 12 (2011), pp. 1732–1740 [Engl. Transl.: *Diff. Eqns.*, vol. 47, no. 12 (2011), pp. 1754–1762].
- (169) Nonexistence of global solutions to the KdV equation, *Sovrem. Mat., Fundam. Napravl.*, vol. 39 (2011), pp. 141–150.
- (170) On a class of initial-boundary value problems for equations of Korteweg–de Vries type, *Diff. Uravn.*, vol. 48, no. 3 (2012), pp. 368–374 [Engl. Transl.: *Differ. Eqns.*, vol. 48, no. 3 (2012), pp. 372–378].
- (171) Blow-up of smooth solutions of the Korteweg–de Vries equation, *Nonlinear Anal., Theory Methods Appl., Ser. A: Theory Methods*, vol. 75, no. 12 (2012), pp. 4688–4698.
- (172) Blow-up of global sign-changing solutions of a nonlinear heat equation, *Dokl. Akad. Nauk*, vol. 443, no. 3 (2012), pp. 296–299 [Engl. Transl.: *Dokl. Math.*, vol. 85, no. 2 (2012), pp. 225–228].
- (173) Global Sign-changing Solutions of a Higher Order Semilinear Heat Equation in the Subcritical Fujita Range (with V.A. Galaktionov and E. Mitidieri), *Advanced Nonlinear Studies*, vol. 12, no. 3 (2012), pp. 569–596.
- (174) Classification of Global and Blow-up Sign-Changing Solutions of a Semilinear Heat Equation in the Subcritical Fujita range (with V.A. Galaktionov and E. Mitidieri), to appear.