

Ivan ARGATOV

Leading Researcher (Research Professor)
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Degrees earned

2000	Doctor of Science (Habilitation), St. Petersburg State University
1995	Candidate of Sciences in Solid Mechanics (equiv. to Ph.D. degree) St. Petersburg State University (Scientific advisor Prof. Serguei A. Nazarov)
1991	Diploma in Mechanics (equiv. to M.Sc. degree), Leningrad State University

Professional occupation

2006–2009	Leading Researcher, Laboratory of Friction and Wear, Research Institute of Mechanical Engineering Problems of the Russian Academy of Sciences
2001–2007	Professor of Solid Mechanics (adjunct appointment), St. Petersburg State University
2005–2006	Professor of Mathematics, Admiral Makarov State Maritime Academy
1997–2004	Associate Professor, Admiral Makarov State Maritime Academy
1995–1997	Assistant Professor, Admiral Makarov State Maritime Academy

Visiting and temporary academic appointments

2009, Sept.–Nov.	Researcher, Tampere University of Technology (Finland)
2009, ½ Jan.–July	Senior Research Specialist, New Mexico State University (USA)
2008, Oct. –Dec.	Senior Researcher, Tampere University of Technology (Finland)
2008, ¼ Aug.	Instructor for the 22nd European Student Workshop on Mathematical Modelling in Industry and Commerce, TU Eindhoven (The Netherlands)
2007, Mar.–Aug.	Senior Researcher, Tampere University of Technology (Finland)
2007, ½ Jan., ½ Aug.	Visiting Professor, UNAM, Institute of Research in Applied Mathematics and Systems (Mexico)
2004, Oct.–Dec.	Visiting Professor, RWTH Aachen, Institute of General Mechanics (Germany)
2001, June	Visiting Associate Professor, University of Nancy (France)
1999, May	Visiting Researcher, University of Stuttgart (Germany)

Academic Awards and Honors

- Leonard Euler Stipendium (Die Deutsche Mathematiker Vereinigung), 1994
- St. Petersburg Administration Fellowship for young scientists, 1997, 1998, 2000
- Significant Paper Award, Journal of Applied Mathematics and Mechanics, 1999
- The President of Russia grant for young Doctors of Sciences, 2003
- Mikhail Lomonosov Stipendium (German Academic Exchange Service (DAAD) and the Ministry of Education and Science of Russia), 2004
- Docent-2004 (International Soros Science Education Program), 2004
- The President of Admiral Makarov State Maritime Academy Award for excellence in teaching, 2005

Miscellaneous

- Member of the Editorial Board of *The Open Applied Mathematics Journal*
- Member of Society for Industrial and Applied Mathematics (SIAM)
- Member of the European Mechanics Society (EUROMECH)

Participation in research projects

1. Development of a novel methodology for the health monitoring and self-healing of structural elements and joints, *New Mexico State University and Los Alamos National Laboratory* (2009) (Coordinator Dr. T.D. Burton, Project Leader Prof. I. Sevostianov)
2. Dynamic effects of the erosional and subsurface fracture in mechanics of contact interaction, *Russian Foundation for Basic Research*. (2007–2009) (Project Leader Dr. I.I. Argatov)
3. Kite power project, *Tampere University of Technology* (2007–2009) (Project Leader R. Silvennoinen)
4. Accumulation of damage, fracture, wear, and structural changes of materials under intensive mechanical, thermal, and radiation influences, *Russian Academy of Sciences* (2006–2008) (Coordinator Acad. I.G. Goryacheva, Project Leader Dr. Yu.A. Fadin)
5. Non-stability of periodical phenomena in the wear process of structural materials under dry friction, *Russian Foundation for Basic Research* (2006–2008) (Project Leader Dr. Yu.A. Fadin)
6. Asymptotic modelling of elastic contact interaction of rough surfaces, *Ministry of Industry, Science and Technology of Russian Federation* (2003–2005) (Principle investigator)
7. Singularities of physical fields near to the tips and fronts of cracks in ageing anisotropic bodies, *The A.M.Lyapunov French–Russian Institute of Computer Science and Applied Mathematics* (2001–2002) (Coordinator Prof. J. Sokolowski, Project Leader Prof. S.A. Nazarov)
8. Mathematical simulation of the motion and equilibrium of mechanical systems consisting of rigid and elastic rough bodies under contact conditions with dry friction, *Ministry of Education of Russian Federation* (2001–2002) (Project Leader Prof. G.T. Aldoshin)
9. Propagation of curvilinear cracks under brittle fracture, *Russian Foundation for Basic Research* (2000–2002) (Project Leader Prof. S.A. Nazarov)
10. Mathematical theory of cracks and their propagation, *INTAS (International Association for the Promotion of Cooperation with Scientists from the Independent States of the Former Soviet Union)* (1998–2000) (Coordinator Prof. W.L. Wendland, Project Leader Prof. S.A. Nazarov)
11. Interaction of cracks under brittle fracture, *Russian Foundation for Basic Research* (1998–2000) (Project Leader Prof. S.A. Nazarov)
12. Invariant integrals: cracks in solids with defects and damage accumulation, *Russian Foundation for Basic Research* (1996–1997) (Project Leader Prof. S.A. Nazarov)
13. Some problems of the theory of elasticity on the interaction of cracks and punches, *State Committee of High Education of Russian Federation* (1995–1996) (Project Leader Dr. I.S. Zorin)

Conference presentations

- Exact solution to a refined contact problem for biphasic cartilage layers (jointly with Prof. G. Mishuris), *1st International Conference on Mathematical and Computational Biomedical Engineering*, 2009, Swansea, UK
- Asymptotic modelling of the elastic local contact, *Third Byelorussian Congress on Theoretical and Applied Mechanics*, 2007, Minsk, Belarus (Invited Talk)
- On asymptotic modelling, *Intern. Conference “Methodology of the Modern Science. Modelling of Complicated Systems” dedicated to the 75th anniversary of Professor Rem G. Barantsev*, 2006, Kirov, Russia (Plenary Talk)
- Homogenization of the contact pressure under a punch with the fine-grained base, *Ninth All-Russian Congress on Theoretical and Applied Mechanics*, 2006, Nizhny Novgorod, Russia
- Identification of the elastic module and Poisson’s coefficient by the indentation method for a small sample, *Fifth Okunev’s Readings*, 2006, St. Petersburg, Russia
- To the solution of the axially symmetric contact Hertz problem, *Fifth Russian Conference on Mixed Problems in Solid Mechanics*, 2005, Saratov, Russia
- Elastic preliminary displacements of a solid on a rough surface, *Fourth Okunev’s Readings*, 2004, St. Petersburg, Russia

- Homogenization of contact problems with a periodical discrete narrow contact zone, *Third All-Russian Conference on the Theory of Elasticity, 2003, Rostov-on-Don, Russia*
- Approximate solution of the axially symmetric contact problem with respect to tangential displacements on a contact surface, *20-th Intern. Conference "Mathematical Modelling in Solid Mechanics. Boundary & Finite Elements Methods", September 2003, St. Petersburg, Russia*
- Equilibrium conditions of a solid on a rough plane under axially symmetric distribution of contact pressure, *Third Okunev's Readings, June 2002, St. Petersburg*
- Approximate solution of the axially symmetric contact problem of the pressure of a spherical indenter on a rough elastic half-space, *EUROMECH Colloquium 434 "Contact Mechanics of Coated Bodies", May 2002, Institute for Problems in Mechanics, Moscow, Russia*
- On the quasi-static impact of a rigid sphere onto the flat boundary of an elastic body, *Second Poljakhov's Readings, February 2000, St. Petersburg State University, St. Petersburg, Russia*
- On contact strength of elastic bodies, *Seminar "XI Petersburg Readings on Strength Problems", Gorky House of Scientists of the Russian Academy of Sciences, March 2000, St. Petersburg, Russia*
- Interaction between punches on an elastic half-space, *First Workshop "Non-Classical Problems of Elasticity and Fracture Mechanics", June 1995, Institute for Problems in Mechanics of the Russian Academy of Sciences, Moscow, Russia*

Seminar talks

- Asymptotic solution of the refined contact problem for a biphasic cartilage layer, *Institute of General Mechanics, RWTH Aachen University, Germany (October, 2009)*
- High altitude wind energy generation by means of kites: Estimation of energy output and structural optimization aspects, *Department of Mechanical and Aerospace Engineering, New Mexico State University, USA (April, 2009)*
- Asymptotic modeling of the impact of a spherical indenter on an elastic half-space, *Department of Applied Mechanics, University of Twente, Enschede, The Netherlands (August, 2008)*
- Slow vertical motions of a system of punches on an elastic half-space, *Instituto de Investigaciones en Matemáticas Aplicadas y en Sistemas, Universidad Nacional Autónoma de México (January, 2007)*
- Asymptotic solution of the mixed boundary value problem for a three-dimensional body with a toroidal inclusion, *IIMAS, UNAM (August, 2007)*
- Indentation of a punch with a fine-grained base into an elastic foundation, *Instituto de Investigaciones en Matemáticas Aplicadas y en Sistemas, Universidad Nacional Autónoma de México (January, 2007)*
- Asymptotic models of elastic contact applicable in calculations of building foundations, *Gersevanov Research Institute of Foundations and Underground Structures, Moscow, Russia (November, 2006)*
- Application of Padé approximations in unilateral contact problems for an elastic layer, *Institute of General Mechanics, RWTH Aachen University, Germany (December, 2004)*
- Asymptotic models of topological sensitivity, *Institute for Mathematics and Scientific Computing, University of Graz, Graz, Austria (December, 2004)*
- Asymptotic solution of the problem of the pressure of a rigid body on a membrane, *The Élie Cartan Institute, University Henri Poincaré, Nancy, France (June, 2001)*
- Asymptotic models of elastic contact (on the materials of D.Sc. thesis), *Department of Computational Methods and Mechanics of Solids, St. Petersburg State University, St. Petersburg, Russia (May, 2000)*
- Refinement of the method of matching asymptotic expansions, *St. Petersburg Seminar on Wave Diffraction and Propagation, Petersburg Department of Steklov Institute of Mathematics, St. Petersburg, Russia (April, 2000)*
- Asymptotic models of elastic contact (on the materials of D.Sc. thesis), *St. Petersburg Seminar on Mechanics, Research Institute of Mechanical Engineering Problems of the Russian Academy of Sciences, St. Petersburg, Russia (February, 2000)*

- Equilibrium of a solid with discrete unilateral point supports: Energy theorems and variational principles, *Department of Theoretical and Applied Mechanics, St. Petersburg State University, St. Petersburg, Russia (October, 1999)*
- Asymptotic models of elastic contact (on the materials of D.Sc. thesis), *Elasticity Department, St. Petersburg State University, St. Petersburg, Russia (September, 1999)*
- Asymptotic modeling of equilibrium of a solid with several support points on the plane surface of an elastic base, *Mathematisches Institut A, University of Stuttgart, Stuttgart, Germany (May, 1999)*
- Asymptotic models of elastic contact, *Galim seminar in Continuum Mechanics, Institute for Problems in Mechanics of the Russian Academy of Sciences, Moscow, Russia (November, 1998)*
- Modification of the asymptotic matching procedure in elastic contact problem for a narrow punch, *St. Petersburg Seminar on Wave Diffraction and Propagation, Petersburg Department of Steklov Institute of Mathematics, St. Petersburg, Russia (April, 1998)*
- Contact problems of the theory of elasticity with small contact zones (on the materials of C.Sc. thesis), *Department of Materials Strength, State Marine Technical University of St. Petersburg, Russia (November, 1994)*

Conference Organizing

- Member of the International Program Committee of the International Conference “Innovations in Mechanical Engineering”, *Minsk, Byelorussia (October, 2008)*
- Member of the International Program Committee of the Third Byelorussian Congress on Theoretical and Applied Mechanics, *Minsk, Byelorussia (October, 2007)*
- Scientific Secretary of the Section ‘Elasticity and Viscoelasticity’ at the Ninth All-Russian Congress on Theoretical and Applied Mechanics, *Nizhny Novgorod, Russia (August, 2006)*.

Manuscript reviewing for

- Mathematical Reviews
- Mechanics Research Communications
- Journal of Applied Mathematics and Mechanics
- Journal of Applied Mechanics and Technical Physics
- Journal of Friction and Wear
- The Quarterly Journal of Mechanics and Applied Mathematics
- Vestnik of the St. Petersburg University: Mechanics
- Computer Methods in Applied Mechanics and Engineering
- Journal of Mechanics of Materials and Structures
- Mechanics of Solids
- Applied Mathematics Letters
- Control and Cybernetics
- Journal of Strain Analysis for Engineering Design
- European Transactions on Electrical Power

Graduate courses taught

- Asymptotic Modeling in Mechanics (one-year course for graduate students)
- Mechanics of Composite Materials (one-semester course for postgraduate students)
- Shape Optimization of Elastic Bodies (one-year course for graduate students)

My 7-year graduate level teaching experience was obtained in the Theory of Elasticity Department of the Mathematics and Mechanics Faculty at the St. Petersburg State University. Besides above mentioned courses, my responsibilities included advising graduate and postgraduate students.

List of publications by
Ivan Argatov

Articles in refereed scientific journals

1. Argatov, I., Silvennoinen, R. 2009. Energy conversion efficiency of the pumping kite wind generator. *Renewable Energy* doi: 10.1016/j.renene.2009.09.006.
2. Argatov, I., Silvennoinen, R. 2009. Structural optimization of the pumping kite wind generator. *Struct. Multidisc. Optim.* doi: 10.1007/s00158-009-0391-3.
3. Argatov, I., Sevostianov, I. 2009. On relations between geometries of microcontact clusters and their overall properties. *Int. J. Eng. Sci.* **47**, 959–973.
4. Argatov, I.I., Dmitriev, N.N., Petrov, Yu.V., Smirnov, V.I. 2009. Threshold erosion fracture in the case of oblique incidence. *J. Friction and Wear* **30**, 176–181.
5. Argatov, I.I., Mishuris, G.S. 2009. Asymptotic modelling of an elastic roller crossing a scratch. *Eur. J. Mech. A/Solids* **28**, 858–867.
6. Argatov, I., Rautakorpi, P., Silvennoinen, R. 2009. Estimation of the mechanical energy output of the kite wind generator. *Renewable Energy* **34**, 1525–1532.
7. Argatov, I.I., Fadin, Y.A. 2009. Excitation of the surface of an elastic half-space under the normal rebounding impact of an indenter. *J. Friction and Wear* **30**, 1–7.
8. Argatov, I.I. 2009. Asymptotic models for the topological sensitivity of the energy functional. *Appl. Math. Letters* **22**, 19–23.
9. Argatov, I.I. 2009. Slow vertical motions of a system of punches on an elastic half-space. *Mech. Res. Commun.* **36**, 199–206.
10. Argatov, I.I. 2008. Asymptotic modeling of the impact of a spherical indenter on an elastic half-space. *Int. J. Solids Struct.* **45**, 5035–5048.
11. Argatov, I.I., Sabina, F.J. 2008. Acoustic diffraction by a thin soft torus. *Wave Motion* **45**, 846–856.
12. Argatov, I.I., Fadin, Y.A. 2008. Mathematical modeling of the periodic wear process in elastic contact between two bodies. *J. Friction and Wear* **29**, 81–85.
13. Argatov, I.I. 2008. Slow vertical motions of an elliptic punch on an elastic half-space. *Int. J. Eng. Sci.* **46**, 7, 711–724.
14. Andrianov, I.V., Argatov, I.I., Weichert, D. 2008. On the absence of the Eshelby property for slender non-ellipsoidal inhomogeneities. *Proc. R. Soc. Lond. A* **464**, 1079–1088.
15. Argatov, I.I., Sabina, F.J. 2008. Acoustic diffraction by a finite number of small soft bodies. *Wave Motion* **45**, 238–253.
16. Argatov, I.I. 2007. Slow transitional vertical motions of a punch on the surface of an elastic half-space, *Mechanics of Solids* **42**, 5, 99–116.
17. Argatov, I.I., Fadin, Y.A. 2007. Calculation of tribological characteristics of composite materials. *J. Friction and Wear* **28**, 2, 182–186.
18. Argatov, I.I., Fadin, Y.A. 2006. The theory of periodic wear process in an elastic contact. *J. Friction and Wear* **27**, 6, 1–9.
19. Argatov, I.I. 2006. Solving the Hertz axisymmetric contact problem. *J. Appl. Math. Mech.* **70**, 621–635.
20. Argatov, I.I. 2006. Asymptotic models for the discrete optimal control of the deformation of an elastic membrane. *J. Appl. Mech. Techn. Phys.* **47**, 724–735.
21. Argatov, I.I. 2006. Slow vertical motions of a punch on an elastic half-space. *Doklady Physics* **51**, 268–271.

22. Argatov, I.I. 2006. Asymptotic models of contact interaction among elliptic punches on a semiclassical foundation. *Int. Appl. Mechanics* **42**, 67–83.
23. Argatov, I.I. 2005. Pressure of a paraboloidal die on a thin elastic layer. *Doklady Physics* **50**, 524–528.
24. Argatov, I.I. 2005. Approximate solution of the axially symmetric Hertz problem with respect to tangential displacements at the contact surface. *Mechanics of Solids* **40**, 5, 39–47.
25. Argatov, I.I. 2005. Elastic preliminary displacements of a solid on a rough plane. *J. Machinery Manufacture and Reliability* **5**, 77–82.
26. Argatov, I.I. 2005. Asymptotics of a reduced logarithmic capacity. *Comput. Math. Math. Phys.* **45**, 120–137.
27. Argatov, I.I. 2005. The pressure of a punch in the form of an elliptic paraboloid on a thin elastic layer. *Acta Mechanica* **180**, 221–232.
28. Argatov, I.I. 2005. Equilibrium conditions for a solid on a rough plane under the axisymmetric distribution of normal pressures, *Mechanics of Solids* **40**, 2, 15–26.
29. Argatov, I.I. 2005. An approximate solution of the axisymmetric contact problem for an elastic sphere. *J. Appl. Math. Mech.* **69**, 257–286.
30. Argatov, I.I. 2005. Asymptotics of the reduced logarithmic capacity of a narrow cylinder. *Mathematical Notes* **77**, 15–25.
31. Argatov, I.I. 2004. Approximate solution to the axisymmetric contact problem for an elastic layer of finite thickness. *J. Machinery Manufacture and Reliability* **6**, 31–36.
32. Argatov, I.I. 2004. Indentation of a punch with a fine-grained base into an elastic foundation. *J. Appl. Mech. Techn. Phys.* **45**, 764–773.
33. Argatov, I.I. 2004. Distribution of temperature in a space containing heated spherical inclusions periodically situated along a line. *J. Eng. Phys. Thermophys.* **77**, 1088–1095.
34. Argatov, I.I. 2004. Homogenization of a mixed problem for the Laplace operator with the Signorini conditions on an interior fine-grained boundary. *Siberian J. Industrial Math.* **7**, 4, 3–15 (in Russian).
35. Argatov, I.I. 2004. The method of averaging in contact problem for a system of punches. *J. Appl. Math. Mech.* **68**, 93–104.
36. Argatov, I.I. 2004. Axisymmetric Hertz problem with tangential displacements on the contact surface. *Doklady Physics* **49**, 222–225.
37. Argatov, I.I. 2004. Approximate solution of an axisymmetric contact problem with allowance for tangential displacements on the contact surface. *J. Appl. Mech. Techn. Phys.* **45**, 118–123.
38. Argatov, I.I. 2003. Interaction of several dies on an elastic half-space. *Int. Appl. Mechanics* **39**, 1054–1059.
39. Argatov, I.I., Sokolowski, J. 2003. Asymptotics of the energy functional of the Signorini problem under a small singular perturbation of the domain. *Comput. Math. Math. Phys.* **43**, 710–724.
40. Argatov, I.I., Bach, M., Kovtunencko, V.A. 2003. Propagation of a mode-1 crack under Irwin and Khristianovich—Barenblatt criteria. *Materials Science* **39**, 365–370.
41. Argatov, I.I. 2003. Theory of unsaturated elastic contact of rough surfaces. *J. Friction and Wear* **24**, 22–29.
42. Argatov, I.I. 2002. Local strength of an elastic body interacting with a punch in the form of an elliptic paraboloid. *Siberian J. Industrial Math.* **5**, 3, 17–26 (in Russian).
43. Argatov, I.I. 2002. The pressure of a slender rectangular punch on an elastic half-space. *Mechanics of Solids* **37**, 2, 47–55.

44. Argatov, I.I. 2002. The pressure of a punch with a rounded edge on an elastic half-space. *J. Appl. Math. Mech.* **66**, 637–643.
45. Argatov, I.I., Nazarov, S.A. 2002. Energy release caused by the kinking of a crack in a plane anisotropic solid. *J. Appl. Math. Mech.* **66**, 491–503.
46. Argatov, I.I. 2002. Asymptotic modeling of equilibrium of a rigid body based on the plane surface of an elastic foundation at several points. *Mechanics of Solids* **37**, 1, 74–84.
47. Argatov, I.I. 2002. Characteristics of local compliance of an elastic body under a small punch indented into the plane part of its boundary. *J. Appl. Mech. Techn. Phys.* **43**, 147–153.
48. Argatov, I.I. 2002. Interaction between punches on an elastic base. *Advances in Mechanics* **1**, 4, 8–40 (in Russian).
49. Argatov, I.I. 2001. Solution of the plane Hertz problem. *J. Appl. Mech. Techn. Phys.* **42**, 1064–1072.
50. Argatov, I.I. 2001. The pressure of a punch in the form of an elliptic paraboloid on an elastic layer of finite thickness. *J. Appl. Math. Mech.* **65**, 495–508.
51. Argatov, I.I. 2001. Approximate solution of the axisymmetrical contact problem for a rough elastic half-space indented by a ball. *J. Friction and Wear* **22**, 6, 1–5.
52. Argatov, I.I. 2001. Approximate solution of the periodic contact problem for the elastic layer. *J. Friction and Wear* **22**, 4, 1–3.
53. Argatov, I.I. 2001. Action of a system of rigid punches shaped as elliptic paraboloids on an elastic half-space. *Mechanics of Solids* **36**, 2, 46–56.
54. Argatov, I.I., Mel'nyk, T.A. 2001. Homogenization of a contact problem for a system of densely situated punches, *Eur. J. Mech. A/Solids* **20**, 91–98.
55. Argatov, I.I. 2001. Indentation of a rigid body into an elastic plate. *J. Appl. Mech. Techn. Phys.* **42**, 140–145.
56. Argatov, I.I., Nazarov, S.A. 2000. Asymptotic analysis of problems in junctions of domains of different limit dimensions. An elastic body, pierced by thin rods. *J. Math. Sci.* **102**, 4349–4387.
57. Argatov, I.I. 2000. Tearing off a die edge from the surface of elastic basement. *Doklady Physics* **45**, 493–495.
58. Argatov, I.I., Nazarov, S.A. 2000. Contact problem for a narrow annular punch. Unknown region of contact. *J. Appl. Mech. Techn. Phys.* **41**, 1123–1130.
59. Argatov, I.I. 2000. Pressure of a narrow band-like punch upon an elastic half-space. *Int. Appl. Mechanics* **36**, 1363–1368.
60. Argatov, I.I. 2000. Asymptotic solution of the problem of the pressure of a rigid body on a membrane. *J. Appl. Math. Mech.* **64**, 659–666.
61. Argatov, I.I., Nazarov, S.A. 2000. Comparison of the Griffith and Irvin criteria for a crack asymmetrically propagating in the plane. *Materials Science* **36**, 561–569.
62. Argatov, I.I. 2000. The asymptotic solution of a contact problem with a half-unknown boundary of the contact region. *J. Appl. Math. Mech.* **64**, 443–447.
63. Argatov, I.I. 2000. Refinement of the asymptotic solution obtained by the method of matched expansions in contact problem of elasticity theory. *Comput. Math. Math. Phys.* **40**, 594–603.
64. Argatov, I.I. 2000. Asymptotic modelling of contact interaction of a system of rigidly connected punches with an elastic base. *Siberian J. Industrial Math.* **3**, 2, 10–22 (in Russian).
65. Argatov, I.I., Nazarov, S.A. 2000. Asymptotic model of the unilateral line contact. *Vestnik St. Petersburg Univ. Ser. I.* **1**, 83–88 (in Russian).

66. Argatov, I.I. 2000. Pressure exerted on the elastic half-space of a die whose shape is approximated by an elliptic paraboloid. *J. Machinery Manufacture and Reliability*, 1, 87–91.
67. Argatov, I.I. 1999. The asymptotic solution of the contact problem for a three-dimensional elastic body of finite dimensions. *J. Appl. Math. Mech* **63**, 937–942.
68. Argatov, I.I., Chirkov, V.Y. 1999. Approximate solution to the contact problem for a set of interacting punches on an elastic half-space. *J. Friction and Wear* **20**, 5, 1–4.
69. Argatov, I.I. 1999. The indentation of a punch in the form of an elliptic paraboloid into the plane boundary of an elastic body. *J. Appl. Math. Mech.* **63**, 641–649.
70. Argatov, I.I., Nazarov, S.A. 1999. Equilibrium of an elastic body pierced by horizontal thin elastic bars. *J. Appl. Mech. Techn. Phys.* **40**, 763–769.
71. Argatov, I.I. 1999. The interaction between punches on an elastic half-space. *Mechanics of Solids* **34**, 4, 56–63.
72. Argatov, I.I. 1998. Integral characteristics of rigid inclusions and cavities in the two-dimensional theory of elasticity. *J. Appl. Math. Mech.* **62**, 263–268.
73. Argatov, I.I., Nazarov, S.A. 1996. Asymptotic solution of the Signorini problem with an obstacle on a thin elongated set. *Sbornik: Mathematics* **187**, 1411–1442.
74. Argatov, I.I., Nazarov, S.A. 1996. Asymptotic analysis of problems on junctions of domains of different limit dimensions. A body pierced by a thin rod. *Izvestiya: Mathematics* **60**, 1–37.
75. Argatov, I.I., Nazarov, S.A. 1996. The pressure of a narrow ring-shaped punch on an elastic half-space. *J. Appl. Math. Mech.* **60**, 799–812.
76. Argatov, I.I., Nazarov, S.A. 1994. Asymptotic solution to the problem of an elastic body lying on several small supports. *J. Appl. Math. Mech.* **58**, 303–311.
77. Argatov, I.I., Nazarov, S.A. 1994. Asymptotic solution of the Signorini problem with small segments on the free boundary. *Siberian Mathematical J.* **35**, 231–249.
78. Argatov, I.I., Nazarov, S.A. 1993. Junction problem of shashlik (skewer) type. *Comp. Rend. Acad. Sci. Paris. Sér. I* **316**. 1329–1334.
79. Argatov, I.I. 1993. Evaluating the calculation error in modelling of a linearly elastic quasi-isotropic composite of a symmetric structure as an isotropic plate. *St. Petersburg Univ. Mech. Bull.* 1, 1–7.

Monograph

Argatov, I.I. 2005. *Asymptotic Models of Elastic Contact*. Nauka, St. Petersburg. 448 pp. (in Russian), ISBN 5–02–025070–8

Textbooks

- Argatov, I.I. 2004. *Introduction to Asymptotic Modelling in Mechanics*. Polytechnics, St. Petersburg. 302 pp. (in Russian), ISBN 5–7325–0824–4
- Argatov, I.I., Dmitriev, N.N. 2003. *Fundamentals of the Theory of Elastic Discrete Contact*. Polytechnics, St. Petersburg. 233 pp. (in Russian), ISBN 5–7325–0744–2
- Argatov, I.I. 2000. *Ordinary Differential Equations (Undergraduate textbook)*. Res. Inst. for Chemistry of the St. Petersburg State Univ. Press, St. Petersburg. 122 pp. (in Russian). ISBN 5–7997–0406–1

Patent

Argatov, I.I. 1985. An apparatus for signalling of a level. Soviet Union Certificate of Authorship, No. 1160243, G 01 F 23/16 dated 8.2.1985.