

CURRICULUM VITAE

Arkady I. Leonov

Dept. of Polymer Engineering, The University of Akron, Akron, OH 44325-0301
Phone: (330) 972-5138, Fax: (330) 258-2339, Email: leonov@uakron.edu

Education:

B.S. in Polymer Engineering, Moscow Technical University of Chemical Engineering, Moscow, USSR, 1957
M.S. in Mathematics (Probability Theory), Dept. of Mechanics and Mathematics, Moscow State University, Moscow, USSR, 1961.
Ph.D. in Theoretical Mechanics - 1962, Institute of Problems in Mechanics of the USSR Academy of Sciences, Moscow, USSR. Dissertation: "Certain Problems of Flow of Incompressible Viscous and Viscoelastic Liquids in Pipes and Diffusers of Finite Length," Advisor: Prof. S. A. Sliozkin
Ph.D. (Doctor of Science, Habilitation) in Mathematical Physics -1969, Karpov's Physico-Chemical Research Institute, Moscow, USSR. Dissertation: "On the Elastic and Structural Effects in Nonlinear Mechanics of Polymeric Melts and Concentrated Solutions"

Professional Activities

Classic and polymer related continuum mechanics of solids and liquids (including geophysical fluid mechanics), polymer rheology and fluid mechanics, polymer physics and physico-chemistry, polymer processing, mathematical sociology.

Employment:

Professor - Institute of Polymer Engineering and Department of Polymer Engineering, the University of Akron, Akron, Ohio. August 1988 to present.
Adjunct Professor of Applied Mathematics, Department of Theoretical and Applied Mathematics, the University of Akron, Akron, Ohio. August 2008 to present.
Professor, Chairman - Department of Theoretical Mechanics, Kemerovo Institute of Technology, Kemerovo, USSR, 1 984 -1 987.
Professor - Department of Polymer Engineering, Moscow Institute of Chemical Engineering, Moscow, USSR, 1974- 1984.
Senior Research Fellow, Head - Rheology Group, Institute of Problems in Mechanics of the USSR Academy of Sciences, Moscow, USSR, 1965 -1982
Research Associate - Rheology Lab., Institute of Petrochemical Synthesis of the USSR Academy of Sciences, Moscow, 1 962 -1 965.
Doctoral Candidate - Department of Theoretical Mechanics, Moscow Institute of Chemical Engineering, Moscow, USSR, 1959-1962.
Senior Engineer, Head - Department of Computations in Mechanics, Moscow Synthetic Rubber Plant, Moscow, USSR, 1 957 -1 959.

Visiting Positions:

Summer Research Fellow - Materials Division, NASA Glenn, Cleveland, Ohio, May 20 – July 26, 2001.
Visiting Scientist – Materials Division, NASA Glenn, Cleveland, Ohio, Jan. 31 – May 31, 2001.
Visiting Scientist - Isaac Newton Institute for Mathematical Studies, Cambridge, U.K., January, 1996.
Visiting Scientist - Institut de Mechanique de Grenoble, Grenoble, France, June - July, 1990
Visiting Scientist - The Goodyear Tire & Rubber Co., Research Division, Akron, OH, June -August, 1989.
Visiting Scientist - Dept. of Polymer Sci. and Polymer Technology, IBM Almaden Research, San Jose, CA, May - August, 1988.

Visiting Scholar - Department of Chemical Engineering, Stanford University, Stanford, CA, Jan.- May, 1988.

Professional Societies:

Society of Rheology
American Academy of Mechanics
American Society of Mechanical Engineers

Awards and Honors:

Honorary Member of British Society of Rheology since 1984.
Vinogradov's Society of Rheology Award, 2001.

List of Publications:

Includes about 200 papers, 4 monographs and 3 book chapters in various fields of study. The main publications are:

1. Leonov, A. I., Bassov, N. I. Kazankov, Yu. V., FUNDAMENTALS IN PROCESSING OF THERMOSETS AND RUBBERS BY INJECTION MOLDING"(Russian), "Khimiya", Moscow, 1977. pp.216, Fig.116, Ref.247
2. A. I. Leonov, "On the Two-Dimensional Kortevag-de Vrise Equations in Nonlinear Theory of Surface and Internal Waves," Proceeding of the Academy of Sciences of the USSR, Geophys. Sect., v. 229, N4, 820-823, 1976.
3. A. I. Leonov, "The Account of the Earth Rotation in The Weak Nonlinear Theory of Surface and Internal Waves in the Ocean," Ann. NY Acad. Sci., v. 373,150-159, 1981.
4. Yu. B. Chernyak and A. I. Leonov, "On the Theory of Adhesive Friction of the Elastomers," Wear, v. 108,105-138,1986.
5. A. I. Leonov, "On a Class of Constitutive Equations for Elasto-viscous Liquids," J. Non-Newt. Fluid Mech., v. 25,1-59,1987.
6. A. I. Leonov, "Extremum Principles and Exact Two-Side Bounds of Potential Functional and Dissipation for Slow Motions in Nonlinear Viscoplastic Media," J. Non-Newt. Fluid Mech., v 28, 1-28, 1988.
7. Leonov, A. I. and Srinivasan, A., "On Self-Oscillations of an Elastic Plate Sliding Over a Smooth Surface", Intern. J. Eng. Sci., 31, N3, 453-473,1993.
8. Leonov, A. I., Prokunin, A. N., 1994, NONLINEAR PHENOMENA IN FLOWS OF VISCO-ELASTIC POLYMER FLUIDS. Chapman & Hall, New York, pp.475, Fig. 182, Ref. 582.
9. Kwon, Y., and Leonov, A. I., "Stability Constraints in the Formulation of Viscoelastic Constitutive Equations", J. Non-Newt. Fluid Mech., v. 58, 25-46,1995.
10. Simhambhatla, M., and Leonov, A. I., "On the Rheological Modeling of Viscoelastic Polymer Liquids with Stable Constitutive Equations", Rheol. Acta, v. 34, 259-273,1995.
11. Volkov, V.S. and Leonov, A.I., Non-Markovian Brownian Motion in Viscoelastic Liquid, J. Chem. Phys., 104, 5922-5931, 1996.
12. Leonov, A.I., "Constitutive Equations for Viscoelastic Liquids: Formulation, Analysis and Comparison with Data", in: ADVANCES IN THE FLOW AND RHEOLOGY OF NON-NEWTONIAN FLUIDS, D.A. Siginer, D. De Kee and R.P. Chhabra Eds. , Elsevier, New York, 519-576 (1999)

Journal Reviewing

Journal of Rheology, Rheological Acta, Journal of Non-Newtonian Fluid Mechanics, Macromolecules, Journal of Applied Polymer Science, Polymer Engineering and Science, International Polymer Processing, Rubber Chemistry and Technology, International Journal of Engineering Science, Journal of Engineering

Mathematics, Fluid Dynamics Research, Mechanics of Time-Dependent Materials, International Journal of Solids and Structures, Ind. J. of Pure and Appl. Math., Langmuir.

Invited Lectures and Speeches

1. "Nonlinear Viscoelasticity," 10 lectures, Kazan institute of Chemical Technology, USSR, 1972.
2. "Problems in Physics and Mechanics of Polymers," Moscow Physico-Technical Institute, 5 lectures, USSR, 1973.
3. "Non-equilibrium Thermodynamics and Rheology of Viscoelastic Polymeric Media," 3 lectures, Institute of Heat and Mass Transfer of Belorusskaya SSR Academy of Science, Minsk, 1975.
4. "Shock Waves in Viscoelastic Media," 5 lectures, Institute of Mathematics of Moldavskaya SSR, Kishinev, 1976.
5. "Nonlinear Theory of Waves in Dispersive Media with Applications to the Theory of Internal Waves in the Ocean," 12 lectures, Leningrad's Branch of Shirshov's Institute of Oceanography of the USSR Academy of Sciences, 1976.
6. "Nonlinear Theory of Stationary Waves in Dispersive Media," 2 lectures, 12th Symposium on Physics of Atmosphere and Ocean, Itkol, USSR, 1977.
7. "On the Constitutive Equations," 2 lectures, Department of Chemical Engineering, Stanford University, Stanford, California, January and February 1988.
8. "A Theoretical Description of Some Rheological Problems for Viscoelastic Liquid," 1 lecture, IBM Almaden Research Center, San Jose, California, March 1988.
9. "The Rheology and Interaction of Flowing Polymer Systems with a Solid Boundary," 1 lecture, Department of Polymer Engineering, The University of Akron, Akron, Ohio, April 1988.
10. "The Rheology and Near Wall Phenomena for Flowing Polymers," 1 lecture, Goodyear Tire And Rubber Company, Akron, Ohio, April 1988.
11. "Some Critical Phenomena in Rheology of Viscoelastic Polymeric Liquids and the Concept of "Fluidity Loss," 1 lecture, Ecole Polytechnique, University of Montreal, Canada, March 1990.
12. "On the Rheology of Filled Polymers and Disperse Systems," 1 lecture, University of Dortmund, Dortmund, West Germany, July 1990.
13. "Basic Problems in Nonlinear Viscoelasticity of Elastic Liquids," Institut de Mechanique de Grenoble, Grenoble, France, July 1990.
14. "New Results in the Rheology of Filled Polymers and Disperse Systems," 1 lecture, Goodyear Tire and Rubber Company, Akron, Ohio, September 1990.
15. "On the Rheology of Filled Polymers and Disperse Systems: Effects, Theory, Experiments, and Applications," 2 lectures, BF Goodrich, Avon Lake & Brecksville, Ohio, March 1991.
16. "Critical Phenomena in Flows of Viscoelastic Polymeric Liquids and Concept of "Fluidity Loss"", 1 lecture, Department of Chemical Engineering, The University of California, Berkeley, November, 1992
17. "On Chemical Kinetics of Vulcanization of Rubbers" (with R.Ding), Goodyear Research Center, Akron, OH, May, 1995
18. "Fundamentals for Industrial Rheology", Stevens Institute of Technology, Haboken, N.J., May, 1995
19. "Modeling of Spurt and Flow Oscillations in Flows of Molten Polymers", The University of California, Berkeley, Dept. of Chem. Engng, November, 1995
20. "Viscoelastic Constitutive Equations for High Speed Polymer Flows", Isaac Newton Institute for Mathematical Studies, Cambridge, U.K., January, 1996
21. "Chemorheology and its Application to Injection Molding of Reactive Polymers", Goodyear, Akron, OH, April, 1996
22. "Instabilities in Flows of Molten Polymers", Goodyear, Akron, OH, April, 1996
23. "Viscoelastic Constitutive Equations for High Speed Polymer Processing", Goodyear, Akron, OH, May, 1996

24. Viscoelastic Constitutive Equations for High Speed Polymer Processing, The Third Kyoto Symposium on Rheology (KSR-3) Kyoto Research Park, Kyoto, Japan, July 29-30, 1996
25. "Nonlinear Relaxation Behavior in Cross-Linked Rubbers", Goodyear, Akron, OH, May, 1996
26. "Viscoelastic Constitutive Equations for High Speed Polymer Processing", Plamedia Research Corporation, Tokyo, Japan, August, 1996
27. "Chemorheology and its Application to Injection Molding of Reactive Polymers", Kyoto Institute of Technology, Kyoto, Japan, August 1996
28. "Chemorheology and its Application to Injection Molding of Reactive Polymers", TOYOTA Central R&D Labs, Inc., Nagoya, Japan, August 1996
29. "Chemorheology of Filled Rubber Compounds", KUMHO Tire Co., LTD, Kwangju, Korea, August 1996
30. "Scaling Approach For Solving Problems with Multi-Mode Viscoelastic Constitutive Equations of Differential Type", IUTAM-97-9 Symposium on Rheology and Computations, Sydney, Australia, 07/19-25/1997.
31. "Continuum Mechanics Models with Reversible Microstructure", Keynote Speaker, The 27th Conference on Mechanical Engineering", Technion City, Haifa, Israel, May 19-20, 1998.
32. "On the Finite Elasticity and Hypo-Elasticity", 1st Canadian Conference on Nonlinear Solid Mechanics, Victoria, British Columbia, Canada, June 16-20, 1999.
33. "Basic Interactions and Properties of Filled Elastomers", Royal Military Colledge of Canada, November 17, 1999.
34. "Continuum Models with Reversible Microstructure", International Conference: *Homogenization and Material Science*, Akron Ohio, September 15-17, 2000.
35. "Continuum Models with Ruptured/Healed Microstructure", Math. Dept., Penn State Univ., State College, Pennsylvania, January 26, 2001.
36. "A Theory of Semi-Flexible Liquid Crystalline Polymers", Dept. of Polymer Engineering, The University of Akron, Akron, Ohio, September 21, 2001.
37. "Statistical Behavior of Brownian Particles and Macromolecules in Viscoelastic Solvents", Rheology Research Center, University of Wisconsin-Madison, October 5, 2001.
38. "Nonlinear Viscoelastic Mechanics of Cross-Linked Rubbers", 2nd Canadian Conference on Nonlinear Solid Mechanics, Vancouver, Canada, June 19-23, 2002.
39. "Algebra of Nematic operators and Linear Viscoelastic Nematodynamics", Dept. of Theor. and Appl. Math, The University of Akron, Akron, OH, September 21, 2004.
40. "Aerodynamic Models for Hurricanes: Hurricane Genesis, Functioning, Propagation, and Suppression" Dept. of Theor. and Appl. Math, The University of Akron, Akron, OH, February 21 and 28, 2008.

Conferences & Seminars

1. "On Optimal Geometry for Generalized Rotational Flow of Elastoviscous Liquids in Thin Gaps," PPG-V Meeting, The University of California, Berkeley, California, January 1988.
2. "An Approach to the Crazing Theory," IBM Almaden Research Center, San Jose, California, July 1988.
3. "A Theoretical Approach to Fibril Necking and Crazing," 60th Annual Society of Rheology Meeting, Gainesville, Florida, February 12-16, 1989.
4. "A Model of Fibril Deformation in Crazes," Fourth Annual Polymer Engineering Kolloquium, The University of Akron, Akron, Ohio, May 24, 1989
5. "On the Rheology of Filled Polymers," Goodyear Company, Akron, Ohio, October, 1989
6. "A Rheological Model for Flow of Filled Polymers," 61st Annual Meeting of the Society of Rheology and First Inter-American Conference on Rheology, Montreal, Canada, October 21-26, 1989
7. "A Microscopic Theory of Sliding Friction of Elastomers with Applications to Study Melt Fracture," 62nd Annual Meeting of the Society of Rheology, Santa Fe, New Mexico, October 21-25, 1990.

8. "On the Rheology of Filled Polymer and Disperse Systems," Fifth Annual Polymer Engineering Kolloquium, The University of Akron, Akron, Ohio, December 12, 1990.
9. "General Analysis of Simple Viscoelastic Constitutive Equations," 63rd Annual Meeting of the Society of Rheology, Rochester, New York, October 20-24, 1991.
10. "Rheology of Concentrated Dispersed Systems in Low Molecular Weight Matrices," (P. Coussot & J.M. Piau, co-authors), 63rd Annual Meeting of the Society of Rheology, Rochester, New York, October 20-24, 1991.
11. "Rheological Properties of Polymer Melts and Particle Filled Systems," Sixth Annual Polymer Engineering Kolloquium, The University of Akron, Akron, Ohio, December 5, 1991.
12. "Rheological Modeling and Peculiar Properties of some Hyper-Concentrated Flows" (with P. Coussot, reporter, and J.M. Piau), International Symposium on Erosion, Debris Flow and Environment in Mountain Regions, Chengdu, China, 5-9 July, 1992.
13. "On Thermodynamics and Stability of General Maxwell-like Viscoelastic Constitutive Equations", XI International Congress on Rheology, Brussels, Belgium, August 17-22, 1992.
14. "On Instabilities in Viscoelastic Constitutive Equations", ASME Winter Annual Meeting, November 8-13 Anaheim, CA 1992
15. Relaxation Interaction and a Self-Consistent Approach to the Linear Viscoelasticity of Polymer Melts, International Symposium "Advances in Structured and Heterogeneous Continua", Moscow, Russia, August 22-26, 1993
16. On Hadamard Instability of Constitutive Models for Elastic Liquids and Single Integral Models for Viscoelastic Liquids (with Y. Kwon), 65 Ann. Meeting of the Soc. of Rheology, Boston, MA, October 17-21, 1993
17. Experimental and Theoretical Studies of Rheology of Filled Polymers (with M. Simhambhatla), 65 Ann. Meeting of the Soc. of Rheology, Boston, MA, October 17-21, 1993
18. The Modelling of Spurt Flows of Molten Polymers (with K.E.P. Adewale), International Symposium on Viscoelastic Fluids, Tobago, W. I., January 4-7, 1994
19. A Model of Spurt, Hysteresis and Stick-Slip in Unstable Flows of Molten Polymers (with K.E.P. Adewale), PPS-10, Akron, OH, April 5-8, 1994
20. A Simple Model for Swelling of Polymer Melts Extruded from Capillary and Annular Dies (with Y. Kwon), PPS-10, Akron, OH, April 5-8, 1994
21. Rheology of High Molecular Weight Polyisobutylene and Its Carbon Black Filled Compounds (with M. Simhambhatla), PPS-10, Akron, OH, April 5-8, 1994
22. On Viscoelastic Constitutive Equations and Rheology for High Speed Polymer Processing, MACROAKRON'94 (35th IUPAC Intern. Symposium on Macromolecules) Akron, OH, July 11- 15, 1994
23. Thermodynamic Constraints, Stability Conditions and the Problem of Choice for Viscoelastic Constitutive Equations, 4th European Rheology Conference, Seville (Spain), 4-9 September, 1994
24. On the Complex Flow Behavior of Binary Carbon Black/Oil Suspensions (with G. Osanaiye and J. White), 66 Ann. Meeting of the Soc. of Rheology, Philadelphia, PA, October 2-6, 1994.
25. On the Rheological Modeling of Viscoelastic Polymer Liquids, (with M. Simhambhatla), 66 Ann. Meeting of the Soc. of Rheology, Philadelphia, PA, October 2-6, 1994.
26. Modeling Spurt and Stress Oscillations in Unstable Flows of Molten Polymers (with K.E.P. Adewale), 66 Ann. Meeting of the Soc. of Rheology, Philadelphia, PA, October 2-6, 1994.
27. Recent Results on Stability of Viscoelastic Constitutive Equations (with Y. Kwon), 66 Ann. Meeting of the Soc. of Rheology, Philadelphia, PA, October 2-6, 1994.
28. On a Kinetic Formulation and the Stability of Constitutive Equations for Elasto-Viscoplasticity, Pan-American Congress on Applied Mechanics, PACAM-IV, Buenos Aires, Argentina, January 3-9, 1995
29. Viscoelastic Constitutive Equations For High Speed Polymer Processing, ASME Internat. Mechanic. Engineer. Congress & Exposition, Nov. 12-17, 1995, San-Francisco, California
30. On a Kinetic Formulation and the Stability of Constitutive Equations for Elasto-Viscoplasticity, ASME Internat. Mechanic. Engineering Congress & Exposition, Nov. 12-17, 1995, San-Francisco, California
31. Viscoelastic Constitutive Equations for Polymer Processing, IUPAC MACRO SEOUL'96, Seoul, Korea, August 4-9, 1996

32. Spurt and Stress Oscillations in Flows of Molten Polymers, XII International Congress on Rheology, Quebec (Quebec), Canada, August 18-23, 1996
33. Some Topics on Thermodynamics of Viscoelastic Liquids, X International Workshop on Numerical Methods in Viscoelastic Flows, Ocean City, MD, May 1997
35. Rheological Modeling of Uncured Elastomer Compounds Highly Filled with Carbon Black, 2nd Pacific Rim Conference on Rheology, Melbourne, Australia, July 1997.
36. Fast Channel Flows of Polyisobutylenes (with V.B. Birman and J. Padovan), 69th Annual Meeting of The Society of Rheology, Columbus, OH, October 19-23, 1997.
37. Dynamic Oscillations of a Filled Compound Under Cure Reaction (with R. Ding), 69th Annual Meeting of The Society of Rheology, Columbus, OH, October 19-23, 1997.
38. Method of Disturbances for Viscoelastic Flows in Long Channels with Complex Cross-Sections (with M. Siline and J. Padovan), 69th Annual Meeting of The Society of Rheology, Columbus, OH, October 19-23, 1997.
39. On the Mullins Effect and Stress Relaxation of Filled Cross-Linked Rubbers (with P. Joshi), 152th ACS Meeting of Rubber Division (RUBBER EXPO 97), Cleveland, OH, October 21-24, 1997.
40. A Model of Drag Reduction in Turbulent Flows of Dilute Polymer Solutions (with V. A. Gorodtsov), 1998 ASME Fluids Engineering Division Summer Meeting, Washington D.C., June 21-25, 1998.
41. Studies of High Deborah Number Flows of a Polyisobutylene in a Long Die with Square Cross Section (with V. B. Birman and J. Padovan), 70th Annual Meeting of The Society of Rheology, Monterey, CA, October 4-8, 1998.
42. On the Finite Elasticity and Hypo-Elasticity, 70th Annual Meeting of the Society of Rheology, Monterey, CA, October 4-8, 1998.
43. A Model of Turbulent Drag Reduction for Dilute Polymer Solutions (with V. A. Gorodtsov), 70th Annual Meeting of The Society of Rheology, Monterey, CA, October 4-8, 1998.
44. Modeling of Steady and Time Behavior of Filled, Crosslinked Elastomers (with P. G. Joshi), 1st Canadian Conf. on Nonlinear Solid Mechanics, Victoria, Brit. Columb, Canada, June 16-20, 1999.
45. On the Finite Elasticity and Hypo-Elasticity, 1st Canadian Conf. on Nonlinear Solid Mechanics, Victoria, Brit. Columb, Canada, June 16-20, 1999.
46. Modeling Nonlinear Viscoelasticity in Filled, Crosslinked Rubbers (with P. G. Joshi), Rubber Division Meeting, American Chemical Society, Orlando, Florida, September 21-24, 1999.
47. Cure Kinetics for Silane Coupled Silica Filled SBR Compounds (with C. W. Moon and R. P. Quirk), Rubber Division Meeting, American Chemical Society, Orlando, Florida, September 21-24, 1999.
48. Modeling of Steady and Time Dependent Behavior of Crosslinked, Filled Polymers (with P. Joshi), 71st Annual Meeting of the Society of Rheology, Madison, Wisconsin, October 17-21, 1999.
49. On Flows of Polymers in Long Channels and Dies (with M. Siline), 71st Annual Meeting of the Society of Rheology, Madison, Wisconsin, October 17-21, 1999.
50. On the Constitutive Modeling of LDPE Melt I (with M. Simhambhatla), 71st Annual Meeting of the Society of Rheology, Madison, Wisconsin, October 17-21, 1999.
51. Critical Conditions for the Onset of Unstable Flows of Molten Polymers (with KEP Adewale), ANTEC Meeting, 2000.
52. Continuum Models with Ruptured/Restored Microstructure, 10th International Conference on Fracture, Honolulu, Hawaii, December 2-6, 2001.
53. Viscoelastic Effects in Helical Flows of Polymer Fluids (with J. Jeong), ASME Internat. Mechanic. Engineer. Congress & Exposition, November 12-17, 2001, New York City.
54. A Non-Isothermal Constitutive Theory for Nonlinear Solid Viscoelasticity (with A.D. Freed), EUROMECH Colloquium 438, Constitutive Equations for Polymer Microcomposites: On the Border of Mechanics and Chemistry, & Workshop, Viscoelasticity of Rubberlike Solids: From Theory to Applications; Vienna, July 15-19, 2002. The book of abstracts, p.108.
55. "Thermodynamics and Viscoelasticity of Anisotropic Polymeric Fluids" (with V.S. Volkov), 6th European Conference on Rheology, September 1-6, 2002, Erlangen, Germany
56. "Modeling of Fast Contraction Flows of Polymers" (with J. Jeong), 75th Annual Meeting of the Society of Rheology, Pittsburgh, PA, October 12-16, 2003.
57. "Rheology of Polyamide-6/Clay Based Layered Silicate Nanocomposites" (with R. Ayyer), 75th Annual Meeting of the Society of Rheology, Pittsburgh, PA, October 12-16, 2003.

58. "On the Weak Nematic Elasticity" (with V.S. Volkov), 75th Annual Meeting of the Society of Rheology, Pittsburgh, PA, October 12-16, 2003.
59. "Impact Fatigue of Cross-Linked Rubbers in Simple Extension" (with A.V. Gagov and A.Y. Melnikov), 79th Annual Meeting of the Society of Rheology, Salt Lake City, Utah, October 7-11, 2007.
60. "Evaluation of Tackiness of Polymer Containing Lubricants by Open-Siphon Method: Experiments, Theory and Observations" (with V.A. Levin and R.J. Stephan), 79th Annual Meeting of the Society of Rheology, Salt Lake City, Utah, October 7-11, 2007.
61. "Nonlinear Viscoelasticity, Damage and Fatigue of Cross-Linked Rubber in Simple Extension" (with A.V. Gagov and A.Y. Melnikov), Tenth Pan American Congress of Applied Mechanics PACAM X, Cancun, Mexico, January 7-11, 2008.
62. "Experimental and Theoretical Studies of Withdrawal of Lubricant Containing Polymers" (with V.J. Levin and R.J. Stepan), TAE -Technische Esslingen 16th International Colloquium Tribology (Lubricants, Materials and Lubrication Engineering), Esslingen, Germany, January 15-17, 2008.
63. "Simulations of Shearing Rheology of Thermotropic Liquid Crystalline Polymers"(with H. Chen), XVth International Congress on Rheology in Monterey, California on August 3 - 8, 2008.
64. "Numerical Studies of Axial Instability in Contraction Flow" (with A.V. Gagov), XVth International Congress on Rheology in Monterey, California on August 3 - 8, 2008

Courses Taught

Moscow Technical University of Chemical Engineering, USSR:

Fundamental Principles of Rheology (1972)
 Linear Algebra and Tensor Analyses (1973)
 Fundamental Principles of Continuum Mechanics (1974)
 Viscous Fluid Mechanics (1975)
 Viscoelastic Phenomena (1976)
 Rheology of Thermosets and Elastomers with Cure Reactions (1977)
 Processing of Thermosets by Injection Molding (1978)

Kemerovo Institute of Technology, USSR

Theoretical Mechanics (1984-87)

The University of Akron:

4700-712 Rheo-Optics of Polymers, Fall 1988, 1990
 9841-631 Engineering Properties of Solid Polymers, Spring 1989, Spring 2000, Spring 2005-2008
 9841-727 Advanced Polymer Rheology, Fall 1989, 1991, Spring 1996, Spring 1999, Spring 2002
 9841-661 Polymeriz.Reactor Eng., Spring 1990, 1992, 1993,1994,1995,1997, 1998, 2003; Fall 1998,
 Spring 2009
 9841-641 Polymeric Materials Eng. Science, Fall 1992, 1993
 9841-622 Analysis and Design of Polymer Processing Operations-I, Fall 1994, Spring 2004
 9841-621 Rheology of Polymeric Fluids, Fall 1995, 1996, Fall 1999, Fall 2001
 9841-722 Advanced Modeling of Polymer Processing, Fall 1997, Fall 2002, Fall 2004
 9841-725 Chemorheology and Processing of Rubbers and Thermosetts, Fall 2000, Fall 2005
 9841-321 Polymer Fluid Mechanics, Summer 2003
 9841-728 Numerical Analysis of Polymer Processing, Fall 2003
 9841:797-301 Advanced Topics: Polymer Processing and Rheology, Summer 2004
 9841-650 Introduction to Polymer Engineering, Fluid Mechanics, Fall 2004-2008
 9841:723-001 Rheology and Processing of Elastomers, Fall 2008

M. S. Thesis Advised

1. Ashok Srinivasan, "Non-Linear Modeling of Melt Flow Instabilities," The University of Akron, 1992.
2. Lijuan He, "Viscoelastic Behavior of Narrow Molecular Weight Distributed Polybutadienes", The University of Akron, 1996
3. Yuri Viouchkov (together with Prof. J. Padovan), "Development and Design of the Apparatus for Study of Polymer Flow", The University of Akron, 1998.
4. Chunxia He, "Studies of Flows of Polyisobutylenes in Long Circular and Square Dies", The University of Akron, 1998.
5. Mumu Pande (together with Prof. J. Padovan), "Wear Rate Investigation and Wear Particle Characterization of Silica-Silane and Carbon Black Reinforced Rubber", The University of Akron, 1999.
6. Basker Lalgudi, "An Experimental Investigation of Rheology and Chemorheology of Styrene Butadiene Rubber (SBR) and Natural Rubber (NR)", The University of Akron, 2000.
7. Wenjin Zhang, "IGC Studies of Filler-Filler and Filler-Rubber Interactions", The University of Akron, 2000.
8. Arpita Mitra, "Rheological, Kinetic and Chemorheological Studies of GUM SBR Rubber", The University of Akron, 2000.
9. Swati Deshpande, "Rheological Modeling of Silica Filled SBR", The University of Akron, 2000.
10. Mehdi Jean Belatreche, "A Theoretical and Experimental Study of Liquid Crystalline Polymers", The University of Akron, 2002.
11. Ravishankar Ayyer, "Rheology of Polyamide-6/Montmorillonite Based Polymer/Layered Silicate Nanocomposites", The University of Akron, 2003.
12. Hongyan Chen, "Simulations of Shearing Rheology of Thermotropic Liquid Crystalline Polymers",

The University of Akron, 2008.

Ph.D. Dissertations Advised

1. V. V. Mezhuiev, "The Investigation of Plastication Device in a Screw-Plunger Injection Molding Machine for Rubber Compounds," Moscow Institute of Chemical Engineering, 1972.
2. A. N. Prokunin, "Theoretical and Experimental Study of Viscoelastic Effects in Polymeric Liquids in Shear and Extensional Flows," Moscow, Institute of Problems in Mechanics of USSR Academy of Sciences, 1973.
3. Ye. D. Paskhin, "The Effects of Flow of Elasto-viscous Liquids in Rotating Rheometers and Channels (Theory and Experiments)," Moscow, Institute of Problems in Mechanics of USSR Academy of Sciences, 1973.
4. A. I. Mironov, "The Study of Thermosetts Hardening in Injection Molding and Calculation of Closing Force for Molding Machine," Moscow Institute of Chemical Engineering, 1974.
5. A. I. Schwarz, "The Study of Injection Molding for Technical Rubber Goods on Screw-Plunger Machines Under Conditions Closed to the Pre-Vulcanization," Moscow Institute of Chemical Engineering, 1974.
6. V. A. Lyubartovich, "On the Injection Molding of the Hardening Thermosett K- 18-2 into Large Cavities," Moscow Institute of Chemical Engineering, 1974.
7. S. A. Lyubartovich, "On Intensification of Injection Molding and Extrusion by Vibrations and Methods of Calculation of Equipment," Moscow Institute of Chemical Engineering, 1975.
8. Yu. D. Borisenko, "Some Problems in the Theory of Internal Gravitational Waves in the Ocean," Moscow, Shirshov's Institute of Oceanography, the USSR Academy of Sciences, 1975.
9. A. G. Voronovich (together with L.M. Brekhovskikh), "On Propagation of Internal Waves," Moscow, Acoustic Institute, the USSR Academy of Sciences, 1975.
10. V. I. Shira (with V. I. Zakharov), "Interaction of Internal and Surface Waves in the Ocean," Moscow, Shirshov's Institute of Oceanography the USSR Academy of Sciences, 1981.
11. G. J. Osanaiye (with J.L. White), "On the Rheological Properties of Suspensions, Filled Thermoplastics and Rubber Compounds", The University of Akron, 1994.
12. M. V. Simhambhatla, "The Rheological Modeling of Simple Flows of Unfilled and Filled Polymers", The University of Akron, 1994.
13. Y. Kwon, "Studies of Viscoelastic Constitutive Equations and Some Flow Effects for Concentrated Polymeric Fluids", The University of Akron, 1994.
14. K.E.P. Adewale, "Modeling of Melt Flow Instabilities of High Molecular Weight Polymers with Narrow Molecular Weight Distribution", The University of Akron, 1995.
15. R. Ding, "Chemorheology of Filled Rubber Compounds", The University of Akron, 1997.
16. V. B. Birman, "Studies of High Deborah Number Flows of Polymers in Channels and Pipes", The University of Akron, 1998.
17. P. Joshi, "Viscoelastic Modeling of Filled, Crosslinked Rubbers", The University of Akron, 1998.
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