MIKHAIL A. ANISIMOV: CURRICULUM VITAE (November 2, 2024)

1. PERSONAL INFORMATION

Current position

Distinguished University Professor Emeritus and Research (since July 01, 2023)
Department of Chemical and Biomolecular Engineering and Institute for Physical Science & Technology, University of Maryland, College Park, MD, U.S.A.
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https://en.wikipedia.org/wiki/Mikhail_Anisimov

Educational background and degrees

Kurchatov Institute of Atomic Energy, U.S.S.R.	D.Sc. (Molecular and Thermal Physics)	1976
Moscow State University, U.S.S.R.	Ph.D. (Physical Chemistry)	1964-1968
Grozny Petroleum Institute, U.S.S.R.	Engineer Diploma, *Cum Laude* (Chemical Engineering)	1958-1964

Employment background

Distinguished University Professor (2016-2023)	University of Maryland, College Park, U.S.A.
Professor (2002-2016)	University of Maryland, College Park, U.S.A.
Distinguished Visiting Professor 2008-2009	Department of Chemical Engineering, Petroleum–Institute, Abu Dhabi, United Arab Emirates
Senior Research Scientist and Adjunct Professor 1997–2001	Institute for Physical Science & Technology of Chemical Engineering, University of Maryland, College Park
Associate Research Scientist Maryland, 1996–1997	Institute for Physical Science & Technology University of College Park, MD, U.S.A.
Visiting Scientist 1994-1995	Institute for Physical Science and Technology, University of Maryland, College Park, MD, U.S.A.
Department Head 1989-1993	Institute for Oil and Gas Research of the Russian Academy of Sciences, Moscow, U.S.S.R./Russia
Visiting Scholar 1987-1988	Center of Material Science and Engineering, Massachusetts Institute of Technology, Cambridge, MA, U.S.A.

Professor and Chair 1978-1989	Department of Physics, Moscow State Academy of Oil and Gas, U.S.S.R.
Head of Laboratory 1971-1977	Institute for Physical and Radio-Technical Measurements, U.S.S.R. National Bureau of Standards, Mendeleevo, U.S.S.R.
Research Associate 1969-1971	Institute for Physical-Technical and Radio-Technical Measurements U.S.S.R. National Bureau of Standards, Mendeleevo, U.S.S.R.

1. RESEARCH, SCHOLARLY AND CREATIVE ACTIVITIES

More than 300 cited publications in English and Russian (books, chapters in books, reviews, encyclopedia articles, journal and symposium articles), 10,522 Citations, h-index 54 (Google Scholar, 04/20/2023). Full list of publications is available upon request.

a. Books

i. Books authored

1. M. A. Anisimov and T. J. Longo, *Mesoscopic Thermodynamics for Scientists and Engineers*, Wiley & Son, New Jersey, 2024, 307 pages.
2. M. A. Anisimov, V. A. Rabinovich, and V. V. Sychev, "*Thermodynamics of the Critical State of Individual Substances*", English Edition: CRC Press, Boca Raton, 1995, 171 pages
3. M. A. Anisimov, "*Critical Phenomena in Liquids and Liquid Crystals*", Gordon & Breach Science Publishers, 1991, 431 pages. (Revised and updated English Edition). Cited together with the Russian Edition more than 1,000 times.
4. M. A. Anisimov, V. A. Rabinovich, and V. V. Sychev, *Термодинамика критического состояния индивидуальных веществ* (Thermodynamics of the Critical State of Individual Substances, Russian Edition), Энергоатомиздат, Москва, 1990.
5. M. A. Anisimov, *Критические явления в жидкостях и жидких кристалах* (Critical Phenomena in Liquids and Liquid Crystals, First Russian Edition), Наука, Москва, 1987.

ii. Chapters in books

1. M. A. Anisimov and J. V. Sengers, "Critical region", Chapter 11 in *"Equations of State for Fluids and Fluid Mixtures"*, J. V. Sengers, R. F. Kayser, C. J. Peters, and H. J. White, Jr., eds., pp. 381-434, Elsevier, Amsterdam, 2000.
2. M. A. Anisimov and J. V. Sengers, Chapter 4 in "Critical and crossover phenomena in fluids and fluid mixtures", in*"Supercritical Fluids – Fundamentals and Applications"*, E. Kiran, P. G. Debenedetti, and C. J. Peters, eds., 89121, Kluwer, Dordrecht, 2000.
3. M. A. Anisimov, J. V. Sengers, and J. M. H. Levelt Sengers, "Near-critical behavior of aqueous systems", as Chapter 2 in *"The Physical Properties of Aqueous Systems at Elevated Temperatures and pressures: Water, Steam and Hydrothermal Solutions"*, D. A. Palmer, R. Fernandez-Prini, and A. H. Harvey, eds., pp. 29-72, Academic Press, 2004.
4. M. A. Anisimov, "Thermodynamics at the Meso- and Nanoscale" in *Dekker Encyclopedia of Nanoscience and Nanotechnology*, J. A. Schwarz, C. Contescu, and K. Putyera, eds., pp. 3893-3904, Marcel Dekker, New York, 2004.
5. I. K. Yudin and M. A. Anisimov, "Dynamic Light Scattering Monitoring of Asphaltene Aggregation in Crude Oils and Hydrocarbon Solutions". Chapter 17 in *Asphaltene, Heavy Oils and Petroleomics*, edited by O. C. Mullins, E. Y. Sheu, A. Hammami, and A.G. Marshall, eds., pp 431-460, Springer, 2006.
6. M. A. Anisimov and J. Thoen**,** "Heat capacities in the critical region," Chapter 14 in *Heat Capacities of Liquids and Vapours,* E. Wilhelm and T. M. Trevor (Eds.), pp. 307-328, Royal Society of Chemistry, Cambridge, 2010.

7. H. Behnejad, J. V. Sengers, and M. A. Anisimov, “Thermodynamic Behavior of Fluids near Critical Points”, Chapter 10 in *Applied Thermodynamics of Fluids*, A. Goodwin, C. Peters, and J. V. Sengers (Eds.), pp. 321- 366, Royal Society of Chemistry, Cambridge, 2010.
8. M. A. Anisimov and C. E. Bertrand, “Thermodynamics of Fluids at Meso and Nano Scales” Chapter 7 in *Applied Thermodynamics of Fluids*, A. Goodwin, C. Peters, and J. V. Sengers (Eds.), pp. 172-214, Royal Society of Chemistry, Cambridge, 2010.
9. Mikhail A. Anisimov, Thomas J. Longo, and Jan V. Sengers, Critical Fluctuations in Polymer Solutions, Chapter 12, in Book *50 Years of Renormalization Group* Dedicated to thee Memory of Michael Fisher (World Scientific. 2024).

b. Articles in Refereed Journals (in English)

i. Review articles

1. M. A. Anisimov, "Investigation of the Critical Phenomena in Liquids", Sov. Phys. Uspekhi (Adv. in Physics), **17**, 722744 (1975).
2. M. A. Anisimov, E. E. Gorodetskii, and V. M. Zaprudskii, "Phase Transitions with Coupled Order Parameters", Sov. Phys. Uspekhi (Adv. in Physics), **24**, 57-75 (1981).
3. M. A. Anisimov and S. B. Kiselev, "Thermophysical Properties of Liquids and Liquid Solutions in the Critical Region", Sov. Tech. Rev. B - Therm. Phys., 1, 337-424, Gordon & Breach Science Publishers, 1987.
4. M. A. Anisimov, "Critical Phenomena in Liquid Crystals", Mol. Cryst. Liq. Cryst. **162A**, 1-96 (1988), Special Topics XXXI.
5. M. A. Anisimov and S. B. Kiselev, "Universal Crossover Approach to Description of Thermodynamic Properties of Fluids and Fluid Mixtures", Sov. Tech. Rev. B. - Thermal Phys., volume 3, part 2, 1-119, Gordon & Breach Science Publishers, 1992.
6. Claudio A. Cerdeiriña, Mikhail A. Anisimov, and Jan V. Sengers, "Comportamiento crítico en sistemas asimétricos: La anomalía Yang-Yang en las transiciones líquido-líquido" (Critical phenomena in asymmetric systems: Yang-Yang anomaly in liquid-liquid transition), in *“La investigación del Grupo Especializado de Termodinámica”,* José M. Ortiz de Zárate and Mohamed Khayet, eds., de las Reales Sociedades Españolas de Física y de Química. Año 2006, pp. 105-118.

ii. Refereed journal articles

1. M. A. Anisimov and M. I. Shakhparonov, "Light Scattering at the Critical Point for the Formation of Two Layers in a Binary Liquid System", Russ. J. Phys. Chem. **40**, 1254-1256 (1966).
2. M. A. Anisimov, G. G. Muttik, D. K. Beridze, and M. I. Shakhparonov, "Critical Opalescence in n-Pentyl Alcohol-Nitromethane Mixtures", Russ. J. Phys. Chem. **44**, 19-22 (1970).
3. M. A. Anisimov and D. K. Beridze, "Critical Opalescence in an n-Pentyl Alcohol-Nitromethane Mixture. II. Analysis and Discussion of the Results", Russ. J. Phys. Chem. **44**, 236-238 (1970).
5. M. A. Anisimov and D. K. Beridze, "Critical Opalescence in *n*-Pentyl Alcohol-Nitro-methane Mixtures. III. Degree of Depolarization", Russ. J. Phys. Chem. **44**, 344-346 (1970).
6. M. A. Anisimov, A. V. Voronel, and E. E. Gorodetskii, "Isomorphism of Critical Phenomena", JETP **33**, 605-612 (1971).
7. M. A. Anisimov, "Thermodynamic Properties of Binary Solutions along the Critical Liquid-Gas Equilibrium Line", Russ. J. Phys. Chem. **45**, 439-441 (1971).
8. 7. M. A. Anisimov "Thermodynamics of Critical Phenomena in Solutions. The Choice of Thermodynamic Variables", Russ. J. Phys. Chem. **45**,877-878 (1971).
9. M. A. Anisimov, A. V. Voronel, N. S. Zaugol'nikova, and G. I. Ovodov, "Specific Heat of Water

Near the Melting Point and Ornstein-Zernike Fluctuation Corrections", JETP Letters **15**, 317-319 (1972).

10. M. A. Anisimov, A. V. Voronel, and T. M. Ovodova, "Experimental Investigation of the Singularity of Specific Heat at the Critical Stratification Point of a Binary Mixture", JETP **34**, 583-587 (1972).
11. M. A. Anisimov, I. M. Aref'ev, A. V. Voronel, V.P. Voronov, Y. F. Kiyachenko, and I. L. Fabelinskii, "Propagation of Sound near the Binary-Mixture Stratification Critical Point", JETP **34**, 813-818 (1972).
12. M. A. Anisimov, A .V. Voronel, and T. M. Ovodova. "The Behavior of Thermodynamic Quantities Near the Critical Line of an "Incompressible" Liquid Mixture", JETP **35**, 536-539 (1972).
13. M. A. Anisimov, E. E. Gorodetskii, and Y. F. Kiyachenko, “Effect of Anomalies of the Kinetic Coefficients Near the Critical Points of Liquids on the Nature of High-Frequency Sound Propagation”, JETP, **35**,1014 (1972).M. A. Anisimov, E. E. Gorodetskii, and N. G. Shmakov "Experimental Verification of the Isomorphism Hypothesis of Critical Phenomena", JETP **36**, 1143-1150 (1973).
14. I. M. Aref'ev, I. L. Fabelinskii, M.A. Anisimov, Y. F. Kiyachenko, and V.P. Voronov, "Mandelstam- Brillouin Spectra in the Critical Mixture of Nitroethane-Isooctane", Optics Comm. **9**, 69-73 (1973).
15. M. A. Anisimov, V.P. Voronov, V. M. Malyshev, and V.V. Svadkovskii, "Experimental Verification of the Dynamic Scale Theory of the Critical Point", JETP Letters **18**, 133-137 (1973).
16. M. A. Anisimov, A. T. Berestov, L .S. Veksler, B.A. Kovalchuk, and V. A. Smirnov, "Scaling Theory and the Equation of State of Argon in a Wide Region Around the Critical Point", JETP **39**, 359-365 (1974).
17. M. A. Anisimov, A.M. Evtyushenkov, Y. F. Kiyachenko, and I. K. Yudin, "Investigation of the Correlation Function near the Critical Point of the Binary Mixtures", JETP Letters **20**, 170-171 (1974).
18. M. A. Anisimov, V. S. Esipov, V. M. Zaprudskii, N. S. Zaugol'nikova, G. I. Ovodov, T. M. Ovodova, and A. L. Seifer, "Anomaly in the Heat Capacity and Structural Phase Transformation of the Ordering Type in an Aqueous Solution of t-Butanol", JETP Letters **21**, 476-479 (1975).
19. M. A. Anisimov, S. R. Garber, V. S. Esipov, V. M. Mamnitskii, , G. I. Ovodov, L. A. Smolenko, and E. L. Sorkin, "Anomaly in the Heat Capacity and the Nature of the phase transition from an Isotropic liquid to a nematic Liquid crystal", JETP, **45**, 1042-1047 (1977).
20. M. A. Anisimov, V. S. Esipov, V. M. Zaprudskii, N. S. Zaugol'nikova, G. I. Ovodov, T. M. Ovodova, and A. L. Seifer, "Anomaly in the Heat Capacity and Structural Phase Transformation of the Ordering Type in an Aqueous Solution of t-Butanol", J. Struct. Chemistry **18**, 663-670 (1977).
21. M. A. Anisimov, A. T. Berestov, V .P. Voronov, Y. F. Kiyachenko, B. A. Kovalchuk, V. M. Malyshev, and V. A. Smirnov, "Critical Exponents of Liquids", JETP **49**, 844-848 (1979).
22. M. A. Anisimov and V. M. Zaprudskii "Effect of the Metal-Insulator Transition on the Critical State of Conducting Liquids", Sov. Phys. Dokl. **24**, 187-188 (1979).
23. M. A. Anisimov, V. M. Mamnitskii, and E. L. Sorkin, "Tricritical Behavior of Nematic Crystals near the Transition to an Isotropic Liquid", JETP Letters **30**, 491-494 (1979).
24. M. A. Anisimov, Yu. F. Kiyachenko, G. L. Nikolaenko, and I. K. Yudin, "Measurement of the Viscosity of Liquids and the Dimensions of Suspended Particles by the Method of Correlation Optical-Mixing Spectroscopy", J. Eng. Phys. (U.S.S.R.) **38**, 387-390 (1980).
25. M. A. Anisimov, V. M. Zaprudskii, G. A. Milner, and E. L. Ponomarenko, "Orientational Phase Transitions in Ammonium Bromide at High Pressure", JETP **53**, 397-404 (1981).
26. M. A. Anisimov and R. U. Tankaev, "Melting of Ice Near a Hydrophilic Surface", JETP **54**, 110-114 (1981).

27. M. A. Anisimov, V. M. Mamnitskii, and E. L. Sorkin, "Anomalies of the Specific Heat in the Vicinity of the Phase Transition from Isotropic Liquid to Nematic Liquid Crystal", J. Eng. Phys. (U.S.S.R.) **39**, 1385- 1390 (1981).
28. M. A. Anisimov and G. I. Ovodov, "Mechanism of the Structural Phase Transformations in Aqueous Solutions of Electrolytes. Heat Capacity of the Tetrahydrofuran-Water", J. Structural Chem. **22**, 297-298 (1981).
29. M. A. Anisimov, A. T. Berestov, and S. B. Kiselev, "Isomorphous Equation of State in a Broad Vicinity of the Critical Point of a Binary Mixture", JETP **55**, 667-673 (1982).
30. M. A. Anisimov, "Nature of Nematic - Smectic A Phase Transition in Liquid Crystals", JETP Letters **37**, 11- 14 (1983).
31. M. A. Anisimov, E. E. Gorodetskii, A. M. Evtyushenkov, and Yu. F. Kiyachenko, "Experimental verification of Einstein Formula for the coefficient of molecular light scattering", Optics and Spectroscopy (Russia) **54**, 505-508 (1983).
32. M. A. Anisimov, E. E. Gorodetskii, and V. E. Podnek, "Effect of Smectic Fluctuations on Pre-transitional Phenomena in the Isotropic Phase of a Nematic Liquid Crystal", JETP Letters **37**, 414-418 (1983).M. A. Anisimov, V.P. Voronov, Yu. F. Kiyachenko, and V. M. Merkulov "The Homogeneous Behavior of Absorption and Dispersion of Ultrasound in the Isotropic Phase of a Nematic Liquid Crystal", Mol. Cryst. Liq. Cryst. **104**, 273-279 (1984).
33. M. A. Anisimov, V.P. Voronov, A. S. Goldenstein, E. E. Gorodetskii, Y. F. Kiyachenko, and V.M. Merkulov, "Universality of Critical Dynamics in Nematic Liquid Crystals", JETP **60**, 1134-1142 (1984).
34. M. A. Anisimov, S. B. Kiselev, and I. G. Kostyukova "A Scaled Equation of State for Real Fluids in the Critical Region", Int. J. Thermophys. **6**, 465-481 (1985).
35. M. A. Anisimov, V. P. Voronov, A. O. Kulkov, and F. Kholmurodov, "Adiabatic Calorimetry Measurements in the Vicinity of the Nematic Smectic A -Smectic C Multicritical Point", J. de Physique **46**, 2137-2143 (1985).
36. M. A. Anisimov, V. I. Labko, G. L. Nikolaenko, and I. K. Yudin "Influence of Smectic Ordering on the Pretransitional Light-Scattering Behavior in the Isotropic Phase of Liquid Crystals", Mol. Cryst. Liq. Cryst. Lett. **2**, 77-83 (1985).
37. M. A. Anisimov, V. P. Voronov, A. O. Kulkov, and F. Kholmurodov, JETP Letters **41**, 302-306 (1985).
39. M. A. Gusev, Y. B. Americ, and M. A. Anisimov, "Nucleation and growth of mesophase in thermolysis of petroleum pitches", Chemistry &Technology of Fuels & Oils, **21**, 262-267 (1985)
40. M. A. Anisimov, V.P. Voronov, E. E. Gorodetskii, V. E. Podnek, and F. Kholmurodov, "Observation of the Halperin - Lubensky – Ma Effect in a Liquid Crystal", JETP Letters **45**, 425-429 (1987).
41. M. A. Anisimov, V. P. Voronov, A.O. Kulkov, V. N. Petukhov, and F. Kholmurodov, "High Resolution Adiabatic Calorimetry Measurements in the Vicinity of the Liquid Crystal Phase Transition", Mol. Cryst. Liq. Cryst. **150 B**, 399-418 (1987).
42. M. A. Anisimov, N. F. Kazakova, A. S. Kurlyandskii, and S. A. Pikin, "Thermodynamic Description of Phase Transition of Micelle Formation", Sov. Phys. Crystallography **32**, 645-649 (1987).
43. M. A. Anisimov "Universality of the Critical Dynamics and the Nature of the Nematic-Isotropic Phase Transition", Mol. Cryst. Liq. Cryst. **146**, 435-461 (1987).
44. M. A. Anisimov, S. A. Konev, V. I. Labko, G. L. Nikolaenko, G. I. Oliferenko, and I. K. Yudin, "Light-Scattering Study of Thermotropic Liquid Crystals and Micellar Solutions", Mol. Cryst. Liq. Cryst. **146**, 421- 434 (1987).
45. M. A. Anisimov, V. I. Labko, G. L. Nikolaenko, and I. K. Yudin, "Renormalization of the Susceptibility in the Isotropic Phase of a Liquid Crystal Due to an Interaction of the Orientational and Translational Order Parameters", JETP Letters **45**, 111-114 (1987).
46. M. A. Anisimov, K. I. Kugel, and T. Y. Lisovskaya, "Thermodynamics of the Phase Transition in Liquid Sulfur and Sulfur Solutions", Teplofiz. Vys. Temp. (High Temperature) **25,** 165-173 (1987).

47. M. A. Anisimov, S. B. Kiselev, and I. G. Kostyukova, "Scaled Equation of State and Thermodynamic Properties of Steam in the Critical Region", Teplofiz. Vys. Temp. (High Temperature) **25**, 27-34 (1987).
48. M. A. Anisimov, S. B. Kiselev, and S. Khalidov, "Scaled Equation for Isochoric Heat Capacity of Methane- Ethane Mixture in Critical Region", Int. J. Thermophys. **9**, 453-464 (1988).
49. M .A. Anisimov and V.P. Voronov, "Alternative Universality for a NAC Multicritical Point Topology", Liq. Cryst. **3**, 403-407 (1988).
50. M. A. Anisimov, R.R. Bashirov, and Z. R. Gadzhieva, "Thermodynamics of Phase Equilibria of Nonmesogenic Substances in Nematic Liquid Crystals", Sov. Phys. Crystallography. **33**, 290-292 (1988).
51. M. A. Anisimov, A. S. Kurlandsky, and N. F. Kazakova "Micellization as a Phase Transition", Mol. Cryst. Liq. Cryst. **159**, 87-97 (1988).
52. M. A. Anisimov, S. B. Kiselev, and I. G. Kostyukova, "Asymmetric Scaled Equation of State and Critical Behavior of Binary Mixtures", J. of Heat Transfer **110**, 986-990 (1988).
53. M. A. Anisimov, P. E. Cladis, E. E. Gorodetskii, David A. Huse, V. E. Podneks, V. G. Taratuta, Wim van Saarloos, and V.P. Voronov, "Experimental Test of a Fluctuation Induced Fist Order Phase Transition: The Nematic - Smectic A Transition", Phys. Rev. A **41**, 6749-6762 (1990).
54. M. A. Anisimov, E. E. Gorodetsky, A. J. Davydov, and A. S. Kurliandsky, "Interfacial Tension of Critical Liquid Mixtures in the Presence of a Surfactant", Int. J. Thermophys. **13**, 921-928 (1992).
55. M. A. Anisimov and S. B. Kiselev, "Transport Properties of Critical Dilute Solutions", Int. J. Thermophys. **13**, 873-893 (1992).
56. M. A. Anisimov, E. E. Gorodetsky, A. J. Davydov, and A. S. Kurliandsky, "Landau Model for Self-assembly and Liquid Crystal Formation in Surfactant Solutions", Liq. Cryst. **11**, 941-947 (1992).
57. M. A. Anisimov, S. B. Kiselev, J. V. Sengers, and S. Tang, "Crossover Approach to Global Critical Phenomena in Fluids", Physica A **188**, 487-525 (1992). Cited by 235 (Google Scholar, November 2013).
58. M. A. Anisimov, E. E. Gorodetsky, A. J. Davydov, and A. S. Kurliandsky, "A Novel Mesoscopic Model for Micellization and Formation of Liquid Crystalline Phases in Surfactant Solutions", Mol. Cryst. Liq. Cryst. **221**, 71-83 (1992).
59. M. A. Anisimov and J. V. Sengers, "On the Choice of a Hidden Field Variable near the Critical Point of Fluid Mixtures", Physics Letters A **172**, 114-118 (1992).
60. V. Kutcherov, G. Backstrom, M. Anisimov, and A. Chernoutsan, "Glass Transition in Crude Oil Under Pressure Detected by the Transient Hot-Wire Method", Int. J. Thermophys. **14**, 91-100 (1993).
61. A. A. Povodyrev, S. B. Kiselev, and M. A. Anisimov "Thermodynamic Behavior of Mixtures of Methane and Ethane in the Critical Region", Int. J. Thermophys. **14**, 1187-1200 (1993).
62. V. Kutcherov, A. Lundin, R. G. Ross, M. Anisimov, and A. Chernoutsan, "Glass Transitions in Viscous Crude Oils Under Pressure", Int. J. Thermophys. **15**, 165-176 (1994).
63. M. A. Anisimov, E. E. Gorodetskii, V. D. Kulikov, and J. V. Sengers, "A Joint Description of Vapor-Liquid and Consolute Critical Phenomena", JETP Letters **60**, 535-540 (1994).
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65. M. A. Anisimov, I. K. Yudin, V. Nikitin, G. Nikolaenko, A. Chernoutsan, H. Toulhoat, D. Frot, and Y. Briolant, "Asphaltene aggregation in hydrocarbon solutions studied by photon correlation spectroscopy" J. Phys. Chem. **99**, 9576-9580 (1995).
66. M. A. Anisimov, E. E. Gorodetskii, V. D. Kulikov, A. A. Povodyrev (postdoc), and J. V. Sengers, "A General Isomorphism Approach to Thermodynamic and Transport Properties of Binary Fluid Mixtures Near Critical Points", Physica A **220**, 277-324 (1995).

67. M. A. Anisimov, A. A. Povodyrev, V. D. Kulikov, and J. V. Sengers,"Nature of Crossover Between Ising-like and Mean-field Critical Behavior in Fluids and Fluid Mixtures", Phys. Rev. Lett. **75**, 3146-3149 (1995).
68. M. A. Anisimov, A. S. Kurliandskii, and E. S. Pikina, "Interfacial Tension in Oil-Water-Surfactant Systems", Molecular Materials **5**, 195-214 (1995).
69. M. A. Anisimov, A. A. Povodyrev (postdoc), V. D. Kulikov, and J. V. Sengers, Reply to Comment on "Nature of Crossover Between Ising-like and Mean-field Critical Behavior in Fluids and Fluid Mixtures", Phys. Rev. Lett. **76**, 4095 (1996).
70. Hongyuang Cheng (postdoc), Mikhail A. Anisimov, and Jan V. Sengers, "Prediction of Thermodynamic and Transport Properties in the one-phase region of methane-hexane mixtures near their critical end points", Fluid Phase Equilibria **128**, 67-96 (1997).
71. E. E Gorodetskii, V. D. Kulikov, L. V. Fedunina, and M. A. Anisimov, "Isomorphic description of the two- phase region of near-critical binary mixtures", JETP **84**, 66-69 (1997).
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73. A. A. Povodyrev (postdoc), M. A. Anisimov, J. V. Sengers, J. M. H. Levelt Sengers, "Vapor-liquid equilibria, scaling, and crossover in aqueous solutions of sodium chloride near the critical line", Physica A **244**, 298- 328 (1997).Y. B. Melnichenko, M. A. Anisimov, A. A. Povodyrev (postdoc), G. D. Wignall, J. V. Sengers, and W. A. Van Hook "Sharp crossover of the susceptibility in polymer solutions near the critical demixing point", Phys. Rev. Lett. **79**, 5266-5269 (1997).
74. M. A. Anisimov, V. A. Agayan (graduate student), and P. J. Collings, "The nature of the Blue Phase III -- Isotropic critical point: an analogy with the liquid-gas transition", Phys. Rev. E **57**, 582-595 (1998).
75. M. A. Anisimov, V. A. Agayan (graduate student), A. A. Povodyrev, J. V. Sengers, and E. E. Gorodetskii, "Two-exponential decay of dynamic light scattering in near-critical fluid mixtures", Phys. Rev. E, **57**, 1946- 1961 (1998).
76. I. K. Yudin (postdoc), G. L. Nikolaenko, E. E. Gorodetskii, E. L. Markhashov, V. A. Agayan (graduate student), M.A. Anisimov, and J.V. Sengers, "Crossover kinetics of asphaltene aggregation in hydrocarbon solutions", Physica A, **251**, 235-244 (1998).
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185. Thomas J. Longo, Sergey V. Buldyrev, , and Frederic Caupin, and Mikhail A. Anisimov, "Monte Carlo Simulations of the Blinking-Checkers Model for Polyamorphic Fluids", *Molecular Physics*. **e2371555** (2024). RULL-ABASCAL SPECIAL ISSUE FOR STATISTICAL PHYSICS IN SPAIN.

c. Selected Refereed Conference Proceedings

1. M. A. Anisimov, V. M. Mamnitskii, and E. L. Sorkin, "Tricritical Behavior of Heat Capacity near Nematic-Isotropic Phase Transition" (invited paper), in "Liquid Crystals": Proc. of Int. Conf. In Bangalore, 1979 (Heyden, 1980), pp. 347-354.
2. M. A. Anisimov, S. B. Kiselev, and I. G. Kostyukova, "The Scaled Equation for Thermal Conductivity of Steam in a Broad Vicinity of the Critical Point", in *Proceedings 10th Intern. Conf. on the Properties of Steam*, MIR Publ., Moscow, Vol. **1**, 435-442 (1986).
3. M. A. Anisimov, S. B. Kiselev, I. G. Kostyukova, and L. V. Fedyunina, "Crossover Equation of State for Critical Steam Including Metastable Region", in *"Properties of Water and Steam"*, Proc. of the 11th Int. Conf., 1989, Prague. Hemisphere Publ. Corp., pp. 175-181.
4. M. A. Anisimov, M. M. Bochkov, S. B. Kiselev, and A. A. Povodyrev "Critical Behavior of the Isochoric Heat Capacity of Aqueous Dilute Solutions", in *"Properties of Water and Steam"*, Proc. of the 11th Int. Conf., 1989, Prague. Hemisphere Publ. Corp., pp. 189-195.
5. E. V. Zhuravleva, M. A. Anisimov, T. F. Svitova, and V. Yu. Lobanova, "New Kind of Water/Oil Interface Instability and the Nature of Ultra-low Interfacial Tension" (invited paper), in *"Physical Chemistry of Colloids and Interfaces in Oil Production"*, Proc. of the 6th IFP Exploration and Production Research Conference, 1991, Saint-Raphael. Editions Technip, Paris, 133-139 (1992).
6. M. A. Anisimov, E. Gorodetsky, A. Davydov, and A. Kurliandsky, "A Phase Transition Model for Micellization and Microemulgation in Surfactant Solution", in *"Physical Chemistry of Colloids and Interfaces in Oil Production"*, Proc. of the 6th IFP Exploration and Production Research Conference, 1991, Saint-Raphael. Editions Technip, Paris, 263-264 (1992).
7. M. A. Anisimov and J. V. Sengers, "Crossover critical phenomena in aqueous solutions" in "*Steam, Water, and Hydrothermal Systems*" (invited paper) (Proceedings of the 13th International

Conference on the Properties of Water and Steam), P. R. Tremaine, P. G. Hill, D. E. Irish, and P. V. Balakrishnan, eds., Research Press, National Research Council, Ottawa, 2000, pp. 328-338.

8. M. A. Anisimov, A. A. Povodyrev, J. P. Roseli, J. V. Sengers, S. B. Kiselev, and D. G. Friend, "Critical amplitudes of H2O and D2O in the near vicinity of the critical point" in "*Steam, Water, and Hydrothermal Systems*" (Proceedings of the 13th International Conference on the Properties of Water and Steam), P. R.
9. Tremaine, P. G. Hill, D. E. Irish, and P. V. Balakrishnan, eds., Research Press, National Research Council, Ottawa, 2000, pp. 339-346.
10. A. Kostrowicka Wyczalkowska, Kh. S. Abdulkadirova, M. A. Anisimov, and J. V. Sengers, "A crossover equation for the thermodynamic properties of light and heavy steam in the critical region" *in* "*Steam, Water, and Hydrothermal Systems*" (Proceedings of the 13th International Conference on the Properties of Water and Steam), P. R. Tremaine, P. G. Hill, D. E. Irish, and P. V. Balakrishnan, eds., Research Press, National Research Council, Ottawa, 2000, pp. 365-373.
11. Kh. S. Abdulkadirova, M. A. Anisimov, J. V. Sengers, and J M. H. Levelt Sengers, "A crossover equation for the thermodynamic properties of mixtures of light and heavy steam in the critical region" in "*Steam, Water, and Hydrothermal Systems*" (Proceedings of the 13th International Conference on the Properties of Water and Steam), P. R. Tremaine, P. G. Hill, D. E. Irish, and P. V. Balakrishnan, eds., Research Press, National Research Council, Ottawa, 2000, pp. 383-390.
12. I. K. Yudin, G. L. Nikolaenko, E. E. Gorodetskii, E. L. Markhashov, V. A. Agayan, and M.A. Anisimov, "Crossover from reaction-limited aggregation to diffusion limited aggregation of asphaltenes in hydrocarbon solutions", in *Porous Media: Physics, models, simulation*, A. Dmitrievsky and M. Panfilov, eds., World Scientific, Singapore-New Jersey-London-Hong Kong, 2000, pp. 75-84.
13. M. A. Anisimov, "Beyond fluid-fluid separation: order-disorder transitions in isotropic liquids" in "*New Kinds of Phase Transition Phenomena*", V. Brazhkin. S. V. Buldyrev, V. Ryzhov, and H. E. Stanley, eds., NATO Advanced Research Workshop (Volga River, 2001), Kluwer, Dordrecht, 2002, pp. 49-57.
14. M. A. Anisimov "Coupled ordering in soft matter: competition of mesoscales and dynamics of coupled fluctuations" Proceedings of NATO Advance Research Workshop "Soft matter under exogenic impacts" (Odessa, October 2005), Springer, 2006.
15. M. A. Anisimov and H. St. Pierre, Divergence of Tolman's Length in Polymer Solutions, in *Proceedings of the 11th European Meeting on Supercritical Fluids,* International Society for the Advancement of Supercritical Fluids, Barcelona, 2008, pp.101-106.
16. I. K.Yudin and M. A. Anisimov, "Dynamic Light scattering monitoring of asphaltene aggregation". Publication online by ACS, Division of Fossil Fuels, Washington, DC, 2009.
17. M. A. Anisimov, "Supercritical, supercooled: water at low temperatures", Online Proceedings of the 13th European Meeting on Supercritical Fluids (October 2011), Hague, The Netherlands.
18. Mikhail A. Anisimov and Jan V. Sengers, "Thermophysical Properties of Fluids Obtained from Equilibrium and Nonequilibrium Fluctuations", News on Gas Science, № 4 (49) 2021, 12 pp. Proceedings of the Online Technical Conference, Moscow, September 2021

d. Patents, Technical Reports, Digests, International Guidelines, Personalia

1. A. A. Povodyrev, M. A. Anisimov, and J. V. Sengers, "Critical Phenomena in Aqueous Solutions of Sodium Chloride: Description of vapor-liquid equilibria and isochoric specific heat capacity", Technical report to IAPWS (Institute for Physical Science and Technology, University of Maryland at College Park, 1996), 32 pp.
2. A. A. Povodyrev, M. A. Anisimov, J. V. Sengers, J. M. H. Levelt Sengers, "Evaluation of the Critical Locus of Aqueous Solutions of Sodium Chloride", Technical report to IAPWS (Institute for Physical Science and Technology, University of Maryland at College Park, September 1997), 27 pages.
3. W. V. Meyer, A. E. Smart, R. G. W. Brown, and M. A. Anisimov, "Photon correlation and

scattering: introduction to the feature issue", Appl. Optics. **36**, 7477-7479 (1997).

4. A. A. Povodyrev, M. A. Anisimov, J. V. Sengers, W. L. Marshall, and J. M. H. Levelt Sengers, "Critical Locus of Aqueous Solutions of Sodium Chloride", Technical report to IAPWS (Institute for Physical Science and Technology, University of Maryland at College Park, August 1998), 26 pages.
5. A. Kostrowicka Wyczalkowska, Kh. Abdulkadirova, M. A. Anisimov, and J. V. Sengers, "Thermodynamic Properties of H2O and D2O in the Critical Region: A Scaled Crossover Equation", Technical report to IAPWS (Institute for Physical Science and Technology, University of Maryland at College Park, August 1998), 66 pages.
6. A. A. Povodyrev, M. A. Anisimov, J. V. Sengers, W. L. Marshall, and J. M. H. Levelt Sengers, "Guideline on the Critical Locus of Aqueous Solutions of Sodium Chloride", International Association for the Properties of Water and Steam (IAPWS), Prague, 2000, 6 pages.
7. J. Jacob, V. A. Agayan, M. A. Anisimov, R. W. Gammon, J. V. Sengers, and I. K. Yudin, "Light scattering and crossover critical phenomena in polymer solutions", in "*Photon Correlation and Scattering*", OSA Technical Digest (Optical Society of America, Washington, D.C., 2000), pp. 36-38.
8. I. K. Yudin, V. A. Dechabo, E. E. Gorodetskii, V. L. Kosov, Y. G. Burya, and M.A. Anisimov, "Crossover from reaction-limited aggregation phenomena in petroleum colloids studied by dynamic light scattering", in "*Photon Correlation and Scattering*", OSA Technical Digest (Optical Society of America, Washington, D.C., 2000), pp. 30-32.
9. M. A. Anisimov, "On the frontiers of science", in *Collection on Memory of Yu. I. Shimanskii* (KM Academia, Kiev, 2002), pp. 80-81.
10. V. Holten, C. E. Bertrand, M. A. Anisimov, and J.V. Sengers, "Thermodynamic modeling of supercooled water" Technical Report, *International Association for the Properties of Water and Steam*, Pilsen, Czech Republic, September 2011, 43 pages.
11. D. Fuentevilla, J. V. Sengers, and M. A. Anisimov, Revised Guideline on the Critical Locus of Aqueous Solutions of Sodium Chloride", *International Association for the Properties of Water and Steam*, International Guideline, October 2012, 6 pages; http://www.iapws.org.
12. M. A. Anisimov and J. V. Sengers, "In Memoriam: Evgenii E. Gorodetskii (1941-2015) and Sergei B. Kiselev (1951-2015)", Int. J. Thermophys., **37**, 40 (2016).
13. D. Subramanian and M. A. Anisimov, Subramanian, D.; Anisimov, M. A., *Highly stable colloid from aqueous solutions of small organic molecules*, 2013. US Patent No.US 11,406,595 B2 (August 9, 2022).
14. Mikhail A. Anisimov, Pablo G. Debenedetti, Sandra C. Greerc, and Michael R. Moldover "Anneke Levelt Sengers: An international authority in the thermodynamics of fluids and a passionate advocate for women in science" *PNAS* (Retrospective) Vol. 121 No. 35 **e2414585121** (2024).

e. Other Publications

Selected publications in Russian:

1. M. A. Anisimov "*Исследования критической опалесценции в растворах*" (Studies of critical opalescence in solutions), in *Modern Problems of Physical Chemistry*, Volume 5, pp. 358-371 (Moscow State University, Moscow, 1970).
2. M. A. Anisimov "*Исследования критических явлений в жидкостях"* (Studies of critical phenomena in liquids), Успехи физических наук (Advances in Physical Sciences), **114**, 249-294 (1974).
3. M. A. Anisimov "*Критическое состояние"*, in *Chemistry Encyclopedia* (Soviet Encyclopedia Publ., Moscow, 1983, p. 288).
4. "M. A. Anisimov "*Фазовые переходы"* (Phase Transitions), in *Chemistry Encyclopedia*

(Soviet Encyclopedia Publ., Moscow, 1983 pp. 608-609).

5. M. A. Anisimov *et al.* "*Новая модель образования свехмолекулярных структур в растворах ПАВ"* (A novel model for formation of supramolecular structures in surfactant solutions), in *Advances in Colloid Chemistry* (Chemistry, Leningrad. 1991, pp. 15-30).

f. Invited talks

i. Plenary, Keynote, or Invited Conference Lecturer (since 2000)

1. International Congress on "Scattering Studies of Mesoscopic Scale Structure and Dynamics in Soft Matter", Messina, Italy, November 2000.
2. 14th Symposium on Thermophysical Properties, Boulder, Colorado, 2000.
3. NATO Advanced Research Workshop "New kinds of phase transitions: transformations in disordered substances'', Moscow, Russia, May 2001.
4. Scaling Concepts and Complex Systems, Merida, Mexico, July 2001.
5. 76th International Bunsen Discussion Meeting "Global Phase Diagrams", Walberberg, Germany, August 2001.
6. NATO Advanced Research Workshop "Nonlinear Dielectric Phenomena in Complex Liquids, UstronJaszowiec, Poland, May 2003.
7. 15th Symposium on Thermophysical Properties, Boulder, Colorado, June 2003 (keynote speaker).
8. International Workshop on Dynamics in Complex Fluids, Princeton, August 2003.
9. International Conference on Applied Statistical Physics, Puerto Vallarta, Mexico, August 2003.
10. International Conference on the Properties of Water and Steam, Kyoto, Japan, August 2004.
11. 3rd International Conference "Physics of liquid matter: Modern Problems", Kiev, Ukraine May 2005 (keynote speaker).
12. Gordon Research Conference on Liquid Crystals, New Hampshire, June 2005 (invited speaker).
13. NATO Advanced Research Workshop "Soft Matter under Exogenic Impacts, Odessa, Ukraine, October 2005.
14. 7th Ibero-American Workshop on Complex Fluids and their Applications, Playa del Carmen, Mexico, October 2005.
15. Landau Days-2006, Chernogolovka, Russia, June 2006.
16. 16th Symposium on Thermophysical Properties, Boulder, Colorado, July 2006.
17. International Conference on Chemical Thermodynamics, Suzdal, Russia, July 2007 (keynote speaker). 18. 15th International Conference on the Properties of Water and Steam, Berlin, Germany September, 2008.
19. AIChE 2006 Annual Meeting, San Francisco and AIChE 2008 Annual Meeting, Philadelphia.
20. International Conference on Supercritical Fluids, Suzdal, Russia, September 2009 (keynote speaker).
21. 5th International Conference "Physics of liquid matter: Modern Problems", Kiev, Ukraine, May 2010 (keynote speaker).
22. European Conference on Applied Thermodynamics, St. Petersburg, Russia, June 2011.
23. International Summer School on Supercritical Fluids, Baikal, Russia, July 2011 (plenary speaker).
24. European Conference on Supercritical Fluids, The Hague, The Netherlands, October 2011 (plenary speaker).
25. IV Russia's Conference "Modern Problems of Petroleum Chemistry, Zvenigorod, Russia, September 2012 (plenary speaker).
26. 108th Statistical Mechanics Conference, December 2012, Rutgers University, NJ (invited speaker).
27. APS Annual Meeting, March 2013, Baltimore (invited speaker).
28. XIX International Conference on Chemical Thermodynamics, June 2013, Moscow, Russia (plenary speaker).

29. CECAM workshop “New insights on simulations, theory, and experiments in supercooled water, July 2013, Lausanne, Switzerland (invited speaker).
30. International Conference on Water Sciences, Beijing, China, April 2014 (plenary speaker).
31. International Conference "Physics of Liquid Matter: Modern Problems”, Kiev, Ukraine May 2014 (plenary speaker).
32. Summer School for Metastability and Supercooled Water, June 2015, Les Houches, France (invited lecturer).
33. Nordita International Conference, “Water - is the most anomalous liquid” October 2014, Stockholm, Sweden (plenary speaker).
34. International Conference "Physics of liquid matter: Modern Problems”, Kiev, Ukraine (May, 2014) (plenary speaker).
35. The 18th Symposium on Thermophysical Properties, Boulder, Colorado (June 2015, invited speaker and session organiser).
36. Phase Transitions in Fluids and Plasma, College Park, (April 2016, invited speaker and conference organizer).
37. Workshop “Water under extreme conditions”, Nice, France (July 2016, invited speaker).
38. AIChE 2016 Annual Meeting, San Francisco (invited speaker).
39. International conference on physics of water, Zaragoza, Spain, July 2017 (invited speaker).
40. ACS Annual Meeting, August 2017, Washington, D.C. (invited speaker).
41. Workshop “Water under extreme conditions”, Magdalena, Italy, (June 2018, invited speaker).
42. International Conference on Colloids and Interfaces, September 2018, St. Petersburg, Russia, (plenary speaker).
43. International Conference on Chemical Thermodynamics,June 2019, St. Petersburg, Russia, (plenary speaker).
44. Gordon Research Conference on Liquids, New Hampshire, August 2019 (invited speaker).
45. Asian Conference on Thermophysical Properties Conference (ATPC) in Xi’an, October 2019, China (plenary speaker).
46. Workshop on Heterogeneous Systems (invited Lecturer), Warsaw, Poland, June 2022.

Invited Seminar Speaker (since 2000)

Harvard University, MIT, Bell Labs; München Technical University (Germany); Russian Academy of Sciences (Moscow, Russia); University of Erlangen-Nürnberg (Germany); University of Salzburg (Austria); NIST, NIH, University of Delaware, Exxon Research Lab, Oak Ridge National Lab, Caltech-JPL, John Hopkins University, University of Madrid, Spain; Technical University of Delft (The Netherlands); University of Waterloo (Canada); University of New York at Stony Brook, University of New York at Binghamton, Cornell University, College of Wooster, University of Essen (Germany); Ruhr University (Germany); Jülich Nuclear Research Center (Germany); University of Colorado at Boulder, Perdue University, Rice University, Los Alamos National Lab, Princeton University, University of Edinburgh (UK); Cambridge University (UK); University of Loughborough (UK); University of Bremen (Germany); Max-Plank Institute (Mainz, Germany); ESRF (Grenoble, France); University of Tokyo (Japan); Gunma University (Japan); University of Kyoto (Japan); University of California at Santa Barbara, University of Virginia, Charlottesville; University of Rome "Tor Vergata" (Italy); International Centre of Theoretical Physics (Trieste, Italy); University of Ljubljana (Slovenia); University of California at Los Angeles; Yale University; Boston University; Sankt-Petersburg State University (Russia), University of Buenos Aires (Argentina); Petroleum Institute, Abu Dhabi, (UAE); Czech Academy of Sciences (Prague, Czech Republic), Moscow State University (Russia); Nehru Center for Advanced Scientific Research (Bangalore, India), Peking University (China), South East China, University of Science and Technology (Shanghai,

China). Landau Institute (Chernogolovka, Russia); Arizona State University; University of Utah; Boston University; Princeton University, University of Madrid, University of Barcelona, University of Houston.

g. Contracts and Grants

- NSF (08/01/2019-08/01/2023) Lead PI: Collaborative Research: Fluid Polyamorphism: Theory, Experiment and Simulation ($308,510).
- ACS, Petroleum Research Fund (09/01/2018-08/31/2020) PI: "Thermodynamics of Fluids with Interconversion of Molecular States," ($110,000).
- IAPWS (09/01/2016-06/30/2017) PI: Young Scientist IAPWS Fellowship Project "Towards an IAPWS Guideline for the Thermodynamic Properties of Supercooled Heavy Water" ($20,00).
- NSF (10/01/2012-03/31/2013) PI: "I-Corps: Making a Stable Colloid from Small Molecules," ($50,000.)
- ACS, Petroleum Research Fund (09/01/2012-08/31/2014) PI: "Cold Water: A Novel Supercritical-Fluid Solvent," ($100,000.)
- NSF (09/01/2010-08/31/2013) PI: Mesoscale Structures and Long-Living Inhomogeneities in Aqueous Solutions ($420,000).
- IAPWS (01/01/2012-03/31/2013) PI: Young Scientist IAPWS Fellowship Project "Towards an IAPWS Guideline for the Thermodynamic Properties of Supercooled Water" ($19,200).
- IAPWS (01/01/2010-06/30/2010) PI: Young Scientist IAPWS Fellowship Project "Thermodynamics of Supercooled Water" ($18,000).
- ACS, Petroleum Research Fund (09/01/2008-08/31/2010) PI: Thermodynamics of Curved Interfaces ($100,000). NASA (04/01/2003-03/31/2008) PI: Experimental Investigation of Impurity Effects on Two-Phase Isochoric Heat Capacity near the 3He critical point ($380,000).
- NIST (04/01/2001-09/23/2003) PI: Acoustic Study of Near-Critical Fluids ($167,000).
- DOE (12/15/2000 -31/03/2004) Co-PI: Crossover Critical Phenomena in Molecular and Complex Fluids ($ 432,000). NSF (8/1/1998-7/31/2001), Co-PI: Experimental Study of Criticality and Crossover phenomena in Complex Fluids ($413,000).
- DOE (12/15/1997-12/14/2000), Co-PI: Thermophysical Properties of Fluids and Fluid Mixtures ($420,000). IAPWS (10/1997-9/30/1998) PI: International Cooperative Project on Scaled Equation of State for Near-Critical Mixtures of Heavy and Light Steam ($20,000).

h. Fellowships, Recognitions and Awards

Distinguished University Professor	2016
University System of Maryland Board of Regents' Faculty Award	2015
Y.S. Touloukian Award of ASME (for "outstanding contributions in Thermophysics")	2015
Fellow of the American Institute of Chemical Engineers	2014
Foreign Member of the Russian Academy of Engineering	2013
Foreign Member of the Russian Academy of Natural Sciences	2013
Colonnade Society, Maryland Fund for Excellence	2012
Member of Cosmos Club	2011
Recognition of the Newtonian Society	2009-2011
Poole and Kent Senior Teaching Award, University of Maryland, College Park	2007
International Travel Awards, University of Maryland, College Park	2004-2011
Recognition for outstanding volunteer service to the AIChE	2006
Foundation for Science and Technology International Award, Gunma University, Japan	2006
International Activity Award, University of Maryland, College Park	2005
Member of the International Academy of Refrigeration	2003

Fellow of the American Association for the Advancement of Science	2002
Fellow of the American Physical Society	1998
DDAD Fellowship (visiting professor at München Technical University, Germany))	1993
IREX Fellowship (visiting scholar at MIT, USA)	1987
CNRS International Exchange Fellowship (visiting scholar at College de France, Paris, France)	1985
Board of Honor, Gubkin State Academy of Oil and Gas, U.S.S.R.	1981
Professor of Physics Chair – Distinguished Academic Title	1979
awarded by the U.S.S.R. Supreme Testimonial Commission	
Silver Medal of the Exhibition of Nation's Achievements of the U.S.S.R.	
1976 Advanced Researcher in Thermophysics – Distinguished Research Scientist	
Title by awarded by the U.S.S.R. Supreme Testimonial Commission	
1973 Honor Graduate Student of Moscow State University	
1968	
Honor ("Red") Diploma of Chemical Engineer	1964
Silver Medal of the National Student Research Conference (Moscow, U.S.S.R.)	1962

i. Editorial Boards

1. Honorable Member, Editorial Board of “International Journal of Liquid State Sciences”
2. Member, Editorial Board of "International Journal of Thermophysics
3. Member, Editorial Board of "Phase Transitions
4. Member, Editorial Board of "Molecular Crystals and Liquid Crystals"
5. Member, Editorial Board of "Supercritical Fluids”
6. Member, Editorial Board of "Biomolecules

j. Reviewing activities for research journals

Regular reviewer of research articles for Phys. Rev. Letters, Phys. Rev., J. Chem. Phys., J. Phys. Chem., J. Stat. Phys., Soft Matter, Fluid Phase Equilibria, Molecular Simulation, Molecular Fluids, Chem. Phys.-Phys. Chem., *etc*.

3. TEACHING, MENTORING AND ADVISING

a. Courses taught for the last 20 years

Graduate Course “Chemical Engineering Thermodynamics” (UMD and Petroleum Institute, Abu Dhabi, UAE)
Undergraduate Course “Chemical and Biomolecular Engineering Thermodynamics I and II (UMD)
Undergraduate Course “Transport Phenomena II: Heat and Mass Transfer” (UMD)
Elective Graduate and Undergraduate Courses “Mesoscopic and Nanoscale Thermodynamics” (UMD)
Undergraduate Seminar (UMD)
Undergraduate Course “Fundamentals of Nanotechnology” (Petroleum Institute, Abu Dhabi, UAE)

b. Course and Curriculum Development

1. Established new course: “Fundamentals of Nanotechnology” (Petroleum Institute. Abu Dhabi, 2009).
2. Initiated and contributed into curriculum development of “Undergraduate Course “Chemical and Biomolecular Engineering Thermodynamics I and II (UMD, 2006).
3. Established new course: “Mesoscopic and Nanoscale Thermodynamics” (UMD, 2004)

c. Other Contributions to Teaching

1. Developed a dynamic light scattering instrument and a research project on nanoparticle characterization in the undergraduate Chemical and Biomolecular Engineering Laboratory, University of Maryland, College Park (2013).
2. Developed an interdisciplinary research project for graduate students enrolled in the Course "Chemical Engineering Thermodynamics" (2007).
3. Established a new engineering program, "Physics in Petroleum Science and Technology" at Moscow Academy of Oil and Gas, Russia (1988-1993).

d. Teaching Awards

Poole and Kent Senior Teaching Award, University of Maryland, College Park (2007)

e. Advising (other than research direction)

i. Undergraduate

Faculty Mentor, Undergraduate Research Assistant Program
Undergraduate Advisor (Chemical & Biomolecular Engineering Program), about 20 students annually.

ii. Graduate

Advising graduate students of interdisciplinary research opportunities.

iii. Other advising and mentoring activities

Advising and mentoring physics faculty members from Montgomery and Howard Community Colleges. Advising users on the new UMD shared instrumentation facility – Light Scattering Center.

f. Advising: Research Direction

i. Undergraduate

Supervising annually (since 2002) from 2 to 10 undergraduate researchers; 5 undergraduate students have been coauthors of publications in high-rank research journals.

ii. Master's (M.S. supervised at UMD, since 2002)

1. Jingtao Wang, "Closed Solubility Loops in Liquid Mixtures" (Chemical and Biomolecular Engineering Program, University of Maryland, College Park, USA, 2002).
2. Daphne Fuentevilla A Scaled Parametric Equation of State for the Liquid-Liquid Critical Point in Supercooled Water" (Chemical and Biomolecular Engineering Program, University of Maryland, College Park, USA, 2007).
3. Kirtland Linegar, "Applications of Dynamic Light Scattering to Chemical and Biomolecular Engineering Problems: Polymers, Proteins and Liquid Crystals" (Chemical and Biomolecular Engineering Program, University of Maryland, College Park, USA, 2008).
4. Deepa Subramanian, "Phase Behavior and Interfacial Phenomenon in Ternary Systems" (Chemical and Biomolecular Engineering Program, University of Maryland, College Park, USA, 2008).
5. Lauren Amrhein, "Thermodynamics of Fluid Polyamorphism" (Chemical and Biomolecular Engineering Program, University of Maryland, College Park, USA, 2017).
6. Shakiba Nikfarjam, Aggregation of Lysozyme" (Chemical and Biomolecular Engineering Program,

University of Maryland, College Park, USA, 2018)

iii. Doctoral (Ph.D. supervised, since 1974)

1. V. A. Smirnov, “Isochoric Heat Capacity and Vapor-Liquid Coexistence Curve of Argon in the Critical Region (Department of Chemistry, Moscow State University, 1974).
2. T. M. Ovodova, “Heat Capacity near the Critical Consolute Point of the Methanol-Cyclohexane Mixture” (Department of Chemistry, Moscow State University, 1974).
3. Y. F. Kiyachenko, “Critical Opalescence and the Correlation Function of Concentration Fluctuations in the Nitroethane-Hexane Mixture” (Lebedev Institute of Physics, the USSR Academy of Sciences, Moscow, 1975).
4. V. P. Voronov, “Acoustic Relaxation near the Critical Consolute Point of the Nitroethane-Isooctane Mixture” (Department of Physics, Odessa State University, 1975).
5. G. L Ovodov, “Heat Capacity Anomaly and Structural Phase Transition in Aqueous Solutions of t-Butanol” (Department of Chemistry, Moscow State University, 1976).
6. V. M. Mamnitskii, “Heat Capacity Anomalies near Nematic-Isotropic Phase Transition in Liquid Crystals” (Kharkov Institute for Low Temperature Physics, Ukrainian Academy of Sciences, 1977).
7. K. L. Sorkin, “Experimental Study of Nematic-Isotropic Phase Transitions in Liquid Crystals” (Department of Physics, Leningrad State University, 1977).
8. A. T. Berestov, “A Scaled Equation of State of Near-Critical Argon in a Broad Neighborhood of the Critical Point” (Institute for High Temperatures, U.S.S.R. Academy of Sciences, Moscow, 1978).
9. B. A. Kovalchuk, “Isochoric Heat Capacity of Argon in a Broad Neighborhood of the Critical Point” (Department of Physics, Odessa State University, 1978).
10. V. M. Zaprudskii, “Phase Transitions with Coupled Order Parameters” (Kurchatov Institute of Atomic Energy, Moscow, 1978).
11. L K. Yudin, “Photon Correlation Spectroscopy of Liquids and Liquid Solutions”, (Institute of Physico-Technical and Radiotechnical Measurements of the U.S.S.R. National Bureau of Standards, Mendeleevo, 1978). G. A. Milner, “Phase Transitions in Ammonia Bromide under High Pressures” (Kharkov Institute for Low Temperatures, Ukrainian Academy of Sciences, 1980).
12. V. M. Malyshev, “High-Resolution Adiabatic Calorimeter Study of Nitroethane-Isooctane Mixtures near the Critical Consolute Point” (Kurchatov Institute of Atomic Energy, Moscow, 1980).
13. S. B. Kiselev, “An Isomorphic Scaled Equation of State for Near-Critical Binary Fluids” (Institute for High Temperatures, U.S.S.R. Academy of sciences, Moscow, 1981).
14. R. U. Tankaev, “Melting of Ice Near a Hydrophilic Surface” (Department of Chemistry, Moscow State University, 1981).
15. A. M. Evtushenkov, “Light Scattering and Relaxation Processes in Liquids” (Department of Physics, Moscow State University, 1983).
16. V. G. Beketov, “Experimental Study of Isochoric Heat Capacity of Methane and Propane Near the Critical Point” (Baku Institute of Petroleum and Chemistry, 1983)
17. M. A. Gusev, “Nucleation and Growth of Mesophase in Thermolysis of Petroleum Pitches” (Institute of petro- chemical synthesis, Russian Academy of Sciences, Moscow (1984)
18. V. M. Merkulov, “Acoustic Relaxation in Liquid Crystals near Nematic-Isotropic Phase Transitions” (Kharkov Institute for Low Temperature Physics, Ukrainian Academy of Sciences, 1985).
19. A. O. Kulkov, “High-Resolution Adiabatic Calorimeter Study of Nematic-Smectic Phase Transitions in Liquid Crystals” (Kharkov Institute for Low Temperature Physics, Ukrainian Academy of Sciences, 1985).
20. G. L. Nikolaenko, “Light Scattering Study of Nematic-Isotropic Phase Transitions” (Department of Physics, Leningrad State University, 1987).
21. F. Kholmurodov, “Experimental Study of the Nematic-Smectic A-Smectic C Multicritical Point in

Thermotropic Liquid Crystals" (Physics Department, Moscow Institute for Scientific Instruments, 1988).

22. L G. Kostukova, "A Scaled Equation of State of Fluids and Bmary Fluid Mixtures in a Broad Neighborhood of the Critical Points" (Institute for High Temperatures, U.S.S.R. Academy of Sciences, Moscow, 1988).
23. N. F. Kazakova, "Thermodynamics of Micellization" (Department of Thermophysics, Uzbekistan Academy of Sciences, Tashkent, 1989).
24. M. A. Gusev, "Liquid Crystal Mesophase in High Temperature Petroleum Fractions" (Gubkin State Academy of Oil and Gas, Moscow, 1989).
25. S. A. Konev, "Static and Dynamic Light Scattering Study of Micellar Aqueous Solutions" (Tyumen State University, 1990).
26. Z. R. Gadzhieva, "Thermodynamics of Phase Transitions in Binary Mixtures of Thermotropic Liquid Crystals" (Department of Thermophysics, Uzbekistan Academy of Sciences, Tashkent, 1992).
27. H. Abdulkadyrova, "Lattice Models for Phase Diagrams of Binary Solutions of Nonelectrolytes" (Institute for High Temperatures, Russian Academy of Sciences, Moscow, 1992).
28. I. A. Dmitrieva, "Experimental Study of Asphaltenes Aggregation by Photon Correlation Spectroscopy" (Department of Physics, Moscow State University, 1992).
29. Y. K. Sazonov, "Formation of Mesophase by Carbonization of High Temperature Petroleum Fractions" (Institute of Petroleum Chemistry, Russian Academy of Sciences, Moscow, 1992).
30. K. P. Garsevanishvili, "Binary Fluids under Temperature Gradient in the Vicinity of Vapor-Liquid Critical Points" (Institute for High Temperatures, Russian Academy of Sciences, Moscow, 1993).
31. M. N. Dadashev, "Supercritical Extraction of Hydrocarbons from Porous Medium" (Institute for High Temperatures, Russian Academy of Sciences, Moscow, 1993).
32. V.V. Nikitin, "Photon Correlation Spectroscopy of Aqueous Polydisperse Micellar Solutions" (Department of Physics, Leningrad State University, 1994).
33. A. J. Davidov, "Theory of Phase Transitions in Surfactant Solutions" (Institute of Physical Chemistry, Russian Academy of Sciences, Moscow, 1995).
34. K. B. Grigoriev, "Thermal Conductivity Study of Aqueous Solutions of Salts" (Institute of High Temperatures, Russian Academy of Sciences, Moscow, 1995).
35. Vakhtang Agayan, "Crossover Critical Phenomena in Simple and Complex Fluids" (Chemical Physics Program, University of Maryland, College Park, USA, 2000). Currently, Director of Software Engineering at Exostar.Sarvin Moghaddam, "Finely-Discretized Lattice Models for Thermodynamic Properties of fluids" (Chemical Physics Program, University of Maryland, College Park, USA, 2003). Currently, senior staff member at FDA, Center for Drug Evaluation and Research.
36. Jingtao Wang, "The Nature of Asymmetry in Fluid Criticality (Chemical and Biomolecular Engineering Program, University of Maryland, College Park, USA, 2006). Currently, Associate Professor, Tianjin University, China.
37. Heather St. Pierre, Mesoscopic Thermodynamics of Smooth and Curved Interfaces in Asymmetric Fluids (Chemical and Biomolecular Engineering Program, University of Maryland, College Park, USA, 2009). Currently, Senior Watch Officer, Atlantic Area Command Center at the U.S. Coast Guard.
38. Christopher Bertrand, (Physics Program, University of Maryland, College Park, USA, 2010). Currently, postdoctoral fellow at NIST.
39. Deepa Subramanian, "Mesoscale inhomogeneities in aqueous solutions of small molecules" (Chemical and Biomolecular Engineering Program, University of Maryland, College Park, USA, 2012). Currently, postdoctoral fellow at Yale University.
40. Jana Kalova "Thermodynamic modeling of supercooled water" (Mechanical Engineering Program, University of West Bohemia, Pilsen, Czech Republic, 2012). Currently, Assistant Professor at the University of West Bohemia, Czech Republic.
41. Daphne Fuentevilla, **"**Thermodynamics of supercritical and supercooled aqueous systems" **(**Chemical and Biomolecular Engineering Program, University of Maryland, College Park, USA, 2013). Currently,

senior engineer at Naval Surface Warfare Center, Carderock Division.

42. John Biddle, "Dynamics of supercooled water (Physics Program, University of Maryland, College Park, USA, 2016. Currently, postdoctoral research associate, Harvard University.
43. Shakiba Nikfarjam, "Dissipative Assembly of Protein Hydrogels Mediated by Protein Unfolding" (UMD Chemical and Biomolecular Engineering Program, December 2022. Currently, Livermore National Lab.
44. Thomas Longo "Phase Transitions Affected by Molecular Interconversion" (UMD Chemical Physics Program, March 2023).

4. SERVICE

a. Professional

i. Offices and memberships held in professional organizations

1. American Chemical Society, 1996-present
2. American Association for the Advancement of Science (Fellow 2002)
3. International Academy of Refrigeration (Fellow, 2003)
4. American Institute of Chemical Engineers (Fellow 2014), 1996-present
5. American Physical Society (Fellow 1998), 1996-present
6. Director, National Capital Section of the American Institute of Chemical Engineers (2006-2008)
7. Subcommittee on Properties of Water and Steam of the American Society of Mechanical Engineers, 1995- present
8. Council for Coordination in Thermophysical Research of the Russian Academy of Sciences (1993-present)
9. Russian Academy of Engineering (Foreign Member, 2013)
10. Russian Academy of Natural Sciences (Foreign Member, 2013)

ii. Reviewing activities for federal and international agencies

- Reviewing research proposals for NSF, NASA, DOE, ACS, and European Agencies (RCS, EPS, RFBR, *etc*.).
- Other unpaid service to local, state and federal age agencies
- Proposal Panels at NSF

1. Program Chair, Member of Advisory Board, or Session Organizer (since 1997) Session organizer at 13th, 14th, 15th, 16th, 17th , 18th , 18th, and 20th Symposia on Thermophysical Properties, Boulder, Colorado, 1997-2018.
2. Advisory Board member, OSA Topical Meetings on Photon Correlation Spectroscopy, Capri, Italy, 1996; Vancouver, Canada, 2000; Amsterdam, The Netherlands, 2004.
3. AIChE 2000 Annual Meeting, Los Angeles (Session organizer, Thermodynamics of Polymers II and III).
4. Mid-Atlantic Meeting on Thermodynamics, College Park, Maryland, 2002. (Program Chair).
5. AIChE 2002 Annual Meeting, Indianapolis (Session organizer, Thermodynamic Properties and Phase Behavior II). 11-13. AIChE 2004-2006 Annual Meetings, Austin, Cincinnati, and San Francisco (Session organizer, Thermodynamics at Nanoscale I and II).
6. International Meeting on Thermodynamics (in honor of Sandra Greer), College Park, Maryland, 2006. (Program Chair)
7. AIChE 2011 Annual Meeting, Minneapolis, Minnesota, (Session organizer, in honor of J. V. Sengers).
8. International Meeting on Thermodynamics (Thermo-2005), College Park, Maryland, April 2005

(Program Chair).

9. Advisory Board member, International Conferences "Physics of liquid matter: Modern Problems", Kiev, Ukraine, May 2005, 2010, and 2014.
10. Advisory Board member, 11th Russian Conference on Thermophysical Properties, October 2005, St.- Petersburg, Russia
11. Advisory Board member, International Conference on Chemical Thermodynamics, Suzdal, Russia, July 2007.
12. Session Organizer, 15th International Conference on the Properties of Water and Steam, Berlin, Germany September, 2008.
13. Advisory Board member, International Conference on Supercritical Fluids, Suzdal, Russia, September 2009.
14. Workshop organizer, Nordita Project, "Water-is the most anomalous liquid", October 2014, Stockholm, Sweden.
15. Workshop organizer, 1st Russia-US workshop, "Phase Transitions in Fluids and Plasmas", April 2016, College Park, USA.
16. Workshop organizer, 2nd Russia-US workshop, "Phase Transitions in Fluids and Plasmas", April 2017, College Park, USA.
17. Advisory Board member, International Conference "Thermodynamics 2017", September 2017, Edinburgh, UK.

iii. International Collaboration

Russian Academy of Sciences, Technical University of Delft (The Netherlands), Ruhr University (Germany), University of Vigo (Spain), University of Bremen (Germany), University of Kyoto and Gunma University (Japan), University of Barcelona (Spain), University of Madrid (Spain), K.U. Leuven (Belgium), Petroleum Institute, Abu Dhabi (UAE), Czech Academy of Sciences, University Lyon-1 (France).

iv. Consulting

Exxon 1998, Shell 1999, Caltech-NASA (Jet Propulsion Laboratory) 1999-2006, Institute for Regulatory of Science 2001, GAF Corporation 2003-2004, Photocor Instruments 2000-2011.

b. UMD Campus

i. Departmental

APT Committee (Institute for Physical Science and Technology) 2013, 2017/2018; Chair 2021-2022
2014/2015 APT Sub-committee (Department of Chemical and Biomolecular Engineering), Chair 2013/2014 Faculty Salary Committee (Institute for Physical Science and Technology) 2012
IPST Internal Review Committee, 2017
Ph.D. and MS Committees (Chemical Physics Program and Chemical and Biomolecular Engineering Program), annually
Graduate qualifying exams (Chemical Physics Program), annually
Research Aptitude Exams (Chemical and Biomolecular Engineering Program), annually

ii. College

APT Committee (A. J. Clark School of Engineering) 2006-2008; Chair 2007/2008

iii. University

University of Maryland-College Park Senate, 2006-2008
University of Maryland Fulbright Student Selection Committee, 2006-

present General Education - Natural Sciences Faculty Board, 2011-present
Charles A. Caramello Distinguished Dissertation Selection Committee, 2018, 2019

c. Communal service

Member of the Prince George's County Literacy Council
PG's and Montgomery Counties High School Science Project Advisor