Petr (Peter) Lebedev-Stepanov,
PhD, Head of Lab at Photochemistry Center of Russian Academy of Science

Curriculum Vitae

Personal Information

Date of Birth (29.01.1970):

E-mail: petrls@yandex.ru, petrls@mail.ru, petrls@photonics.ru

Professional field: physical approaches and computer modeling in multiscale mass transfer, kinetics, thermodynamics, self-organization for printing technologies, electronics, photonics, medical diagnostics

Education History

University / Department	Period MM.YYYY to MM.YYYY	Major * Key word, accurately	Degree	Graduation Year MM.YYYY	Thesis
M.V. Lomonosov Moscow State University; Faculty of Physics; Molecular Physics Department	06.1996 to 12.2005	Molecular physics, atomic physics, theoretical and experimental investigation of properties of liquid in small volume (thermal conductivity, surface tension, linear tension, etc.), microfluidics, modeling of transport phenomena in liquids	***Ph.D., Diploma***	06.2003	The thermal scanning method for studies of associated liquids
M.V. Lomonosov Moscow State University; Faculty of Physics; Skobeltsyn Institute of Nuclear Physics	09.1992 to 06.1996	Quantum mechanics, atomic physics, nuclear physics, parity violation, matrix element, quantum operators algebra	***Physicist; Diploma with honor***	06.1996	The influence of the continuous spectrum on the effects of parity violation in atomic nuclei
Moscow Aviation Institute (State University of Aerospace Technologies).	09.1987 to 02.1993	Strenght of materials, thermal radiation, cosmic radiation, heat load of metals, calculations of the ultimate strength of heated construction in vacuum	***Mechanical Engineer; Diploma***	02.1993	Thermal design of a solar space probe
Moscow Aviation Institute (State University of Aerospace Technologies). Special physical-mathematical secondary school	09.1985 to 06.1987	Theoretical and practical study of physics and mathematics	**Certificate**	06.1987	
National University of Science and Technology “MISIS”. Special physical-mathematical secondary school	09.1985 to 06.1985	Theoretical and practical study of physics and mathematics	***Certificate***	06.1985	

Professional Experience (Job Career)			
Total years of experience			
Organization	**Period** MM.YYYY to MM.YYYY	**Position**	**Describe your responsibilities including role in detail**
Photochemistry Center RAS at FSRC "Crystallography and Photonics" RAS	12.2007 07.2005 to 12.2007	Head of lab of self-organization of nanoparticles and photonics of nanostructured patterns Senior staff scientist	Lab management in the next areas: 1. Investigation of self-organization of nanoparticles (silica, polystyrene, nanocarbon particles including nanodiamonds) and development of methods for obtaining of micro-and nano patterns of given architecture. 2. Investigation of morphology and structure of nanostructured layers and patterns by optical, AFM and EM microscopy. 3. Theoretical and experimental studying of optical and non-linear optical properties of nanostructured patterns and the relationship between morphology and optical properties of nanoparticles. 4. Physical modeling and computer simulation of self-organization of nanoparticles in the microvolume of liquid droplet or a thin layer by Brounian dissipative particle dynamics (to 40 000 particles in ensemble) or continual methods; computer simulations of optical properties of nanostructured patterns. 5. Theoretical investigation of thin films formation from solution, microfluidics, digital microfluidics, open system physics, electric properties of colloidal plasma In partically: Developing of dissipative colloidal particle computation dynamics in evaporation droplet and thin films of solution (ink jet microdroplet, spin coater thin film) for obtaining of micro-and nano patterns of given architecture. Developing of model of gases penetration through multilayer barrier covering defending the OLED or nanoporous patterns. Developing of technology of formation of the nanodiamonds electrode covering with a low work function of electrons for vacuum-tube devices.
National Research Nuclear University Moscow Engineering Physics Institute (MEPhI).	09.2009 to Now	Associate Professor	Scientific management of a group of students and graduate students on the self-assembly of ensembles of nanoparticles; writing and reading of two-semester lecture course 'Self-assembly of ensembles of

			nanoparticles and properties of nanoparticles ensembles'; writing of scientific articles and monographs.
Photochemistry Center of Russian Academy of Sciences	08.2005 to 12.2007	Senior staff scientist	Theoretical end experimental investigation of self-assembling of nanoparticles ensembles in Developing of dissipative colloidal nanoparticle computation dynamics in evaporation droplet and thin films of solution (ink jet microdroplet, spin coater thin film) for obtaining of micro-and nano patterns of given architecture. Statistical physics, physics of open systems, self assembly of nanoparticles in liquid droplet or thin films, self organizations of dissipative structures in open system, properties of nanoparticles and their ensembles, properties of colloidal plasma.
M.V. Lomonosov Moscow State University. Faculty of Physics. Department of Molecular Physics.	03.2002 to 08.2005	Scientific employee	Theoretical and experimental development of the high resolution method of measurement of the heat conductivity and other transport coefficients of dielectric liquids. Student seminars.
Algodign LLC (USA) is a biotechnology company established to develop powerful software for de novo drug design and lead optimization on basis of modern physics	07.2002 to 01.2005	Scientific employee	Physical modeling and computer simulation of binding constant of protein-ligand interaction in a solution; developing of force fields for scoring function and molecular dynamics with using of quantum chemistry methods; regression analysis of experimental data.
Skobeltsyn Institute of Nuclear Physics of M.V. Lomonosov Moscow State University.	06.1997 to 07.2002	Scientific employee	Theoretical investigation of the influence of continuous spectrum on the effects of parity violation in atomic nuclei
Department of Physics in Moscow Aviation Institute (State University of Aerospace Technologies).	03.1993 to 06.1997	Researcher	Theoretical and experimental investigation of transport properties of continuous media.

Research & Development Project			
Organization **(Univ. or Company)**	**Period** MM.YYYY to MM.YYYY	**Subject / Title**	**Describe your responsibilities including role in detail**
Morphotest LLC	5.05.2016 to now	Grant Start 1 of Foundation for Assistance to Small Innovative Enterprises in the Scientific and Technical Sphere (Fund for Promoting Innovation) "Elaboration of software-hardware complex for computer microscopy of biological liquids for endogenous intoxication diagnostics"	General director, scientific director of research and develop project "Elaboration of software-hardware complex for computer microscopy of biological liquids for endogenous intoxication diagnostics"

Photochemistry Center of Russian Academy of Sciences	01.01.2015 to now	Grant RFBR (Russian Foundation of Basic Researches) # 15-03-08050 Desolvation self-organization and self-assembly of colloidal particles into evaporating sessile drop of multicomponent solvent	I am a project director. I have made a working plan and coordinating its implementation. I evaluate the fee for the execution of work for each project participant. I perform the theoretical part of this project and control the experimental one. The specificity of the project is to investigate heat transfer in binary (such as water, DMSO, water-methoxypropanol) or multicomponent solvent (high or infinite mutual solubility of the components) containing both monodisperse and different size colloidal particles (including, as the most complex case, the biological fluid).
Photochemistry Center of Russian Academy of Sciences	01.07.2013 to Now	Grant RFBR (Russian Foundation of Basic Researches) # 13-03-12276 ofi-m Physicochemical basis for the formation of self-assembled polymer-nanodiamond composite coating	I am a project director. I have made a working plan and coordinating its implementation. I evaluate the fee for the execution of work for each project participant. I perform the theoretical part of this project and control the experimental one.
Photochemistry Center of Russian Academy of Sciences	01.2011 to 12.2012	Grant RFBR (Russian Foundation of Basic Researches) # 11-03-12130 ofi-m Formation of ordered arrays of nanostructures by nanoparticles self-assembly processes in evaporating solution.	I am a responsible for the project. Overall project management includes the experimental investigation and the physical and computer modeling of self-assembly of small nanoparticles (3.2-4 nm), such as nanodiamonds (DND), which takes into account electrostatic interparticles interactions, the Brownian motion in solution and sorption of the DND onto the silicon, mica, graphite substrates surface. One of the most important application of the thin DND layers is a develop of technology of formation of the nanodiamonds electrode or photoelectrode covering with a low work function of electrons for vacuum-tube devices. Also, DNDs can be used in nonlinear optics and medicine diagnostics, because DNDs have the luminescence. I am a writer of collective reports and scientific paper to journal.
Photochemistry Center of Russian Academy of Sciences	01.2012 to Now	Presidium of RAS program # 24. Physicochemical principles of the control of the self-assembly of the ensemble of the particles with the modifying surface.	I am a responsible for the overall project management. The main practical aim of this project is elaboration of a new type of the gaseous optical chemosensor on the basis of template nanopores in the nanoparticles shell, nanopores which has a geometrical selectivity to given type of the detecting gas. molecule. I have developed a new physical model describing the kinetics of the absorption of the given gas molecule (analyte, for example, naphthalene) from the atmosphere to the hierarchical system of the 3D multiscale distributed pores. Processing of the experiment using a physical model gives the rate constants of the analyte sorption by the polymer template pores in nanoparticles shells. I am a writer of collective reports and

			scientific papers to journal and conference theses.
Photochemistry Center of Russian Academy of Sciences	01.2010 to 12.2012	Grant RFBR # 10-03-01039 'Formation of ordered arrays of nanostructures by nanoparticles self-assembly processes in evaporating solution'	I am a head of the project included the theoretical and experimental study of thin films and micro-droplets of solutions of micro-and nanoparticles, their transport in micro-volume of solution with account of microfluids in droplet or thin film in evaporated solution; self-assembly and direct self-assembly of the nanoparticles ensemble in process of evaporation of the solute. We obtained the next results. 1. A novel physical model based on the density functional theory for colloidal solution is elaborated. The model was used to investigate the difference in the properties of the colloidal solution at the interface solution-atmosphere on the saturation conditions (the solvent does not evaporate). It was found that the osmotic pressure and the presence of the Debye-Huckel screened Coulomb repulsion leads to the formation of a layer of particles of increased density, which has an excess free energy. For particles of radius 100 nm with a charge of 1,000 elementary charges and the Debye thickness of 10 nm, the characteristic thickness of transition layer is about 10-5 um, i.e. about 100 particle radii. 2. The shape and stability of a water droplet of capillary dimensions on a rotating substrate (applied technology of spin-coating) were studied. The theoretical results are in good agreement with experiment. Such new effect as a increasing the rate of evaporation rotating drop compared with the same non-rotating drop was experimentally observed. 3. A model of the evolution of the droplet form and size during evaporation process and the model for calculating the hydrodynamic flows in it were elaborated. A model of the dynamics of the drop is implemented as a computer model to enable a numerical experiment to compare with the real experiment. Particular attention is paid to visual computer visualization of hydrodynamic flows. etc 4. The surface tension dependence on the solution, the contact angle and evaporation rate of the average particle concentration, and other characteristics of the solution are derived. 5. The structure of the meniscus contact line, the transition region of the three-phase interface (air-solution-substrate) are investigated. 6. A theory of evaporation of a binary solvent and the expression of the hydrodynamic flows associated with

			different rates of evaporation of the solvent components are proposed. 7. The processes of evaporation in the field of inertial forces due to rotation of the substrate is theoretically and experimentally investigated. 8. The geometric form and terms of loss of stability of a rotating drop of colloidal solution are refined. 9. The physical model of the self-assembly of ensembles of micro-and nanoparticles in the evaporating microdroplets rotating in the field of inertial forces is developed. The possibility of control of the distribution function of particles by changing the density of the solution and the particle density is developed. 10. A computer model to allow a numerical experiment to compare with the real experiment is demonstrated. I am a writer of collective reports and scientific paper to journal and conferences theses.
Photochemistry Center of Russian Academy of Sciences	08.2011 to 11.2012	Russian Federal Special Purpose Program (contract no. 14.740.11.0848.) Creating and multiscale modeling of the homogeneous and geterogeneous polymer surface microstructures with high properties.	I was a responsible for development of the physical model and computer program to numeric modeling of the self-assembling of nanoparticles ensemble onto a flat substrate with given roughness and adhesive force in the process of evaporation of solute from the colloidal solution drop. I was a writer of part of the collective reports and partially of the papers to scientific journals and conference theses.
Photochemistry Center of Russian Academy of Sciences	01.2009 to 12.2011	Presidium of RAS Program # 21 Research and development of methods for ordered nanostructured films based on modified polymer nanoparticles ensembles self assembly from drying thin film of solution	I was a responsible for the overall project management. The main practical aim of this project is elaboration of an anisotropic photonic crystals on basis of ordered patterns of self-assembled submicroparticles which covered by sorption of fluorescent styryl dye of different types. I planned the experiments and create physical models of phenomena. I was a writer of the collective reports and partially of the papers to scientific journals and conference theses.
Photochemistry Center of Russian Academy of Sciences	01.2008 to 12.2010	Russian Federal Special Purpose Program (contract no. 02.523.11.3014.) Development of the methods for multi-scale modeling and design of nanostructured materials	I was a responsible for a development of the physical model and computer program module of dissipative nanoparticle dynamics of self-assembly of ordered nanostructured patterns from an evaporated liquid droplet obtained by ink-jet printing technology (initial drop volume of 100 picaliters). I was a writer of part of collective reports and partially of the scientific papers to journal and conference theses.
Photochemistry Center of Russian Academy of Sciences	01.2009 to 03.2011	Grant RFBR # 09-03-12117-ofi-m	I am a responsible for the project. We investigated the factors defined the architecture of ordered micro- and

		Development of the principles of formation of nanostructured centrosymmetrical microconstructions with anisotropic physicochemical properties	nanoparticles' ensemble as a result of self-assembly during colloidal solution drop evaporation on a substrate. Also we investigated the link between the architecture and chemical structure of deriving microconstruction with its physicochemical and optical properties. We elaborated the methods definition of the radial distribution function of nanoparticles' ensemble and checking of order degree of ensemble. By the chemical modification of nanoparticles, we created the new materials with anisotropic physicochemical properties. I was a writer of collective reports and partially of the scientific papers to journal and conference theses.
Photochemistry Center of Russian Academy of Sciences	08.2009 to 12.2011	Federal Special Purpose Program (contract no. 02.527.11.0009) Optical chemical sensors based on nanoparticles and photonic structures.	I was a responsible for elaborated of physical model and computer program of self-assembly of nanostructured (nanopored) matrix of chemical sensor. I was a writer of part of collective reports and partially of the scientific papers to journal and conference theses.
Photochemistry Center of Russian Academy of Sciences	08.2009 to 7.2011	Federal Special Purpose Program (contract no. 02.740.11.0113) Development of principles of hierarchical nanomaterial for nanophotonics	I was a responsible for elaborated of physical model and computer program of self-assembly of hierarchical microconstuctions. I was a writer of part of collective reports and partially of the scientific papers to journal and conference theses.
Photochemistry Center of Russian Academy of Sciences	08.2007 to 12.2009	Federal Special Purpose Program (contract no. 02.523.11.3002) Development of a new generation of the image display based on organic electroluminescent materials.	I was one of responsible for research and development of the OLED materials for protection from penetration of air (oxygen) and water vapor. I elaborated the physical and computer models of diffusion controlled penetration of the oxygen and water vapor through the nanostrutured composite flexible thin layer. I was a writer of part of collective reports and partially of the scientific papers to journal and conference theses.
Photochemistry Center of Russian Academy of Sciences	01.2007 to 12.2008	SANANO. VI Framework International Program	I elaborated the novel model of morphology definition of a nanostructured solid phase by desiccation of a microdrop or thin film of colloidal solution with account of the microfluidics flows. Dynamics of hydrodynamics flows is determines by behavior of a contact line of evaporated microdrop and substrate, the radial distribution functions of nanoparticles were calculated.
Photochemistry Center of Russian Academy of Sciences	08.2008 to 12.2009	Federal Special Purpose Program (contract no. 02.513.12.3028). Forming of ensembles of nanostructures in the acoustic field	The aim of the project is a elaborated of the control of self-assembly micro- or nanoparticles I was responsible for the theoretical model of influence of the short ultrasonic standing waves to the self-assembly of the nanoparticles in the evaporating film of solution. I develop the computation model of direct self-assembly in the evaporating droplet of colloidal solution in the acoustic field.

			I was a writer of part of collective reports and partially of the scientific papers to journal and conference theses.
Photochemistry Center of Russian Academy of Sciences	01.2005 to 12.2007	Grant RFBR#05-03-32690 Research of structure and optical properties of micro- and nanoaggregates of polymethine and styryl dye	I was responsible to developmen of the diffusion model of microdrop or thin film dying (including the drop on spinning substrate as at spin coater method). The model takes account of temperature, humidity, substrate wettabiliy and provides for estimation of drying time and drop shape and size evolution at any time. The regulating of a drying time of thin film by regime of spin coater allows to shifts the ratio of equilibrium and non-equilibrium polymorph modification of styryl dye nanoaggregates in a layer. This is a method to obtain a different physicochemical including optical properties of a thin films from dye solution layer on a spin coater. I was a writer of part of collective reports and partially of the scientific papers to journal and conference theses.
Skobeltsyn Institute of Nuclear Physics of M.V. Lomonosov Moscow State University.	01.2000 to 12.2002	Grant RFBR#00-02-16707 Experimental and theoretic study of parity violation in the interactions of polarized neutrons with light nuclei in order to determine the constants of the weak interaction	I was the executor of the project. My responsibilities included the theoretical and computer investigation of the influence of continuous spectrum on the effects of parity violation in atomic nuclei. I was a writer of part of collective reports and partially of the scientific paper to journal and conference theses.
Skobeltsyn Institute of Nuclear Physics of M.V. Lomonosov Moscow State University.	01.2000 to 12.2002	Grant RFBR#00-02-16683 'Research of cluster phenomena in nuclear physics based on multicluster dynamic model with antisimmetrization'	I was the executor of the project. I took part in the investigation of the electromagnetic processes in clustered system.

Most Relevant Publications

Title	Journal / Proceedings Ex) Journal of Appl. Phys., Vol. 2, p100~110, 2006
O. V. Venidiktova, T. M. Valova, V. A. Barachevsky, P.V. Lebedev-Stepanov, [], N. L. Zaichenko.. Photochromic properties of modified nanodiamonds	Optics and Spectroscopy, 2017, 122(5):729-734
P. Lebedev-Stepanov, A.T. Dideykin, S. N. Chvalun, A.L. Vasiliev, [...] A. Vul. Formation of nanodiamond films from aqueous suspensions during spin coating	Technical Physics 2016, 61(3):401-408
P. Lebedev-Stepanov, O.V. Rudenko. Acoustic microfluidics: Capillary waves and vortex currents in a spherical fluid drop	Acoustical Physics 2016. 62(4):414-417
Lebedev-Stepanov P.V. Introduction to self-organization and self-assembly of ensembles of	Moscow.: NRNU MEPhI, 2015. – 304 P. ISBN 978-5-7262-2132-8

nanoparticles. Monograph.	
P. Lebedev-Stepanov , M. Buzoverya, I. Shishpor, K. Vlasov. Computer microscopy of biological liquid dry patterns (facies) for medical diagnostics and modeling of their properties	International Conference Microfluidics Congress,. 2015, October 20 - 21, 2015 . London, UK http://www.globalengage.co.uk/microfluidics/docs/Lebedev-Stepanov.pdf
P. Lebedev-Stepanov , M. Buzoverya, I. Shishpor, K. Vlasov. Computer microscopy of biological liquid dry patterns for medical diagnostics and modeling of their properties by dissipative dynamics methods.	International Conference & Exhibition Nanotech France. 2015, June 15 - 17, 2015 . Paris, France
Lebedev-Stepanov P., Sobanina O. Self-assembly of nanoparticles ensemble in evaporating picoliter sessile drop of binary solvent mixture.	2-nd International workshop Droplets 2015, Enschede, The Netherlands, 5-8 October, 2015. Proceedings, pp. 177-178.
Lebedev-Stepanov P. Simulation of electrically charged nano/micro-particles interaction into aqueous solution or dusty plasma by the Brownian dissipative dynamics of counterions	5th International Colloids Conference, 21-24 June 2015, Amsterdam, The Netherlands. Proceedings.
P. V. Lebedev-Stepanov, O. V. Rudenko. Acoustic Microfluidics: Capillary Waves and Vortex Flows in the Cylindrical Volume of a Fluid Drop	Acoustical Physics, 2015, Vol. 61, No. 2, pp. 173–177.
P.V. Lebedev-Stepanov. Plasma frequency approach to estimate the Debye temperature of the ionic crystals and metal alloys.	Journal of Physics and Chemistry of Solids 2014; 75(7):903–910.
Lebedev-Stepanov P.V., Vlasov K.O. Simulation of self-assembly in an evaporating droplet of colloidal solution by dissipative particle dynamics.	Colloids and Surfaces A : Physicochem. Eng. Aspects 432 (2013) 132.
Lebedev-Stepanov P.V., Rudenko O.V. Acoustic Flows in a Fluid Layer on a Vibrating Substrate.	Acoustical Physics. 2013, Vol. 59, No. 6, pp. 693–697
Lebedev-Stepanov P.V. Simulation of self-assembly in an evaporating droplet of colloidal solution by dissipative particle dynamics..	WETTING & EVAPORATION. Droplets of Pure and Complex Fluids. 1-st International Workshop. 17-20 June 2013, Marseilles. France. Book of Abstract. pp. 185-186
Lebedev-Stepanov P.V. Self-organization and self-assembly in nanotechnology: physicochemical nature, modeling, and applications.	BIT's 3rd Annual World Congress of Nanoscience and Nanotechnology. September 26-28, 2013. Xi'an, China Book of Abstract. pp. 167.
Lebedev-Stepanov P.V. Simulation of self-assembly in an evaporating inkjet-sized drop of colloidal solution by dissipative particle dynamics.	Science of inkjet and printed drops 2013. 6 November 2013. IOP Institute of Physics. London. UK, Book of Abstract, p.6.
P.V. Lebedev-Stepanov. Introduction to the self-assembly of ensembles of nanoparticles. Tutorial monograph.	National Research Nuclear University MEPHI. 2012. 184 P.
E.Yu. Grushnikova, P.V. Lebedev-Stepanov, A.V. Koshkin, A.Yu. Menshikova, V.P. Mitrokhin, S.P. Molchanov, M.V.Alfimov. Model of absorption of gaseous naphthalene by the ordered layers of polymer submicroparticles with the nanostructured shell	Nanotechnologies in Russia, 2012, №11-12, p. 44-52.
P.V. Lebedev-Stepanov, R. M. Kadushnikov, S. P. Molchanov, N. I. Rubin, N. A. Shturkin, and M. V. Alfimov. Simulation of Self_Assembly of Micro- and Nanoparticles in an Evaporating Microdrop of Solution.	Nanotechnologies in Russia, 2011, Vol. 6, Nos. 1–2, pp. 79–87.
P. V. Lebedev-Stepanov, T. A. Karabut, N. A. Chernyshov, S. A. Rybak. Investigation of the Shape and Stability of a Liquid Drop on a Rotating	Acoustical Physics, Vol. 57, No. 3, pp. 320–325, 2011

Substrate.	
P. V. Lebedev-Stepanov S. A. Rybak. Sound Absorption in a Colloidal Solution of Interacting Particles.	Acoustical Physics, Vol. 57, No. 6, pp. 801–806,2011
Rudenko O.V., Lebedev-Stepanov P.V, Gusev V.A., Korobov A.I., Korshak B.A., Odina N.I., Izosimova M.Yu., Molchanov S.P., Alfimov M.V. Control of self-assembly processes in droplet of colloidal solution by the acoustic field.	Acoust. Phys. 56(5), pp. 935-941. 2010.
P. V. Lebedev-Stepanov and O. V. Rudenko. Sound attenuation in a liquid containing suspended particles of micron and nanometer dimensions.	Acoust. Phys. 55(6), pp. 729-734, 2009.
P. V. Lebedev-Stepanov, S. P. Molchanov, T. A. Karabut, and S. A. Rybak Self-Organization of Particles in an Evaporating Meniscus of a Colloidal Solution.	Acoust. Phys., 2010, Vol. 56, No. 5, pp. 651–653.
S. P. Molchanov, P. V. Lebedev_Stepanov, S. O. Klimonskii, K. F. Sheberstov, and M. V. Alfimov. Self_Assembly of Ordered Layers of Silica Microspheres on a Vertical Plate.	Nanotechnologies in Russia, 2010, Vol. 5, Nos. 5–6, pp. 300–304.
P. V. Lebedev-Stepanov, S. P. Molchanov, T. A. Karabut, and S. A. Rybak Self-Organization of Particles in an Evaporating Meniscus of a Colloidal Solution.	Acoustical Physics, 2010, Vol. 56, No. 5, pp. 651–653.
L. V. Eroshenko, P. V. Lebedev_Stepanov, S. P. Molchanov, N. A. Chernyshov, S. P. Gromov, S. K. Sazonov, N. N. Sevchenko, A. Yu. Men'shikova, and M. V. Alfimov. Self-Assembly of Ensembles of Polystyrene Submicroparticles Modified by Styryl Dye in Evaporating Microdrop of Solution.	Nanotechnologies in Russia, 2010, Vol. 5, Nos. 11–12, pp. 771–776.
. Rudenko O.V., Korobov A.I., Korshak B.A., Lebedev-Stepanov P.V, Molchanov S.P., Alfimov M.V. Self-assembly of colloidal-particle ensembles in an acoustic field.	Nanotechnologies in Russia, 2010, Vol. 5: pp. 469-473.
S. P. Molchanov, P. V. Lebedev_Stepanov, M. V. Alfimov. Effect of Substrate Temperature on the Self_Assembly of Particles in the Evaporating Droplet of Colloidal Solution. .	Nanotechnologies in Russia, 2010, Vol. 5, Nos. 9–10, pp. 611–618
P.V. Lebedev-Stepanov, N. Rubin, R.M. Kadushnikov, M.V. Alfimov. The dynamics of particles in the drying microdroplets of the solution.	Rusnanotech 08. International Forum on Nanotechnology. 3-5.12.2008. Abstracts of scientific and technological sections. Vol. 1. 2008 P.167.
P. V. Lebedev-Stepanov, S. A. Rybak. Nanoclusters of Dielectric Liquids: a Weight Density Functional Theory Study Based on an Electroelastic Model of an Interface Layer.	Nanotechnologies in Russia, 2008, Vol. 3, Nos. 7–8, pp. 432–441.
A.S. Tikhonov, A.A. Shtykova, P.V. Lebedev-Stepanov. Thiacarbocyanine dye nonequilibrium crystallisation in thin films of solution.	Nanotechnologies in Russia, Vol. 2 (9-10). 2007. pp. 40-48.
P. V. Lebedev-Stepanov, P. E. Khokhlov, D. S. Ionov, A. V. Yakimanskii, A. Yu. Men'shikova, N. N. Shevchenko, T. G. Evseeva, M. V. Alfimov. Self-assembly of micro- and nanostructures during their two-stage spin-coating.	Nanotechnologies in Russia Vol. 4, Nos 3-4. 2009, pp. 160-165
P. V. Lebedev-Stepanov, S. P., Gromov, S. P., Molchanov, N. A., Chernyshov, I. S., Batalov, S. K., Sazonov, N. A., Lobova, N. N., Shevchenko, A. Yu.,	Nanotechnologies in Russia. Vol. 6, Nos. 9–10, 2011, pp. 569 – 578.

Men'shikova, M. V., Alfimov. Controlling the self-assemblage of modified colloid particle ensembles in solution microdroplets.	
P. V. Lebedev-Stepanov, S. A. Rybak. Electroelastic model of the interface and the size effect in nanodroplets.	Doklady Physical Chemistry. Vol. 421, N 1, 2008, 182-186.
P. V. Lebedev-Stepanov. Flow of a viscous compressible medium: Invalidity of the Navier-Stokes equation	Doklady Physical Chemistry. Vol. 417, N 2. 2007, pp 319-324,
M. V. Alfimov, , R. M. Kadushnikov, N. A. Shturkin, V.M. Alievsky, P.V. Lebedev-Stepanov. Simulation of nanoparticles self-organization processes.	Rossiiskie Nanotekhnologii, 2006, Vol. 1, Nos. 1–2. pp. 127-133.
L. V. Andreeva, D. A. Ivanov, D. S. Ionov, A. V. Koshkin, P. V. Lebedev-Stepanov, O. Yu. Rybakov, A. S. Sinitsky, A. N. Petrov, M. V. Alfimov. Investigations of Crystallization of Solutions in Microdroplets on an Affymetrix GMS 417 Arrayer Device.	Instruments and Experimental Techniques, 2006, Vol. 49, No. 6, pp. 860–867.
L.V. Andreeva, A.V. Koshkin, P.V. Lebedev-Stepanov, A.N. Petrov, M.V. Alfimov. Driving forces of the solute self-organization in an evaporating liquid microdroplet.	Colloids and Surfaces A: Physicochem. Eng. Aspects 300 (2007) 300–306.
L. V. Andreeva, A. S. Novoselova, P. V. Lebedev-Stepanov, D. A. Ivanov, A. V. Koshkin, A. N. Petrov, M. V. Alfimov. Crystallization of Solutes from Droplets.	Technical Physics, 2007, Vol. 52, No. 2, pp. 164–172.
M. Alfimov, R. Kadushnikov, P. Lebedev-Stepanov, V. Alievsky, N. Shturkin. Modeling the production of nanostructured sensors, and process of sensor interaction with gaseous phase.	ISOEN 2007. International Symposium on Olfaction and Electronic Noses. St. Petersburg, Russia, 3-5 May, 2007. pp. 245-246.
Andreeva L.V., Koshkin A.V., Lebedev-Stepanov P.V., Petrov A.N., Alfimov M.V. The correlation of structure and optical properties for different polymorphic modification of cyanine dye	ICP 2007. XXIII International Conference on Photochemistry. 29 July – 3 August 2007. Cologne, Germany. P. 429.
P.V. Lebedev-Stepanov, E. Yu. Pustozerov, D.S. Ionov, M.A. Bovykina, A.N. Petrov, M.V. Alfimov. Modes of self-assembly of colloidal nanostructures in microdroplets.	XVIII Mendeleev Congress on General and Applied Chemistry. Moscow, 23-28 September 2007 Abstracts. Vol. 2. Chemistry of materials, nanostructures and nanotechnology. P. 362.
P.V. Lebedev-Stepanov, S.A. Rybak. Hydrodynamics of a viscous compressible medium: corrections to the Navier-Stokes equations.	Proceedings of the Research School professor S.A. Rybak. Vol. 8. – Troitsk. Trovant. 2007. pp. 174-182.
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Patents		
Subject Ex) Title	**Applied No./Date** Ex) RU ********/2006.01.Jan.	**Registered No./Date** Ex) RU ********/2006.01.Jul.
Complex of models and programs for multiscale modeling and virtual design of nanostructured materials	**RU 2010615577 /2010.14.Sep.**	**RU 2010617410/2010.11.Nov.**
The method of obtaining of the oxygen-absorbing elements of the protective coating in the form of microcapsules.	**RU 2009126771 /2009.14.Jul**	**RU 2422197 / 2011.27.Jun.**
The research complex for the formation and study of the nanostructures and the method of forming of the nanostructures.	**RU 2009137654 /2009.13.Oct.**	**RU 2417156 /2011.27.Apr.**
A method of producing of the ordered nanostructured films based on nanoparticles.	**RU 2008141243/2008.17.Oct.**	**RU 2387044 /2009.25.Aug.**