CURRICULUM VITAE

YURY SALKOVSKIY, PH.D.

PERSONAL INFORMATION

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EDUCATION

Ph.D. in Engineering **Dec 2011**
Department of Engineering Mechanics
University of Nebraska-Lincoln (USA)
Advisor: Dr. Yuris A. Dzenis
Thesis title: "Multiphysics Modeling of the Electrospinning Process"

Diploma with Honors in Mechanics (M.Sc.) **July 2004**
Saratov State University (Saratov, Russia)
Department of Mathematical Theory of Elasticity and Biomechanics
Advisor: Dr. Leonid Y. Kossovich
Thesis title: "Three-dimensional Modeling of Carotid Artery Bifurcation"

RESEARCH INTERESTS

- Nanofibrous textiles and protective clothing
- Air and liquid microfiltration
- Complex multifunctional materials and composites
- Medical applications of nanofibers
- Biomechanics of soft and hard tissues
- Scaffold design for tissue engineering
- Multiphysics modeling of materials and processes
- Electrohydrodynamics of non-Newtonian fluids
- Micromechanics modeling of elastic and transport properties of heterogeneous periodic materials and composites

RESEARCH FUNDING

ACTIVE:

1. High-speed manufacturing of biopolymer textiles made of intertwined nanofibers – NSF Nebraska EPSCoR ($25,000) — PI — **2024 - 2025**
2. High-flux micro-pleated filter for waterborne pathogen removal ($95,135) — PI — **2024 - 2025**
3. Antibacterial elastic materials for infection-resistant prosthetics ($99,771) — Co-PI — **2024 - 2025**
4. Testing Protective Materials Under Near-Space Conditions - NASA Space Mini Grant ($5,000) — PI — **2024 - 2025**
5. Enhancing thermal insulation with nanofibrous materials - NRI Collaboration Initiative grant ($149,592) — PI — **2023 - 2025**
6. Effects of Respirator Breathing Resistance on Physical Performance – NIH COBRE P20GM109090 pilot project *($15,262)* — PI — **2022 - 2024**
7. Center for Cardiovascular Research in Biomechanics – NIH COBRE P20GM152301 *($11,058,035)* — RPL — **2024 - 2029**

COMPLETED:

1. Model-guided control of nanofiber orientation in nanomanufacturing of next generation air filters - NRI Collaboration Initiative grant *($39,941)* — PI — **2022 - 2023**
2. Nanofibers for membrane thermal insulation and ultralight respiratory protection materials (contract № 6/130/2019ав) – funded by Russian — PI — **2019**

	Foundation for Advanced Research *(~$50,000)*		
3.	“"Smart" thermal regulatory materials for clothing” (contract № 6/127/2018ав) – funded by Russian Foundation for Advanced Research (~$50,000)	PI	**2018**
4.	“Development of a complex of perspective protective and concealment materials for a military outfit” (contract № 6/115/2014-2017) – funded partially by Russian Foundation for Advanced Research *(~$2,200,000)* and Russian Ministry of Education and Science *(~$1,400,000)*	PI	**2014 – 2017**
5.	“Remotely controlled nanostructured materials, including biosensors and encapsulated bioactive substances” (code № 12-03-33088 мол_а_вед) – funded by Russian Foundation of Fundamental Research *(~$100,000)*	Co-I	**2013 – 2014**
6.	“Complex mathematical modeling of needleless electrospinning of nanofibers and experimental study of nanofiber materials manufacturing process” (code № 12-01-31349 мол_а) – funded by Russian Foundation of Fundamental Research for young scientists *(~$10,000)*	PI	**2012 – 2013**
7.	"Nanotechnology of creation of combined polymer-cellular biotransplants for solving problems of regenerative medicine"(code № 09-03-12193 офи_м) – funded by Russian Foundation of Fundamental Research *(~$140,000)*	Co-I	**2009 – 2010**
8.	“Modeling of a Bloodflow Hemodynamics in a Bifurcation of a Human Carotid on Different Stages of Atherosclerotic Affection and After Surgical Operations” (code A04-2.10-1136) – funded by Russian Federal Agency for Education (*~$1,000*)	PI	**2004**

SKILLS

EXPERIMENTAL

Processes

- Comprehensive experimental characterization and optimization of electrospinning of polymer nanofibers: capillary single-component and coaxial jets and high-rate needleless process configurations, including laboratory and two generations of commercial-scale processes; non-linear extensional jet rheology; quantification and control of hierarchical dynamic jet instabilities
- Microfiltration of gases and liquids (MPPS filter efficiency analysis, dynamic light scattering)
- Physical vapor deposition of thin films and coatings by magnetron sputtering
- Experimental creation and characterization of 3D structures from shape memory alloys for stents and stent-grafts; combination of shape memory stents with woven and nonwoven textiles for advanced prosthetics

Materials characterization

- Chemical composition analysis (Fourier-transform infrared spectroscopy, X-ray spectroscopy)
- Thermal analysis (differential scanning calorimetry, TGA, IR thermography)
- Microscopic characterization (SEM, TEM, confocal and fluorescent microscopy)
- Rheological characterization of liquids using high-speed video imaging of microfluidic flows and laser interferometry
- Textile and membrane testing (hydrostatic head, water vapor permeability, air permeability, capillary flow porosimetry, thermal conductivity, etc.)
- Medical imaging (computed tomography, 2D and Doppler ultrasonography, intravascular ultrasonography)
- Comprehensive mechanical characterization of advanced composite materials (tensile and compression, tearing, delamination, fatigue, abrasion, fracture and damage evolution, etc.)

Biomedical

- Tissue engineering nanofibrous scaffolds preparation and characterization
- Skin excision surgery, wound splinting, anesthesia, and post-operative wound management in a rat wound model

THEORETICAL/COMPUTATIONAL

Fluid dynamics

- Multiphysics modeling of electrically-driven unstable electrospun jets and deposition of nanofibers on stationary and moving surfaces
- Coupled analysis of non-linear mass and heat transfer in evaporating ultrathin polymer jets

Mechanics of solids

- Finite element modeling of deformation and fracture of human bone and cartilage tissues.
- Fluid-solid simulation of blood flow/vessel wall interactions in arteries before and after reconstructive surgery

SCHOLARSHIPS/AWARDS/HONORS

1. Fellowship of the Russian Federation for young scientists and postgraduates on the topic "Biofiltration antibacterial nanofibrous materials for surgical clothing and personal protective equipment of the doctor and patient" (code СП-1645.2013.4) **2013 – 2014**
2. Research Assistantship at the University of Nebraska-Lincoln **2004 – 2011**

SELECTED ACCOMPLISHMENTS

Saratov State University:

- Developed novel nanofiber-based materials for waterproof vapor permeable outfits, gas mask and respirator filters, hazmat suits, protective clothing
- Adapted laboratory electrospinning technologies to industrial production of nanofiber-based textiles and filters
- Developed non-traumatic wound dressings based on chitosan nanofibers, which were successfully clinically tested for the treatment of 2nd and 3rd-degree thermal burns
- Promoted to Deputy Research Head of Institute of Nanostructures and Biosystems

University of Nebraska-Lincoln:

- Developed pioneering coupled 3D models of steady-state and unstable electrospun jets with account for solvent evaporation and mass/thermal transfer inside the jets
- Conducted first experimental measurements of the rheological parameters of viscoelastic polymer solutions utilizing high-speed imaging of electrospun jets and microfluidic systems

RESEARCH EXPERIENCE

UNIVERSITY OF NEBRASKA OMAHA

Assistant Professor **Jan 2021 – present**
Department of Biomechanics

- Research work on the design and characterization of nanomaterials for cardiovascular prosthetics and devices, wound dressings, membrane and ultra-fine aerosol filtration systems
- Collaboration with clinicians at the University of Nebraska Medical Center on the development and testing of advanced nanostructured materials

Research Associate **Feb 2020 – Jan 2021**
Department of Biomechanics

- Research work on the nanomanufacturing of materials for cardiovascular applications
- Collaboration with clinicians at the University of Nebraska Medical Center on the development and testing of advanced nanostructured materials

SARATOV STATE UNIVERSITY

Deputy Head **Oct 2017 – Jan 2020**
Institute of Nanostructures and Biosystems

- Research activities related to electrospinning of nanofibers and advanced nanofiber-based materials

- Cooperation with industrial companies to incorporate electrospinning technologies into production

Group Leader **Sept 2014 – Aug 2018**
Special Purpose Materials Laboratory
Institute of Nanostructures and Biosystems

- Research work on the project of Russian Foundation for Advanced Research (https://www.fpi.gov.ru) for the development of nanofiber-based materials for novel personal equipment, including ultra-efficient aerosol filters for protective masks and suits, highly breathable waterproof membranes, antibacterial nonwovens, textiles for electromagnetic concealment, smart PCM-textiles, fireproof and thermal insulation fabrics
- Development of industrial technologies for the production of nanofibrous materials using industrial-scale NanoSpider and Reliant Machinery equipment
- Collaboration with leading Russian companies (Baltex LLC, Tchaikovsky Textile LLC, Respiratorniy Kompleks Ltd.) to integrate the nanostructured materials into their production cycle
- Testing materials for compliance with Russian state technical standards (GOST), also with the involvement of authorized centers
- Patent applications preparation

Director **Nov 2013 – Sept 2014**
Innovation and Technology Center "Perspective Materials"

- Development of pilot-industrial technologies for the production of filtering and membrane materials by the needleless electrospinning technique

Group Leader **May 2009 – Sept 2014**
Division of Electrospinning
Institute of Nanostructures and Biosystems

- Research on the non-woven nanofibrous materials for biomedicine, including chitosan nanofibers wound dressings, scaffolds for tissue engineering, filters for microfiltration of liquids
- Cooperation with Saratov Burn Center (now City Clinical Hospital №7) for clinical trials of nanofibrous wound dressings for the treatment of large area burns
- Cooperation with medical institutions to develop biodegradable implants for the bone and cartilage tissue and skin replacement

UNIVERSITY OF NEBRASKA-LINCOLN

Research Assistant **Dec 2004 – May 2009**
Department of Engineering Mechanics

- Theoretical modeling and experimental analysis of the electrospinning process, including 3D-models of stationary and unstable jets in electric field with cross-sectional inhomogeneity due to evaporation-driven mass transfer, simulation of coaxial electrospinning, determination of viscoelastic parameters of spinning solutions by the high-speed video capturing of liquid thread breakup (as PhD student under supervision of Professor Yuris A. Dzenis)

SARATOV STATE UNIVERSITY

Programmer **Oct 2004 – Dec 2004**
Laboratory of Mathematical Modeling in Biomechanics

- Finite element analysis of surgical treatment of the carotid arteries

Mathematician **Sept 2002 – Sept 2004**
Laboratory of Mathematical Modeling in Biomechanics

- Finite element analysis of blood flow and movement of the vascular wall of the carotid artery
- 3D-modeling of human vessels based on castings from cadaveric material

TEACHING EXPERIENCE

UNIVERSITY OF NEBRASKA AT OMAHA

Introduction to the Mechanics of Biomaterials **Spring 2022 - Spring 2023**
College of Education, Health and Human Sciences

SARATOV STATE UNIVERSITY
Graduate course on the Mechanics of Composite Materials **Fall 2009 – Spring 2010**
College of Mechanics and Mathematics

PUBLICATIONS

JOURNAL PAPERS **(* as corresponding author)**

1. Fadeev, A., Crown, K., Kinahan, S., Lucero, G., Salkovskiy*, Y. Nanofibrous filters: A promising solution for the efficient capture of polydisperse viral aerosols. Aerosol Science and Technology, 59 (1), 2025. https://doi.org/10.1080/02786826.2024.2421392
2. Ghanbari, M., Salkovskiy*, Y., Carlson, M. A. (2024). Rat as an animal model in chronic wounds: an update. Life Sciences, 351, 122783. PMC11581782.
3. Salkovskiy*, Y., Fadeev, A. High-efficiency retention of ultrafine aerosols by electrospun nanofibers. Scientific Reports, 12, 20850 (2022). PMC9717556.
4. A.N. Ivanov, M.S. Saveleva, M.N. Kozadaev, O.V. Matveeva, Yu.E. Salkovskiy, G.P. Lyubun, D.A. Gorin, I.A. Norkin. New Approaches to Scaffold Biocompatibility Assessment. BioNanoScience, 1–11, 2019. https://doi.org/10.1007/s12668-019-00613-3
5. Danchuk A.I., Makhova T.M., Doronin S.Yu., Makhov S.V., Salkovsky Yu.Ye., Gorbachev I.A. Nanofiber based on polyacrylonitrile - as a sorbent for lead and copper ions. *Butlerov Communications,* 48(11):123-131, 2016. ISSN: 2074-0212, ROI: jbc-02/16-48-11-123 *(in Russian)*
6. Bogatov V.B., Zeinalov P.V., Liubun G.P., Kozadayev M.N., Matveyeva O.V., Salkovskiy Yu.E., Radzhabov A.M., Puchinyian D.M. Remodeling of the articular cartilage during the replacement of its defect by a biocomposite material. *Morfologiia,* 147(1):63-69, 2015. ISSN: 0004-1947, PMID: 25958731 *(in Russian)*
7. Ivanov A.N., Kozadaev M.N., Puchinyan D.M., Salkovskii Yu.E., Norkin I.A. Microcirculatory changes during stimulation of tissue regeneration by polycaprolactone scaffold. *Regional Blood Circulation and Microcirculation*, 14(2):70-75, 2015. https://doi.org/10.24884/1682-6655-2015-14-2-70-75 *(in Russian)*
8. O.A.Inozemtseva, Y.E. Salkovskiy, A.N. Severyukhina, I.V. Vidyasheva, N.V. Petrova, H.A. Metwally, I.Y. Stetciura, D.A. Gorin. Electrospinning of functional materials for biomedicine and tissue engineering, *Russian Chemical Reviews*, 84(3):251–274, 2015. http://dx.doi.org/10.1070/RCR4435 *(in Russian)*
9. Ivanov A.N., Kozadaev M.N., Bogomolova N.V., Matveeva O.V., Puchin'yan M.D., Norkin I.A., Salkovsky Y.E., Lyubun G.P. Biocompatibility of polycaprolactone and hydroxyapatite matrices *in vivo. Cell and Tissue Biology*, 9(5):422-429, 2015. https://doi.org/10.1134/S1990519X15050077
10. X.-F. Wu, Yu. Salkovskiy, and Yu.A. Dzenis. Modeling of solvent evaporation from polymer jets in electrospinning, *Applied Physics Letters,* 98:223108, 2011. https://doi.org/10.1063/1.3585148
11. Dmitriev Yu.A., Salkovsky Yu.E., Kossovich L.Yu. Electrospinning of fibers from chitosan solutions with different storage period. *International Polymer Science and Technology*, 7:42-45, 2011. ISSN: 0544-2901 *(in Russian)*
12. Ostrovskiy N.V., Shipovskaya A.B., Belyanina I.B., Bouzinova D.A., Salkovskiy Yu.E. Developmental perspectives of innovation wound coverings and combined tissue-engineering constructions on the basis of polymer matrices. *Issues of Reconstructive and Plastic Surgery*, 11(3):78-79, 2010. *(in Russian)*
13. Kamenskiy A.V., Pipinos, I.I., Desyatova A.S., Salkovskiy Yu.E., Kossovich, L.Yu., Kirillova, I.V., Bockeria L.A., Morozov K.M., Polyaev V. O., Lynch T.G., Dzenis Yu.A. Finite Element Model of the Patched Human Carotid. *Vascular and Endovascular Surgery*, 43(6): 533-541, 2010. https://doi.org/10.1177/1538574409345030
14. Bockeria L.A., Pirtskhalaishvili Z.K., Morozov K.M., Kamenskiy A.V., Salkovskiy Yu.E., Desyatova A.S., Dzenis Yu. A., Kossovich L. Yu., Kirillova I.V., Gulyaev Yu. P., Ostrovskiy N.V., Polyaev V.O. Human's carotid artery repair with patches made of different materials (in pursuit of optimal material to improve the results of carotid bifurcation plasty). *Annals of Surgery*, 2:5-19, 2008. *(in Russian)*
15. Bockeria L.A., Morozov K.M., Kossovich L.Yu., Kirillova I.V., Gulyaev Y.P., Desyatova A.S., Kamenskiy A.V., Salkovskiy Y.E., Ostrovskiy N.V., Polyaev V. O. Revascularization of the human carotid artery using different patching materials. *Biomedical Technologies and Radio Electronics,* 12:33-42, 2006 *(in Russian)*
16. Salkovskiy Yu.E., Kamenskiy A.V., Polyaev V.O. Computer modeling of carotid endarterectomy with the

use of autografts. *Issues of Reconstructive and Plastic Surgery*, 3-4:45-48, 2004. *(in Russian)*

CONFERENCE PROCEEDINGS

1. Ovchinnikova S.I., Lomovtsev O.V., Salkovsky Yu.E., Klimova S.A. Influence of technological parameters and composition of spinning solutions on the dynamics of unstable polymer jets during the electrospinning of a non-woven fabric. *Reports of the XII All-Russian Conference of Young Scientists "Nanoelectronics, Nanophotonics and Nonlinear Physics"*, 2017. *(in Russian)*
2. Stenkin N.S., Abramov A.Yu., Salkovskiy Yu.E., Klimova S.A. Physical and chemical properties of the filtering nonwoven material for personal respiratory protective equipment. *Reports of the XII All-Russian Conference of Young Scientists "Nanoelectronics, Nanophotonics and Nonlinear Physics"*, 2017. *(in Russian)*
3. Makhova T.M., Banna D., Doronin S.Yu., Makhov S.V., Salkovskiy Yu.E. Sorption concentration of nitrophenols with nanofibers based on polyamide. *Proceedings of 3rd Congress of Russian Chemical Analysts*, 123, 2017. *(in Russian)*
4. D.V. Ivanov, L.Yu. Kossovich, Yu.E. Salkovsky. Biomechanics of the Willis Circle Arteries, *Civil-Comp Proceedings*, 99:188, 2012. https://doi.org/10.4203/ccp.99.188
5. A.V. Kamenskiy, I.V. Kirillova, L.Y. Kossovich, Y.E. Salkovskiy, Y.A. Dzenis. Mechanically-Motivated Selection of Patching Material for the Patient-Specific Carotid Artery, *Civil-Comp Proceedings*, 100:136, 2012. https://doi.org/10.4203/ccp.100.136
6. Kossovich L.Yu., Salkovskiy Yu.E. Electrospun nanofiber structures for advanced nanocomposites // *Civil-Comp Proceedings*, 93:265, 2010. https://doi.org/10.4203/ccp.93.265
7. Kossovich L.Yu., Salkovskiy Yu.E., Kirillova I.V. Electrospun Chitosan Nanofiber Materials as Burn Dressing // *IFMBE Proceedings (6th World Congress of Biomechanics), 31:*1212-1214, 2010. https://doi.org/10.1007/978-3-642-14515-5_307
8. Kossovich L.Yu., Kirillova I.V., Pavlova O., Salkovskiy Y. Modeling of Hemodynamics and Mechanical Behavior of Pathologically Tortuous Carotid Arteries //*IFMBE Proceedings (6th World Congress of Biomechanics), 31:860-862*, 2010. https://doi.org/10.1007/978-3-642-14515-5_219
9. Salkovskiy Yu.E., Dmitriev Yu.A., Berezyak V.V. Manufacturing of nano- and microfibers and their use in medicine. *Proceedings of the III Scientific Council of the Russian Academy of Sciences on Mechanics of Deformable Body*, 34, 2009. *(in Russian)*
10. Salkovskiy Yu.E., Dmitriev Yu.A. Electrospinning of chitosan-based materials. *Proceedings of the III Scientific Council of the Russian Academy of Sciences on Mechanics of Deformable Body*, 33-34, 2009. *(in Russian)*
11. Salkovskiy Yu.E., Dmitriev Yu.A. Electrospinning and medical use of polymer nanofibers. *Proceedings of the annual All-Russian scientific workshop "Methods of computer diagnostics in biology and medicine"*, 25-28, 2009. *(in Russian)*
12. Kamenskiy A.V., Salkovskiy Yu.E., Polyaev V.O. Study of the bifurcation zone of the common carotid artery for evaluation of hemodynamic influence on the localization of atherosclerotic lesion. *Proceedings of XII Conference "Actual problems of surgery, applied anatomy and pathophysiology" in S. Petersburg*, 2004. *(in Russian)*
13. Salkovskiy Yu.E., Kamenskiy A.V., Polyaev V.O., Kirillova I.V., Ostrovskiy N.V. Modeling of blood flow in carotid bifurcation in the normal state, with stenosis and after endarterectomy. *X Congress of Cardiovascular Surgeons, Bulletin of Bakulev Scientific Center of Cardiovascular Surgery*, 255, 2004. *(in Russian)*
14. Salkovskiy Yu.E., Kamenskiy A.V., Polyaev V.O. Mathematical modeling of blood flow dynamics in carotid bifurcation with elastic walls. *Proceedings of XII Conference "Actual problems of surgery, applied anatomy and pathophysiology" in S. Petersburg*, 2004. *(in Russian)*
15. Salkovskiy Yu.E., Kamenskiy A.V. FEM analysis of a blood flow in a carotid artery with elastic walls. *Proceedings of Mathematical Modeling and Boundary Problems Conference*, 103-106, 2004. *(in Russian)*

BOOKS

1. Golyadkina A.A., Ivanov D.V., Kamenskiy A.V., Kirillova I.V., Salkovsky Yu.E., Safonov R.A., Schuchkina O.A. Practical Application of SolidWorks CAD System in Blood Vessels Modeling. Tutorial Textbook for Students of Natural Sciences. Series: Biomechanics. *Publishing Center "Science"*, Saratov, 2011, 153 p. ISBN: 978-5-9999-1042-4.

2. Kamenskiy A.V., Salkovsky Yu.E. Application of the ANSYS FEM Software to the Problems of Blood Vessels Biomechanics. 2005. Tutorial Textbook for Students of Natural Sciences. *Saratov State University Publishing*, 2005, 91 p. ISBN: 5-292-03433-9.

PATENTS

1. Kossovich L.Yu., Salkovskiy Yu.E., Savonin S.A., Abramov A.Yu. *Filtering material for protection against air-suspended particles.* Patent RU 2720784, 2019.
2. Kossovich L.Yu., Salkovskiy Yu.E., Zapsis K.V., Muzalyov P.A., Nikolaychuk A.N., Savonin A.A., Tseptsura A.A., Pichkhidze S.Ya. *Composition for producing a vapor-permeable porous membrane,* Patent RU 2688625, 2019.
3. Kossovich L.Yu., Salkovskiy Yu.E., Zapsis K.V., Muzalyov P.A., Nikolaychuk A.N., Savonin A.A., Tseptsura A.A., Makhov S.V., Pichkhidze S.Ya. *Fire-retardant textile material*, Patent RU 2689600, 2019.
4. Kossovich L.Yu, Salkovskiy Yu.E., Savonin S.A., Serdobintsev A.A., Starodubov A.V., Pavlov A.M., Galushka V.V., Mitin D.M., Ryabukho P.V., *Microwave absorbing polyester nonwoven fabric*, Patent RU 2689624, 2019.
5. Kossovich L.Yu., Salkovskiy Yu.E., Guschina S.G., Merkulov P.T, Abramov A.Yu., Rodiontsev I.A., Aleksenko S.S., Lomovtsev O.S., Lyubun G.P. *Filter bag, a method of obtaining a membrane for it, and a method of manufacturing an anti-aerosol filter gas mask.* Patent RU 2675924, 2018.
6. Kossovich L.Yu., Salkovskiy Yu.E., Merkulov P.T, Abramov A.Yu., Rodiontsev I.A., Aleksenko S.S., Savonin S.A., Lomovtsev O.S. *The method of obtaining the filter material and filter material.* Patent RU 2676066, 2018.
7. Serdobintsev A.A., Starodubov A.V., Pavlov A.M., Salkovskiy Yu.E., Gusev N.A., Kirillova I.V. *Nonwoven multilayer material for absorption of electromagnetic radiation in the microwave range*. Patent RU 2647380, 2018.
8. Merkulov P.T., Rodiontsev I.A., Abramov A.Yu., Salkovskiy Yu.E., Gusev N.A., Kirillova I.V. *Filtering material and method of its obtaining*. Patent RU 2637952, 2017.
9. Denisov E.I., Savonin A.A., Pichkhidze S.Ya., Salkovskiy Yu.E., Gusev N.A., Kossovich L.Yu. *Composition for the production of a semi-permeable porous membrane*. Patent RU 2638981, 2017.
10. Vidyasheva I.V., Salkovskiy Yu.E., Golyadkina A.A., Gorin D.A., Lyubun G.P., Severyukhina A.N., Metvalli H.A.A., Sukhorukov G.B., Puchinyan D.M. *Implant for substitution and plastic surgery of bone and cartilage tissue*. Patent RU 157799, 2014.
11. Vidyasheva I.V., Salkovskiy Yu.E., Golyadkina A.A., Gorin D.A., Lyubun G.P., Severyukhina A.N., Metvalli H.A.A., Sukhorukov G.B., Puchinyan D.M. *Implant for surgical treatment of bone and cartilage tissue defects*. Patent RU 148729, 2014.
12. Shipovskaya A.B., Ostrovskiy N.V., Salkovskiy Yu.E., Kozyreva E.V., Dmitriev Yu.A., Belyanina I.B., Berezyak V.V., Aleksandrova O.I. *Biopolymer fiber, the composition of the spinning solution for its preparation, the method of preparation of the spinning solution, the biomedical mat, the method for its modification, the biological dressing and the method for treating wounds*. Patent RU 2468129 (WO 2012091636), 2010.

PROFESSIONAL SKILLS TRAINING

Aseptic Rodent Survival Surgery Training **2021**
University of Nebraska Medical Center
Short Course on Atomization & Sprays **2018**
Technische Universität Darmstadt, Germany
Training on formation of polymer nanofibers **2011**
The Multiscale Mechanics and Nanotechnology Laboratory
University of Illinois at Chicago
Training on NanoSpider technology **2010**
Elmarco s.r.o., Liberec, Czech Republic