

PERSONAL
INFORMATION

Yulia Gorshkova



📍 YuMO group
 Department of Neutron Investigations of Condensed Matter
 Frank Laboratory of Neutron Physics
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Sex Female Date of birth 22/09/1975 Nationality Russian

 POSITION WITHIN THE
GRANT/PROJECT

From 2000 to 2012 From 2000 to 2001 Since 2012 From June 2012 From June 2011	“key” person Junior research scientist (FLNP JINR) Responsible for biochemical room (FLNP JINR) Research scientist (FLNP JINR) User policy secretary (FLNP JINR) Scientific secretary of Scientific Technical Council of the Condensed Matter Department (FLNP JINR)
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WORK EXPERIENCE

Small angle neutron and X-ray scattering for lipid
 membranes and macromolecular complexes, functional
 and hierarchical materials studies;
 Neutron and X-ray diffraction for new advanced and
 structural materials investigations;
 Neutron and X-ray scattering techniques developments
 Densitometry investigation for liquid nanomaterials,
 including analysis of the phase transitions;
 Optical and electron microscopy;
 X-ray and neutron imaging.

 EDUCATION
AND
TRAINING

April 1997 - Diploma of Tula State University in the field of
Solid State Physics
 From June 1997 to June 2000 – PhD student (Tula State
 University)
 April 2000 – Specialization on the Neutron Facilities
 (SANS-1), Helmholtz-Zentrum Geesthacht, Geesthacht,
 Germany
 July 2011 – SAXS and WAXS instrument for Soft Matter
 Investigation, Academy of Sciences of the Czech
 Republic, Institute of Macromolecular Chemistry, Prague,
 Hlavni mesto Praha, Czech Republic

 PERSONAL
SKILLS

Experience with SAS, SASView and other soft ware for
 analysis of the SANS and SAXS data;
 Intermediate level with Mathcad and OriginPro

Mother tongue(s) Russian

Other language(s)	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken interaction	Spoken production	
English	C1	C1	B2	B2	B2
German	B1	B1	A2	A2	A2

Levels: A1/A2: Basic user - B1/B2: Independent user - C1/C2 Proficient user
[Common European Framework of Reference for Languages](#)

Communication and organisational skills

Good communication and organisational skills led to the organization a number of the International conferences and schools for young scientists which were held with successfully:

2015 International Conference "Condensed Matter Research at the IBR-2", FLNP JINR, Dubna, Russia	Scientific secretary
2014 International Conference "Condensed Matter Research at the IBR-2", FLNP JINR, Dubna, Russia	Scientific secretary
2014 International Summer School and Workshop "Complex and Magnetic Soft Matter Systems: Physico-Mechanical Properties and Structure", 2014, JINR, Dubna, Russia	Member of Local Organizing Committee
2013 RCM-3 of IAEA CRP "Development, Characterization and Testing of Materials of Relevance to Nuclear Energy Sector Using Neutron Beams", IAEA, FLNP JINR, Dubna, Russia	Secretary of the Local Organizing Committee
2013 International Scientific School "Modern Neutron Diffraction", FLNP JINR, Dubna, Russia	Scientific secretary
2012 International Scientific School "Modern Neutron Diffraction", FLNP JINR, Dubna, Russia	Scientific secretary
2012 International meeting «Molecular aspects of solid state and interfacial electrochemistry », MSU, FLNP JINR, Dubna, Russia	Member of Local Organizing Committee
2011 SANS-YuMO user Meeting at the start-up of scientific experiments on IBR-2M devoted to the 75th anniversary of Yu.M Ostanevich`s birth, FLNP, JINR, Dubna, Russia	Member of Local Organizing Committee
2011 International Scientific School "Modern Neutron Diffraction", FLNP JINR, Dubna, Russia	Scientific secretary

Digital competence

SELF-ASSESSMENT				
Information processing	Communication	Content creation	Safety	Problem solving
Proficient user	Proficient user	Proficient user	Independent user	Independent user

Levels: Basic user - Independent user - Proficient user
[Digital competences - Self-assessment grid](#)

Driving licence

B

Selected
scientific
publications
(Science 2007)

1. Gorshkova, Yu.E., Kuklin, A.I., and Gordeliy, V.I., Structure and Phase Transitions of DMPC Multilamellar Vesicles in the Presence of Ca^{2+} Ions (2016) Journal of Surface Investigation: X-ray, Synchrotron and Neutron Techniques, Vol. 10, No. 6, pp. 1154–1164. DOI: 10.1134/S1027451016050499
2. Gorshkova, Yu.E., Ivankov, O.I. Structure and phase transitions of the multilamellar DMPC membranes in presence of the DMSO and DESO sulfoxides, Journal of optoelectronics and advanced materials (2016) (accepted)
3. Ordon, M., Gorshkova, Y., Ossowska-Chruściel, M.D. Lithocholic acid derivative in the presence of dimethyl sulfoxide: Morphology and phase transitions (2016) Thermochimica Acta, 643, pp. 1-12. DOI: 10.1016/j.tca.2016.09.013
4. Gorshkova, Yu.E. Fusion of unilamellar DMPC vesicles in presence of the sulfoxides: Effect of time and concentration (2015) Journal of Optoelectronics and Advanced Materials, 17 (9-10), pp. 1532-1537.
5. Bokuchava, G.D., Gorshkova, Yu.E. Analysis of small angle neutron scattering from nanocrystalline niobium carbide powders using global scattering functions (2015) Journal of Optoelectronics and Advanced Materials, 17 (7-8), pp. 985-990.
6. Gorshkova, Yu.E., Kozlenko, D.P. Proposals for IBR-2 Spectrometer Complex Development Program 2015 – 2020 (2015) JINR Publ. Dep., pp. 1-102.
7. Bulavin, L.A., Solov'ev, D.V., Gorshkova, Y.E., Zhigunov, O.M., Ivan'kov, O.I., Gordeliy, V.I., Kuklin, O.I. Structural transition in a lipid-water liquid system (2012) Ukrainian Journal of Physics, 57 (6), pp. 623-627.
8. Gorshkova, Yu.E., Ivankov, O.I., Kuklin, A.I., Gordeliy, V.I. Investigation of DESO/LIPID membranes interaction by X-ray scattering (2012) Journal of Physics: Conference Series, 351 (1), art. no. 012006. DOI: 10.1088/1742-6596/351/1/012006
9. Soloviov, D.V., Gorshkova, Yu.E., Ivankov, O.I., Zhigunov, A.N., Bulavin, L.A., Gordeliy, V.I., Kuklin, A.I. Ripple phase behavior in mixtures of DPPC/POPC lipids: SAXS and SANS studies (2012) Journal of Physics: Conference Series, 351 (1), art. no. 012010. DOI: 10.1088/1742-6596/351/1/012010
10. Soloviov, D.V., Bulavin, L.A., Gordeliy, V.I., Gorshkova, Y.E., Ivankov, O.I., Kovalev, Y.S., Kuklin, A.I., Nikolaienko, T.Y. Neutron scattering investigations of the lipid bilayer structure pressure dependence (2012) Nuclear Physics and Atomic Energy, 13 (1), pp. 83-88.
11. Kuklin, A.I., Soloviov, D.V., Rogachev, A.V., Utrobin, P.K., Kovalev, Yu.S., Balasoiu, M., Ivankov, O.I., Sirotnin, A.P., Murugova, T.N., Petukhova, T.B., Gorshkova, Yu.E., Erhan, R.V., Kutuzov, S.A., Soloviev, A.G., Gordeliy, V.I. New opportunities provided by modernized small-angle neutron scattering two-detector system instrument (YuMO) (2011) Journal of Physics: Conference Series, 291 (1), art. no. 012013. DOI: 10.1088/1742-6596/291/1/012013
12. Kuklin, A.I., Rogov, A.D., Gorshkova, Y.E., Utrobin, P.K., Kovalev, Y.S., Rogachev, A.V., Ivankov, O.I., Kutuzov, S.A., Soloviov, D.V., Gordeliy, V.I. Analysis of neutron spectra and fluxes obtained with cold and thermal moderators at IBR-2 reactor: Experimental and computer-modeling studies (2011) Physics of Particles and Nuclei Letters, 8 (2), pp. 119-128. DOI: 10.1134/S1547477111020075
13. Gorshkova, J.E., Gordeliy, V.I. Investigation of the interaction of dimethyl sulfoxide with lipid membranes by small-angle neutron scattering (2007) Crystallography Reports, 52 (3), pp. 535-539. DOI: 10.1134/S1063774507030364

Projects,
Research programs,
Research grants

**Poland (Siedlce University of Natural Science and Humanities (SU NSH),
Institute of Chemistry, Siedlce, Poland) - Joint Institute for Nuclear Research
(JINR)**

2016 – Morphology of gel and sol phase of complex lithocholic acid
compounds studied by SANS method

2014 – 2015 Intermolecular hydrogen bond in ether complex lithocholic acid
compounds studied by SANS method

**National Institute for Laser, Plasma and Radiation Physics (INFLPR) - Joint
Institute for Nuclear Research (JINR)**

2015 – 2017 Investigations of the interaction, structure and phase transitions of the
lipid and macromolecular complexes in presence of the polar aprotic
solvents and cations using Small Angle Scattering (SAS) and Electron
Microscopy (EM) techniques

**Institute of Nuclear Physics, Academy of Sciences of Uzbekistan, Tashkent -
Joint Institute for Nuclear Research (JINR)**

2015 – 2017 Investigation of the sulfoxides effect on intermembrane interaction,
structure and properties of the model lipid membranes

Russian Foundation for Basic research (RFBR)

2014 – 2016 Number or acronym of the project: Nr. 14-42-03585_r_center_a
Title: Neutron diagnostics of microstructure, defects and mechanical
properties of functional and constructional nanostructured materials
Project coordinator: G.D. Bokuchava

2015 – 2017 Number or acronym of the project: Nr. 15-08-06418_a
Title: Application of neutron stress diffractometry for residual stress
studies in structural materials and welded joints
Project coordinator: G.D. Bokuchava

Memberships

Member of The Russian Neutron Scattering Society (ROSNEITRO)

International
collaborations

Institute of Electronics of Bulgarian Academy of Sciences - Prof.Dr. P.Petrov
University Politehnica of Bucharest, Bucharest, Romania - Dr. G. V. Popescu
Institute of Macromolecular Chemistry, Academy of Sciences of the Czech Republic,
Prague, Czech Republic – Dr. A. Zhigunov
Siedlce University of Natural Science and Humanities (SU NSH), Institute of
Chemistry, Siedlce, Poland - Prof. Ossowska-Chruściel Mirosława
Institut de Biologie Structurale J.-P. Ebel, Université Grenoble Alpes, Grenoble,
France – Dr. V.I.Gordeliy
Bundesanstalt für Materialforschung und prüfung (BAM), Berlin, Germany – Prof.Dr.
G.Bruno
Institute for Metal Forming, Technical University Bergakademie Freiberg, Freiberg,
Germany - Dr. S.Guk
Department of Mechanical Engineering, Amity University Haryana, Panchgaon 122
413, Manesar, Delhi-NCR, India – Dr. Shiv Sharma

Conferences
(last 5 years)**2016**

1. XXIII-th International Conference "Mathematics. Computer. Education." Molecular Modeling Section, January 2016, Dubna, Russia
2. First Russian Crystallographic Congress, 21-26 November 2016, Moscow, Russia
3. III International Conference on SMALL ANGLE NEUTRON SCATTERING dedicated to the 80th anniversary of Yu.M. Ostanevich, Joint Institute for Nuclear Research, Dubna, Russia, June 6-9, 2016

2015

4. 15th International Balkan Workshop on Applied Physics and Materials Science (IBWAP 2015), 2-4 July, 2015, Constanta, Romania
5. Workshop on Condensed matter research by means of neutron scattering methods - CMRNS Dubna, 4-7 July, 2015, Constanta, Romania
6. 16th International Conference on Small-Angle Scattering (SAS2015), 13 - 18 September, 2015, Berlin, Germany
7. III Workshop on Small-Angle Neutron Scattering MURomets - 2015, 24-25 September 2015, Gatchina, Orlova Roscha, Petersburg Nuclear Physics Institute
8. International Conference "Condensed Matter Research at the IBR-2", 11-15 October 2015, Dubna, Moscow region, Russia

2014

9. International Conference "Condensed Matter Research at the IBR-2", FLNP JINR, Dubna, RF
10. 17th International Seminar on "Neutron Scattering Investigation in Condensed Matter", Adam Mickiewicz University, Poznan, Poland
11. International workshop "Structure and Functions of Biomembranes", Joint Institute for Nuclear Research, Moscow Institute of Physics and Technology (State University), Dolgoprudny, Russia
12. Meeting and Youth Conference on the use of neutron scattering and synchrotron radiation in condensed matter: RNSI-CM-2014, Petersburg Nuclear Physics Institute, Russia
13. Complex and Magnetic Soft Matter Systems: Physico-Mechanical Properties and Structure, 29 September - 3 October 2014, Dubna, Russia

2013

14. II International Conference "Multiscale modeling of structure, structure of matter, nanomaterials and nanotechnologies" is dedicated to the memory of Professor Anatoly Nikitin, TSU, FLNP, Tula, Russia

2012

15. Complex and Magnetic Soft Matter Systems: Physico-Mechanical Properties and Structure, 3-7 September, 2012, Alushta, Ukraine
16. XXII Meeting and Youth Conference on the use of neutron scattering and synchrotron radiation in condensed matter: RNSI-CM-2012, Petersburg Nuclear Physics Institute. Konstantinov National "Kurchatov Institute" Research Center, Zelenogorsk, Russia

Presentations
(last 5 years)

2016

1. *Dushanov E.B., Gorshkova Yu.E., Eremin E.A., Tashmetov M.Yu.* **MD study of the interaction of the DMPC lipid bilayer with an aqueous solution of sulfoxide DESO**, XXIII-th International Conference "Mathematics. Computer. Education." Molecular Modeling Section, January 2016, Dubna, Russia
2. *Yu.E. Gorshkova, S.V. Guk, R. Kawalla, G.D. Bokuchava, I.V. Papushkin,* **Investigation of plastically deformed TRIP-composites by neutron diffraction and small angle neutron scattering methods**, First Russian Crystallographic Congress, 21-26 November 2016, Moscow, Russia
3. *R. Smyslov, G. Kopitsa, Yu. Gorshkova, O. Ivankov, K. Ezdakova, Yu. Chetverikov, A. Bugrov, A. Zavalova, A. Khripunov, A. Tkachenko, V. Haramus, B. Angelov, V. Pipich, N. Szekely.* **Structural morphology of Gluconacetobacter xylinus cellulose, and of organo-inorganic composite materials on its base**, YuMO'16 • 6 – 9 June 2016, Dubna.

2015

Oral presentations

4. *Gorshkova Yu.E., Chudoba D.M.,* **Condensed matter research at the IBR-2 reactor in the framework of FLNP JINR User Programme**, WORKSHOP on Condensed matter research by means of neutron scattering methods - CMRNS Dubna, 4-7 July, 2015, Constanta, Romania
5. *Gorshkova Yu.E.,* **Structure and phase transitions of lipid membranes in the presence of ions and polar molecules: Small angle neutron scattering investigation**, Workshop on Condensed matter research by means of neutron scattering methods - CMRNS Dubna, 4-7 July, 2015, Constanta, Romania
6. *Yu.E. Gorshkova, G.D. Bokuchava,* **Analysis of small angle neutron scattering from nanocrystalline niobium carbide powders**, 16th International Conference on Small-Angle Scattering (SAS2015), 13 - 18 September, 2015, Berlin, Germany (**flash presentation**)
7. *Yulia Gorshkova, Magdalena Ordon, Mirosława Ossowska-Chruściel,* **SANS application to the study of morphology and internal structure of the organogels**, III Workshop on Small-Angle Neutron Scattering MURomets - 2015, 24-25 September 2015, Gatchina, Orlova Roscha, Petersburg Nuclear Physics Institute
8. *Gorshkova Yu.E.,* **Information about International Conference «Condensed Matter Research at the IBR-2», June 24 – 27, 2014, DUBNA, RUSSIA**, 41st meeting of the PAC for Condensed Matter Physics, January 22 – 23, 2015, Dubna, Russia

Poster presentation

9. *Yulia Gorshkova, Magdalena Ordon, Mirosława Ossowska-Chruściel,* **Neutron and thermal analysis of ether complex lithocholic acid derivative in DMSO**, 15th International Balkan Workshop on Applied Physics and Materials Science (IBWAP 2015), 2-4 July, 2015, Constanta, Romania
10. *Yu.E. Gorshkova,* SANS investigation of the structure and intermembrane interaction of the ULVs DMPC in the sulfoxides presence, 16th International Conference on Small-Angle Scattering (SAS2015), 13 - 18 September, 2015, Berlin, Germany
11. *Yulia Gorshkova, Magdalena Ordon,* **Small angle neutron investigation of the lithocholic acid derivative in the dimethyl sulfoxide presence: morphology and phase transitions**, International Conference "Condensed Matter Research at the IBR-2", 11-15 October 2015, Dubna, Moscow region, Russia
12. *Yulia Gorshkova,* **Effect of ions and polar solvents on the structure and phase transitions of phospholipid membranes**, International Conference "Condensed Matter Research at the IBR-2", 11-15 October 2015, Dubna, Moscow region, Russia
13. *A.D. Rogov, A.V. Rogachev, D.V. Soloviov, O.I. Ivankov, Yu.E. Gorshkova, Yu.S. Kovalev, V.I. Gordeliy and A.I. Kuklin,* **Cold and thermal moderator at IBR-2 for SANS spectrometer: Advantages and disadvantages**, International Conference "Condensed Matter Research at the IBR-2", 11-15 October 2015, Dubna, Moscow region, Russia

2014

14. *Yu. Gorshkova,* **DMPC MLVs and ULVs Structures in presence of Ca²⁺ Ions**, 17th International Seminar on "Neutron Scattering Investigation in Condensed Matter", May 2014, Adam Mickiewicz University, Poznan, Poland
15. *Yu. Gorshkova,* **Fusion of DMPC ULVs in presence of the sulfoxides**, International Conference "Condensed Matter Research at the IBR-2", FLNP JINR, Dubna, RF

16. *Yu. Gorshkova*, **Analysis of the structure and phase transition of phospholipid membranes in the presence of the sulfoxides: SANS investigation**, Meeting and Youth Conference on the use of neutron scattering and synchrotron radiation in condensed matter: RNSI-CM-2014, Petersburg Nuclear Physics Institute, Russia
17. *Yu. Gorshkova*, **Phase transitions of the PC membranes in the presence of the salts and sulfoxides**, International Summer School and Workshop "Complex and Magnetic Soft Matter Systems: Physico-Mechanical Properties and Structure", 2014, Joint Institute for Nuclear Research, Dubna, Russia
18. *Gorskova Yu.E., Kuklin A.I., Gordeliy V.I.*, **Continuous unbinding transition of multilamellar lipid membranes at low concentration of Ca²⁺ ions**, International workshop "Structure and Functions of Biomembranes", Joint Institute for Nuclear Research, Moscow Institute of Physics and Technology (State University), Dolgoprudny, Russia
2013
19. *Yu.E. Gorshkova, A.I. Kuklin, V.I. Gordeliy*, **Spontaneous formation of phospholipid vesicles in the presence of calcium ions**, II International Conference "Multiscale modeling of structure, structure of matter, nanomaterials and nanotechnologies" is dedicated to the memory of Professor Anatoly Nikitin, TSU, FLNP, Tula, Russia
2012
20. *Ivankov O.I., Soloviov D.V., Gorshkova Yu.E., Zhigunov A., Bulavin L.A., Gordeliy V.I., Kuklin A.I.*, **Phase transition in DPPC/POPC lipid mixtures by SANS and SAXS**, Complex and Magnetic Soft Matter Systems: Physico-Mechanical Properties and Structure, , Alushta, Ukraine
21. *Gorshkova Yu.E., Kuklin A.I., Gordeliy V.I.*, **Unbinding transition of lipid membranes at low concentration of Ca²⁺ ions**, International Summer School and Workshop Complex and Magnetic Soft Matter Systems: Physico-Mechanical Properties and Structure, , Alushta, Ukraine
22. *Ю.Е. Горшкова, А.И. Куклин, В.И. Горделий*, **Spontaneous transition of DMPC multilayer membranes in unilamellar vesicles in the presence of Ca²⁺ ions in the liquid phase**, XXII Meeting and Youth Conference on the use of neutron scattering and synchrotron radiation in condensed matter: RNSI-CM-2012, Petersburg Nuclear Physics Institute. Konstantinov National "Kurchatov Institute" Research Center, Zelenogorsk, Russia