

**FULL NAME:**

**Marat O. Gallyamov**

Date of Birth:

August 25, 1973

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### PERSONAL DETAILS

Date and Place of Birth: August 25, 1973; Magnitogorsk, USSR

Nationality: Russian Federation

Marital Status: Married, two children

### CONTACT INFORMATION

Prof. Marat O. Gallyamov

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### HOME PAGE



### EDUCATION

First and Second course integrated (equivalent to masters)

Name of University	Lomonosov Moscow State University, Faculty of Physics			
Address of University	Leninskie gory 1-2, Moscow, 119991, Russian Federation			
Award	Physicist			
Title of Diploma work	Study of lipid membranes by STM and AFM techniques			
Dates studied	<i>from:</i> 01.09.1990	<i>to:</i> 31.01.1996	Date awarded:	31.01.1996
Full Time		By exams and research		

Third course (equivalent to PhD)

Name of University	Lomonosov Moscow State University, Faculty of Physics			
Award	PhD			
Title of thesis	Scanning probe microscopy of nucleic acids and thin organic films			
Dates studied	from: 01.04.1996	to: 01.05.1999	Date awarded:	17.06.1999

Fourth course (equivalent to habilitation)

Name of University	Lomonosov Moscow State University, Faculty of Physics		
Award	DSc		
Title of thesis	Scanning force microscopy of polymer structures on a substrate		
		Date awarded:	11.12.2009

## TITLES

Name of Body	Russian Academy of Sciences		
Award	Professor (honorary)		
Subject	Chemistry and Materials Sciences		
		Date awarded:	09.02.2016

Name of Body	Russian Higher Attestation Commission		
Award	Docent		
Subject	Polymer Science		
		Date awarded:	19.05.2016

## TRAINING

Name of Institution	Weiterbildungszentrum Brennstoffzelle Ulm e.V. ( <a href="#">WBZU</a> , Fuel cell education and training center Ulm)			
Title of course	Polymer Electrolyte – Fuel Cell Course			
	including lectures and practical training			
Award	Certificate			
Dates studied	from: 14.11.2005	to: 27.11.2005	Address, place:	WBZU, Helmholtzstr. 6; D-89081 Ulm, Germany

## PROFESSIONAL EXPERIENCE

A1). Current role (primary, full time)

Job Title	Associate Professor
Dates from/to	01.12.2011 – present
Employer's Name	Faculty of Physics, Lomonosov Moscow State University
Employer's Address	Leninskie gory 1-2, Moscow, GSP-1, 119991, Russian Federation

Number of Staff Supervised	<i>directly</i>	<i>indirectly</i>
	6	5
Description of Duties	Project leader of several scientific projects, scientific supervisor of several PhD works and diploma works, lecturer of several courses.	

A2). Current role 2 (secondary, part time)

Job Title	Leading Research Associate (part time)	
Dates from/to	01.03.2010 – present	
Employer's Name	Nesmeyanov Institute of Organoelement Compounds of Russian Academy of Sciences	
Employer's Address	Vavilova St. 28, Moscow, GSP-1, 119991, Russian Federation	
Number of Staff Supervised	<i>directly</i>	<i>indirectly</i>
	3	3
Description of Duties	Project leader of several scientific projects, scientific supervisor of several PhD works and diploma works, lecturer.	

B) Previous role

Job Title	Leading Research Associate	
Dates from/to	01.06.2010 – 30.11.2011	
Employer's Name	Faculty of Physics, Lomonosov Moscow State University	
Employer's Address	Leninskie gory 1-2, Moscow, GSP-1, 119991, Russian Federation	
Number of Staff Supervised	<i>directly</i>	<i>indirectly</i>
	6	5
Description of Duties	Project leader of four scientific projects, scientific supervisor of three PhD works and one diploma work, lecturer of two courses.	

c) Role prior to B

Job Title	Senior Research Associate	
Dates from/to	05.09.2005 – 31.05.2010	
Employer's Name	Faculty of Physics, Lomonosov Moscow State University	
Employer's Address	Leninskie gory 1-2, Moscow, GSP-1, 119991, Russian Federation	
Number of Staff Supervised	<i>directly</i>	<i>indirectly</i>
	6	11
Description of Duties	Project leader of five scientific projects, scientific supervisor of six diploma works, lecturer of two courses	

d) Role prior to C

Job Title	Research Associate	
Dates from/to	01.07.2004 – 04.09.2005	

Employer's Name	Faculty of Physics, Lomonosov Moscow State University	
Employer's Address	Leninskie gory 1-2, Moscow, GSP-1, 119991, Russian Federation	
Number of Staff Supervised	<i>directly</i>	<i>indirectly</i>
	0	2
Description of Duties	Research in the framework of two personal scientific projects	

e) Role prior to D

Job Title	Humboldt Research Fellow	
Dates from/to	01.07.2003 – 30.06.2004	
Employer's Name	Polymer Science and Organische Chemie III – Makromolekulare Chemie, Universität Ulm	
Employer's Address	Albert-Einstein-Allee 11, Ulm D-89069, Germany	
Number of Staff Supervised	<i>directly</i>	<i>indirectly</i>
	0	0
Description of Duties	Research in the framework of personal scientific project within Humboldt Research Fellowship in Germany	

f) Role prior to E

Job Title	Research Associate (Engineer before 03.05.2000)	
Dates from/to	15.09.1999 – 30.06.2003	
Employer's Name	Faculty of Physics, Lomonosov Moscow State University	
Employer's Address	Leninskie gory 1-2, Moscow, GSP-1, 119991, Russian Federation	
Number of Staff Supervised	<i>directly</i>	<i>indirectly</i>
	0	0
Description of Duties	Project leader of one scientific project. Visiting scientist in the collaborative research with the group of Prof. Kjeld Schaumburg (Centre for Interdisciplinary Studies of Molecular Interactions, Department of Chemistry, University of Copenhagen, Universitetsparken 5, DK-2100 Copenhagen, Denmark) and with the group of Prof. Dr. Martin Möller (Organische Chemie III – Makromolekulare Chemie, Universität Ulm, Albert-Einstein-Allee 11, Ulm D-89069, Germany).	

**PUBLISHED MATERIAL**

Number of:

Books	2 books + 1 chapter	Papers	104	Patents	14
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**PAPERS IN PEER-REVIEWED JOURNALS**

1. V. Yu. Uvarov, Yu. D. Ivanov, A. N. Romanov, M. O. Gallyamov, O. I. Kiselyova, I. V. Yaminsky, Scanning tunneling microscopy study of cytochrome P450 2B4 incorporated in proteoliposomes // *Biochimie* (1996), v. **78(8-9)**, pp. 780–784. [http://dx.doi.org/10.1016/S0300-9084\(97\)82536-9](http://dx.doi.org/10.1016/S0300-9084(97)82536-9)

2. V. G. Sergeev, O. A. Pyshkina, M. O. Gallyamov, I. V. Yaminsky, A. B. Zezin, V. A. Kabanov, DNA-Surfactant Complexes in Organic Media // *Progr. Colloid Polym. Sci.* (1997), **v. 106**, pp. 198–203. <http://dx.doi.org/10.1007/BFb0111058>
3. Yu. F. Drygin, O. A. Bordunova, M. O. Gallyamov, I. V. Yaminsky Atomic force microscopy examination of tobacco mosaic virus and virion RNA // *FEBS Lett.* (1998), **v. 425(2)**, pp. 217–221. [http://dx.doi.org/10.1016/S0014-5793\(98\)00232-4](http://dx.doi.org/10.1016/S0014-5793(98)00232-4)
4. M. O. Gallyamov, O. A. Pyshkina, V. G. Sergeev, I. V. Yaminsky, Application of a Scanning Probe Microscopy to the Study of DNA Conformation // *Surf. Investig.* (1998), **v. 14(2)**, pp. 247–251.
5. S. A. Bychikhin, M. O. Gallyamov, V. V. Potemkin, A. V. Stepanov, I. V. Yaminsky, Scanning tunneling microscope—A nanoelectronics measuring instrument // *Meas. Tech.* (1998), **v. 41(4)**, pp. 383–388. <http://dx.doi.org/10.1007/BF02504025>
6. M. O. Gallyamov, Yu. F. Drygin, I. V. Yaminsky, Atomic force microscopy visualization of RNA and ribonucleotides of the tobacco mosaic virus // *Surf. Investig.* (2000), **v. 15(7)**, pp. 1127–1134
7. G. K. Zhavnerko, T. A. Kuchuk, V. E. Agabekov, M. O. Gallyamov, I. V. Yaminsky, The Structure and Properties of Monomolecular Films Based on N-Octadecyl-3,4,9,10-Perylenebis(Dicarboxydiimide) // *Russ. J. Phys. Chem.* (1999), **v. 73(7)**, pp. 1111–1114.
8. A. S. Andreeva, M. O. Gallyamov, O. A. Pyshkina, V. G. Sergeev, I. V. Yaminskii, Morphology of DNA-Surfactant Complexes after their Passing through the Water-Chloroform Interface as Studied by Atomic Force Microscopy // *Russ. J. Phys. Chem.* (1999), **v. 73(11)**, pp. 1858–1863
9. G. K. Zhavnerko, V. S. Gurin, A. L. Rogach, M. O. Gallyamov, I. V. Yaminsky. Incorporation of Thiol-Stabilized CdTe Nanoclusters into Langmuir-Blodgett Films // *J. Incl. Phenom. Macrocycl. Chem.* (1999), **v. 35(1-2)**, pp. 157–164. <http://dx.doi.org/10.1023/A:1008149321998>
10. G. K. Zhavnerko, V. N. Staroverov, V. E. Agabekov, M. O. Gallyamov, I. V. Yaminsky, Interpretation of SPM images of Langmuir-Blodgett films based on long-chain carboxylic acids // *Thin Solid Films* (2000), **v. 359(1)**, pp 98–103. [http://dx.doi.org/10.1016/S0040-6090\(99\)00734-8](http://dx.doi.org/10.1016/S0040-6090(99)00734-8)
11. M. O. Gallyamov, O. A. Pyshkina, V. G. Sergeev, I. V. Yaminskii. DNA T4 condensation in water-alcohol media // *Surf. Investig.* (2001) **v. 16(7)**, pp. 1177–1182 <http://arxiv.org/abs/1107.4215>
12. M. O. Gallyamov, I. V. Yaminsky. Quantitative methods of restoration of true topographical properties of the objects by measurement of AFM-images. 1. Contact deformations of the probe and the specimen // *Surf. Investig.* (2001) **v. 16(7)**, pp. 1127–1134 <http://arxiv.org/abs/1107.4203>
13. M. O. Gallyamov, I. V. Yaminskii. Quantitative methods for restoration of true topographical properties of objects using the measured AFM-images. 2. The effect of broadening of the AFM-profile // *Surf. Investig.* (2001) **v. 16(7)**, pp. 1135–1141 <http://arxiv.org/abs/1107.4204>
14. O. M. Stukalov, A. V. Misevich, A. E. Pochtennyi, M. O. Gallyamov, I. V. Yaminsky. Atomic force microscopy of thin sensor films of copper phthalocyanine-polystyrene composite // *Surf. Investig.* (2001) **v. 16(11)**, pp. 1819–1822
15. E. Said-Galiyev, L. Nikitin, R. Vinokur, M. Gallyamov, M. Kurykin, O. Petrova, B. Lokshin, I. Volkov, A. Khokhlov, and K. Schaumburg. New Chelate Complexes of Copper and Iron: Synthesis and Impregnation into a Polymer Matrix from Solution in Supercritical Carbon Dioxide // *Ind. Eng. Chem. Res.* (2000), **v. 39(12)**, pp. 4891–4896. <http://dx.doi.org/10.1021/ie000251g>
16. Sergey V. Mikhailenko, Vladimir G. Sergeev, Anatoly A. Zinchenko, Marat O. Gallyamov, Igor V. Yaminsky, and Kenichi Yoshikawa. Interplay between Folding/Unfolding and Helix/Coil Transitions in Giant DNA. // *Biomacromolecules* (2000), **v. 1(4)**, pp. 597–603. <http://dx.doi.org/10.1021/bm0055403>
17. M. O. Gallyamov, I. V. Yaminsky. Visualization of Atomic Structure using AFM: Theoretical Description. // *Phys. Low-Dimens. Struct.*, (2001) **No 3/4**, pp. 217–222 <http://arxiv.org/abs/1104.4567>

18. E. E. Said-Galiev, Y. S. Vygodskii, L. N. Nikitin, R. A. Vinokur, M. O. Gallyamov, A. R. Khokhlov. Synthesis of poly(imides)in supercritical carbon dioxide // *Polym. Sci. B*, (2001), **v. 43(7–8)**, pp. 227--229
19. L. N. Nikitin, E. E. Said-Galiyev, R. A. Vinokur, A. R. Khokhlov, M. O. Gallyamov, K. Schaumburg. Poly(methyl methacrylate) and Poly(butyl methacrylate) Swelling in Supercritical Carbon Dioxide // *Macromolecules* (2002) **v. 35(3)**, pp. 934--940. <http://dx.doi.org/10.1021/ma010271+>
20. T. P. Kenigsberg, V. E. Agabekov, G. K. Zhavnerko, M. O. Gallyamov, and I. V. Yaminskii. Effect of Subphase on the Formation and Properties of Langmuir-Blodgett Films of Cellulose Acetates // *Polym. Sci. A* (2002) **v. 44(2)**, pp. 134--140
21. G. K. Zhavnerko, K. A. Zhavnerko, V. E. Agabekov, M. O. Gallyamov, I. V. Yaminsky, A. L. Rogach. Reorganization of Langmuir monolayers on solid surfaces // *Colloid Surf. A - Physicochem. Eng. Asp.* (2002) **v. 198-200**, pp. 231--238. [http://dx.doi.org/10.1016/S0927-7757\(01\)00935-9](http://dx.doi.org/10.1016/S0927-7757(01)00935-9)
22. Genady K. Zhavnerko, Vladimir E. Agabekov, Marat O. Gallyamov, Igor V. Yaminsky, Andrey L. Rogach. Composite Langmuir–Blodgett films of behenic acid and CdTe nanoparticles: the structure and reorganization on solid surfaces // *Colloid Surf. A - Physicochem. Eng. Asp.* (2002) **v. 202(2-3)**, pp. 233--241. [http://dx.doi.org/10.1016/S0927-7757\(01\)01085-8](http://dx.doi.org/10.1016/S0927-7757(01)01085-8)
23. M. O. Gallyamov, R. A. Vinokur, L. N. Nikitin, E. E. Said-Galiyev, A. R. Khokhlov, K. Schaumburg Poly(methyl methacrylate) and Poly(butyl methacrylate) Swelling in Supercritical Carbon Dioxide and the Formation of a Porous Structure // *Polym. Sci. A* (2002) **v. 44(6)**, pp. 581--592
24. M. O. Gallyamov, R. A. Vinokur, L. N. Nikitin, E. E. Said-Galiyev, A. R. Khokhlov, I. V. Yaminsky, K. Schaumburg. High-Quality Ultrathin Polymer Films Obtained by Deposition from Supercritical Carbon Dioxide As Imaged by Atomic Force Microscopy // *Langmuir* (2002), **v. 18(18)**, pp. 6928-6934. <http://dx.doi.org/10.1021/la025807e>
25. M. O. Gallyamov, E. V. Dubrovin, I. V. Yaminsky. Micromechanics of nucleic acids // *Phys. Low-Dimens. Struct.* (2002), **No 5/6**, pp. 7--11.
26. M. O. Gallyamov, R. A. Vinokur, L. N. Nikitin, E. E. Said-Galiyev, A. R. Khokhlov, I. V. Yaminsky, K. Schaumburg. Scanning probe microscopy study of polymer molecules and thin films deposited from supercritical carbon dioxide // *Phys. Low-Dimens. Struct.* (2002) **No 5/6**, pp. 153--162.
27. G. K. Zhavnerko, G. N. Supichenko, V. E. Agabekov, K. L. Moiseichuk, E. A. Dikusar, M. O. Gallyamov, I. V. Yaminskii. Formation and Properties of Langmuir-Blodgett Films Prepared from Diacetylene-containing Compounds // *Russ. J. Phys. Chem.* (2002), **v. 76(9)**, pp. 1476-1480
28. Lev N. Nikitin, Marat O. Gallyamov, Rostislav A. Vinokur, Alexander Yu. Nikolaec, Ernest E. Said-Galiyev, Alexei R. Khokhlov, Henrik T. Jespersen, Kjeld Schaumburg. Swelling and impregnation of polystyrene using supercritical carbon dioxide // *J. Supercrit. Fluids* (2003), **v. 26(3)**, pp. 263-273. [http://dx.doi.org/10.1016/S0896-8446\(02\)00183-3](http://dx.doi.org/10.1016/S0896-8446(02)00183-3)
29. Ernest E. Said-Galiyev, Yakov S. Vygodskii, Lev N. Nikitin, Rostislav A. Vinokur, Marat O. Gallyamov, Inna V. Pototskaya, Vyacheslav V. Kireev, Alexei R. Khokhlov, and Kjeld Schaumburg. Synthesis of polyimides in supercritical carbon dioxide // *J. Supercrit. Fluids* (2003), **v. 26(2)**, pp. 147-156. [http://dx.doi.org/10.1016/S0896-8446\(02\)00210-3](http://dx.doi.org/10.1016/S0896-8446(02)00210-3)  
[http://dx.doi.org/10.1016/S0896-8446\(03\)00146-3](http://dx.doi.org/10.1016/S0896-8446(03)00146-3)
30. M. O. Gallyamov, I. V. Yaminsky, A. R. Khokhlov, R. A. Vinokur, L. N. Nikitin, E. E. Said-Galiyev, K. Schaumburg, Deposition of polymer molecules and thin polymer films from supercritical carbon dioxide. Part 1. State of the art of problems (review) // *Mikrosistemnaya Tekhnika* (2003), №1. pp. 31-35. (in Russian)
31. M. O. Gallyamov, I. V. Yaminsky, A. R. Khokhlov, R. A. Vinokur, L. N. Nikitin, E. E. Said-Galiyev, K. Schaumburg. Deposition of polymer molecules and thin polymer films from supercritical carbon dioxide. Part 2. Results of AFM study // *Mikrosistemnaya Tekhnika* (2003), №2. pp. 11-14. (in Russian)
32. G. K. Zhavnerko, K. A. Zhavnerko, V. E. Agabekov, M. O. Gallyamov, I. V. Yaminskii. Specific Features of Molecular Packing in Processes of Reorganization of Monomolecular



- Films of Amphiphilic Compounds on a Solid Surface // *Russ. J. Phys. Chem.* (2003), **v. 77(5)**, pp. 791-796
33. A. M. Lomonosov, S. N. Egorov, M. O. Gallyamov, I. V. Yaminsky. AFM of Bacterial Cells Subjected to Different Factors // *Phys. Low-Dimens. Struct.* (2003), **No 3/4**, pp. 125-130
  34. A. V. Bolshakova, E. V. Dubrovin, A. S. Filonov, M. O. Gallyamov, D. Y. Gavrilko, O. I. Kiselyova, A. M. Lomonosov, E. B. Meshkov, I. V. Yaminsky. Open Experimental Internet Practical Studies in Nanoscopy of Polymers and Biomacromolecules // *Phys. Low-Dimens. Struct.* (2003), **No 3/4**, pp. 113-118
  35. M. O. Gallyamov, V. M. Buznik, A. K. Tsvetnikov, R. A. Vinokur, L. N. Nikitin, E. E. Said-Galiev, O. V. Lebedeva, A. R. Khokhlov, K. Schaumburg. The Use of Ultrafine Poly(tetrafluoroethylene) as a Stabilizing Agent for Emulsifying Paraffin and Producing Composite Microparticles in a Supercritical Carbon Dioxide Medium // *Dokl. Phys. Chem.* (2003), **v. 392(1-3)**, 217-220. <http://dx.doi.org/10.1023/A:1025724819899>
  36. N. A. Kas'yanenko, S. S. Abramchuk, I. V. Blagodatskikh, A. A. Bogdanov, M. O. Gallyamov, A. I. Kononov, Y. V. Kosmotynskaya, N. L. Sitnikova, A. R. Khokhlov. Study of DNA Complexation with Platinum Coordination Compounds // *Polym. Sci. A* (2003), **v. 45(10)**, pp. 960-968
  37. M. O. Gallyamov, V. M. Buznik, A. K. Tsvetnikov, R. A. Vinokur, L. N. Nikitin, E. E. Said-Galiev, A. R. Khokhlov, K. Schaumburg. Deposition of nanodimensional films of ultrafine poly(tetrafluoroethylene) Forum from supercritical carbon dioxide onto the surface of solid substrates // *Khim. Fiz.* (2004), **v. 23(6)**, pp. 76-80 (in Russian).
  38. Marat O. Gallyamov, Bernd Tartsch, Alexei R. Khokhlov, Sergei S. Sheiko, Hans G. Börner, Krzysztof Matyjaszewski, Martin Möller. Reversible Collapse of Brush-Like Macromolecules in Ethanol and Water Vapours as Revealed by Real-Time Scanning Force Microscopy // *Chem. - Eur. J.* (2004), **v. 10(18)**, pp. 4599-4605. <http://dx.doi.org/10.1002/chem.200400174>
  39. M. O. Gallyamov, B. Tartsch, A. R. Khokhlov, S. S. Sheiko, H. G. Börner, K. Matyjaszewski, M. Möller. Conformational dynamics of single molecules visualized in real time by scanning force microscopy: macromolecular mobility on a substrate surface in different vapours // *J. Microsc.* (2004), **v. 215(3)**, pp. 245-256. <http://dx.doi.org/10.1111/j.0022-2720.2004.01381.x>
  40. Marat O. Gallyamov, Bernd Tartsch, Alexei R. Khokhlov, Sergei S. Sheiko, Hans G. Börner, Krzysztof Matyjaszewski, Martin Möller. Real-Time Scanning Force Microscopy of Macromolecular Conformational Transitions // *Macromol. Rapid Commun.* (2004), **v. 25(19)**, pp. 1703-1707. <http://dx.doi.org/10.1002/marc.200400235>
  41. Ahmed Mourran, Bernd Tartsch, Marat Gallyamov, Sergei Magonov, Denitza Lambreva, Boris I. Ostrovskii, Igor P. Dolbnya, Wim H. de Jeu, Martin Moeller. Self-Assembly of the Perfluoroalkyl-Alkane F14H20 in Ultrathin Films // *Langmuir* (2005), **v. 21(6)**, pp. 2308-2316. <http://dx.doi.org/10.1021/la048069y>
  42. Marat O. Gallyamov, Alexei R. Khokhlov, Martin Möller. Real-time Imaging of the Coil-Globule Transition of Single Adsorbed Poly(2-vinylpyridine) Molecules // *Macromol. Rapid Commun.* (2005), **v. 26(6)**, pp. 456-460. <http://dx.doi.org/10.1002/marc.200400602>
  43. N. A. Shumilkina, V. D. Myakushev, E. A. Tatarinova, M. O. Gallyamov, A. R. Khokhlov, M. I. Buzin, A. M. Muzafarov, Synthesis of a Carbosilane Dendrimer with Fluorocarbon Substituents at the Silicon Atoms in the Surface Layer of the Molecular Structure // *Dokl. Chem.* (2005), **v. 403(4-6)**, pp. 155-159. <http://dx.doi.org/10.1007/s10631-005-0060-z>
  44. G. A. Zheltukhina, T. N. Lobanova, V. E. Nebol'sin, I. A. Kostanyan, S. M. Dranitsyna, M. O. Gallyamov, A. R. Khokhlov, Interaction of Artificial Nuclease and DNA: Atomic Force Microscopy Data // *Dokl. Phys. Chem.* (2005), **v. 405(4-6)**, pp.253-256. <http://dx.doi.org/10.1007/s10634-005-0072-x>
  45. G. A. Zheltukhina, T. N. Lobanova, V. E. Nebolsin, M. O. Gallyamov, S. M. Dranitsyna, I. A. Kostanyan, Synthesis and Structure-Function Study of Artificial Nucleases on the Basis of Hemin Conjugates with Peptide Fragments of Cell Differentiation Factor HLDF // *Russ. J. Bioorg. Chem.* (2006), **v. 32(2)**, pp. 179-190. <http://dx.doi.org/10.1134/S1068162006020117>
  46. Marat O. Gallyamov, Ahmed Mourran, Bernd Tartsch, Rostislav A. Vinokur, Lev N. Nikitin, Alexei R. Khokhlov, Kjeld Schaumburg and Martin Möller, Self-assembly of (perfluoroalkyl)alkanes on a substrate surface from solutions in supercritical carbon dioxide

- // *Phys. Chem. Chem. Phys.* (2006), v. **8(22)**, pp. 2642–2649.  
<http://dx.doi.org/10.1039/b602959k>
47. L. N. Nikitin, M. O. Gallyamov, A. Yu. Nikolaev, E. E. Said-Galiyev, A. R. Khokhlov, S. S. Bukalov, G. I. Magdanurov, V. V. Volkov, E. V. Shtykova, K. A. Dembo, G. K. Elyashevich, Structure of Composites Prepared via Polypyrrole Synthesis in Supercritical CO<sub>2</sub> on Microporous Polyethylene // *Polym. Sci. A* (2006), v. **48(8)**, pp. 827–840.  
<http://dx.doi.org/10.1134/S0965545X06080098>
  48. Marat O. Gallyamov, Sergey G. Starodubtsev, Alexei R. Khokhlov, Synthesis and SFM Study of Comb-Like Poly(4-vinylpyridinium) Salts and Their Complexes with Surfactants // *Macromol. Rapid Commun.* (2006), v. **27(13)**, pp. 1048–1053.  
<http://dx.doi.org/10.1002/marc.200600175>
  49. N. A. Shumilkina, V. D. Myakushev, E. A. Tatarinova, M. I. Buzin, N. V. Voronina, T. V. Laptinskaya, M. O. Gallyamov, A. R. Khokhlov and A. M. Muzafarov, Synthesis and properties of fluorinated derivatives of carbosilane dendrimers of high generations // *Polym. Sci. A* (2006), v. **48(12)**, pp. 1240–1247. <http://dx.doi.org/10.1134/S0965545X06120030>
  50. Marat O. Gallyamov, Bernd Tartsch, Petra Mela, Hans Börner, Krzysztof Matyjaszewski, Sergei Sheiko, Alexei Khokhlov, Martin Möller, A scanning force microscopy study on the motion of single brush-like macromolecules on a silicon substrate induced by coadsorption of small molecules // *Phys. Chem. Chem. Phys.* (2007), v. **9(3)**, pp. 346–352.  
<http://dx.doi.org/10.1039/b612654e>
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## PATENTS

1. Patent, Russian Federation, **RU 2331532**, Water repellent element and method of hydrophobic coating producing / M. O. Galljamov, A. R. Khokhlov, V. M. Buznik, L. N. Nikitin, A. Ju. Nikolaev, published: 20.08.2008. [RU 2331532](#)
2. Patent, Russian Federation, **RU 2355071**, Fuel-cell electrode, method of making active layer of electrode and use of electrode / M. O. Galljamov, A. R. Khokhlov, published: 10.05.2009. [RU 2355071](#)
3. Patent, Russian Federation, **RU 2382444**, Method of making membrane-electrode unit for fuel cell / M.O. Galljamov, A.R. Khokhlov, T. Klitspera, N. Risher published: 20.02.2010. [RU 2382444](#)
4. Patent, Russian Federation, **RU 2384348** Method for chemical treatment of xenopericardium / L.A. Bokerija, N.P. Bakuleva, V.T. Kostava, A.I. Gamzazade, M.O. Galljamov, A.R. Khokhlov, published: 20.03.2010. [RU 2384348](#)
5. Patent, Russian Federation, **RU 2462797** Membrane-electrode unit for fuel cell / A.S. Gruzd, M.O. Galljamov, A.R. Khokhlov, published: 27.09.2012. [RU 2462797](#)
6. Patent, Russian Federation, **RU 2473380** Method of making proton-conducting membranes / N.I. Nikonorova, E.S. Trofimchuk, A.L. Volynskij, N.F. Bakeev, A.R. Khokhlov, E.A. Nesterova, A.M. Muzafarov, E.V. Semenova, M.O. Galljamov, A.S. Gruzd, M.F. Zansokhova, A.V. Olenin, published: 27.01.2013. [RU 2473380](#)
7. Patent, Russian Federation, **RU 2519219** Biological chitosan coated pericardial valve prosthesis and method for making it / I.S. Chashchin, M.O. Galljamov, A.R. Khokhlov, N.P. Bakuleva, V.T. Kostava, I.G. Ljutova, D.J. Zalepugin, N.A. Til'kunova, I.V. Chernyshova, T.E. Grigor'ev, published: 10.06.2014. [RU 2519219](#)
8. Patent, Russian Federation, **RU 2567432** Method for producing cyclosiloxane polyols / A.M. Muzafarov, O.I. Shchegolikhina, A.A. Anisimov, M.V. Shchemelinina, P.V. Zhemchugov, A.S. Goloveshkin, A.A. Korljukov, E.G. Kononova, I.V. Ehl'manovich, M.A. Pigaleva, M.O. Galljamov, published: 10.11.2015. [RU 2567432](#)
9. Patent, Russian Federation, **RU 2576311** Method of producing polyorganosiloxanes / A.M. Muzafarov, A.A. Kalinina, M.N. Temnikov, I.V. El'manovich, M.A. Pigalyova, A.S. Zhil'tsov, M.O. Gallyamov, published: 27.02.2016. [RU 2576311](#)
10. Patent, Russian Federation, **RU 2601561** Method of producing polymethylhydrosiloxanes / A.M. Muzafarov, T.A. Prjakhina, A.A. Kalinina, V.M. Kotov, K.L. Boldyrev, Yu.A. Molodtsova I.V. Elmanovich, M.A. Pigaleva, M.O. Galljamov, published: 10.11.2016. [RU 2601561](#)
11. Patent, Russian Federation, **RU 2615507** Method for producing soluble polymethylsilsesquioxanes / A.M. Muzafarov, A.A. Kalinina, D.N. Kholodkov, I.B. Meshkov, I.V. Elmanovich, M.A. Pigaleva, M.O. Gallyamov, Yu.A. Molodtsova, published: 05.04.2017. [RU 2615507](#)
12. Patent, Russian Federation, **RU 2632465** Method for producing symmetric alkoxy (organo) disiloxanes / A.M. Muzafarov, M.N. Temnikov, N.V. Cherkun, K.L. Boldyrev, S.N. Zimovets, I.V. Elmanovich, M.O. Gallyamov, A.A. Kalinina, Yu.A. Molodtsova, O.B. Gorbatshevich, published: 05.10.2017. [RU 2632465](#)



13. Patent, Russian Federation, **RU 2642775** Method of applying hydrophobic and oleophobic coating to textile material and textile material with hydrophobic and oleophobic coating / *M.S. Kondratenko, I.V. Elmanovich, D.O. Kolomytkin, M.O. Gallyamov*, published: 25.01.2018. [RU 2642775](#)
14. Patent, Russian Federation, **RU 2656963** Method for applying a hydrophobic coating to a dry fly for fishing / *M.O. Gallyamov, M.S. Kondratenko, I.V. Elmanovich, D.O. Kolomytkin*, published: 07.06.2018. [RU 2656963](#)

#### **PROJECT LEADER OF COMPLETED AND ON-GOING SCIENTIFIC PROJECTS**

1. **2001–2003**, "Scanning probe microscopy of polymer molecules and their complexes with surfactants in supercritical carbon dioxide", supported by Russian Foundation for Basic Research, Project No 01-03-32766a
2. **2003–2004**, "Scanning probe microscopy studies of the adsorption of macromolecules on model substrates and the design of adsorption-tuned copolymers", supported by Alexander von Humboldt Foundation (Germany) within Humboldt Research Fellowship,
3. **2004–2005**, "Scanning force microscopy of macromolecular conformational transitions in real time at the single-molecule level", supported by Alexander von Humboldt Foundation (Germany) within Return fellowship
4. **2004–2006**, "Scanning probe microscopy of conformational changes of macromolecules in situ in real-time regime", supported by Russian Foundation for Basic Research, Project No 04-03-32297a
5. **2005–2007**, "Stimulated Macromolecular Motion: Scanning Force Microscopy Observation in Real Time", supported by NATO Public Diplomacy Division, Security through Science Programme, within Reintegration Grant CBP.NR.RIG.981306
6. **2005**, "Development of method to obtain superhydrophobic surfaces by deposition of fluoropolymer films from supercritical carbon dioxide" supported by Federal Agency for Science and Innovations (Rosnauka, Russian Federation) within Federal Target-oriented Program "Research and Innovations in Priority Trends of Scientific and Technical Development for 2002–2006", State contract No 02.442.11.7490
7. **2006**, "Formation of superhydrophobic surfaces by deposition of fluoropolymer films from supercritical carbon dioxide" supported by Federal Agency for Science and Innovations (Rosnauka, Russian Federation) within Federal Target-oriented Program "Research and Innovations in Priority Trends of Scientific and Technical Development for 2002–2006", State contract No 02.442.11.7134
8. **2006–2008**, "Research on usability of polybenzimidazole membranes in medium temperature fuel cells" supported by National Innovation Company "New Energy Projects" Ltd. (Russia)
9. **2007–2009**, "Stimulated motion of macromolecules at a substrate surface: scanning force microscopy study", supported by Russian Foundation for Basic Research, Project No 07-03-00996a
10. **2009–2011**, "Imparting new functionality to polymer materials by means of supercritical techniques" supported by The Ministry of Education and Science of the Russian Federation within Federal target-oriented program Scientific and educational research personnel of innovative Russia for 2009–2011", State contract No P994
11. **2011**, "Regularities of deposition on a substrate for chitosan structures from their solutions in water saturated with carbon dioxide at high pressures", supported by Russian Academy of Sciences (within the programme of the Division of Chemistry and Materials Sciences)
12. **2010–2012**, "Macromolecules on a substrate: deposition from supercritical solvent and reorganization in vapours", supported by Russian Foundation for Basic Research, Project No 10-03-00886a
13. **2012**, "Development of approaches to produce biocompatible and haemostatic materials on the basis of chitosan solutions in carbonic acid", supported by Russian Academy of Sciences (within the programme of the Division of Chemistry and Materials Sciences)
14. **2012–2013**, "Development of approaches to produce highly-efficient active layers for fuel cells electrodes using supercritical carbon dioxide", supported by Russian Foundation for Basic Research, Project No 12-03-33014 mol\_a\_ved

15. **2013**, "Role of polybenzimidazoles in an active layer of a phosphoric acid fuel cell with a polymer matrix" supported by Russian Academy of Sciences (within the programme of the Division of Chemistry and Materials Sciences)
16. **2013–2015**, "Polycationic polymers in carbonic acid", supported by Russian Foundation for Basic Research, Project No 13-03-00378a
17. **2014**, "Active layers of electrodes of phosphoric acid fuel cell with polymeric additives" supported by Russian Academy of Sciences (within the programme of the Division of Chemistry and Materials Sciences)
18. **2014–2015**, "Hydrophobisation of synthetic materials by means of deposition of polymer films from solutions in supercritical carbon dioxide" supported by Skolkovo Institute of Science and Technology
19. **2015**, "Active layers of electrodes of phosphoric acid fuel cell and their degradation mechanisms" supported by Russian Academy of Sciences (within the programme of the Division of Chemistry and Materials Sciences)
20. **2016**, "New materials for electrochemical power sources" supported by Russian Academy of Sciences (within the programme of the Division of Chemistry and Materials Sciences)
21. **2016–2018**, "Formation of polymer-inorganic composites in carbonic acid solutions", supported by Russian Foundation for Basic Research, Project No 16-03-00702-a
22. **2016–2018**, "Formation and modification of porous polymer matrices in solvents at high pressure for electrochemical applications", supported by Russian Science Foundation, Project No 16-13-10338
23. **2017**, "New materials for electrochemical power sources" supported by Russian Academy of Sciences (within the programme of the Division of Chemistry and Materials Sciences)

#### **SCIENTIFIC SUPERVISOR OF COMPLETED DIPLOMA WORKS**


1. **2009**, "Analysis of characteristics of phosphoric acid fuel cells with a polymer matrix by means of method of small loading variations", student Mikhail S. Kondratenko
2. **2009**, "Deposition of hydrophobic polymer coatings on carbon materials with highly developed surfaces from solutions in supercritical carbon dioxide", student Dmitriy O. Kolomytkin
3. **2009**, "Development of methods of deposition of chitosan-based biocompatible coatings", student Ivan S. Chaschin
4. **2010**, "Active layers of electrodes of phosphoric acid fuel cells: design and components", student Igor V. Elmanovich
5. **2010**, "Composite membranes with functional additives for medium temperature fuel cells", student Alexey S. Gruzd
6. **2010**, "Degradation processes in phosphoric acid fuel cell in regimes of accelerated durability tests", student Vasilii Yu. Petrushevich
7. **2012**, "Morphology of chitosan nanostructures deposited on a substrate from solutions in the presence of high-pressure carbon dioxide", student Marina A. Khokhlova
8. **2013**, "A study of the interaction of chitosan and silver in solutions and films", student Vladimir S. Yamschikov (co-supervision with Res. Sci. T.E. Grigorev)
9. **2014**, "Composite Nafion-based membranes for fuel cells", student Anton S. Simonov
10. **2015**, "Polyolefin-based composite membranes with silicon dioxide for fuel cells", B.Sc. student Ekaterina A. Avdeeva (co-supervision with Res. Sci. M.S. Kondratenko)
11. **2015**, "Optimization of composite electrodes with inorganic additives for fuel cells", B.Sc. student Vadim V. Zefirov (co-supervision with Res. Sci. I.V. Elmanovich)
12. **2015**, "Composite polymer electrolyte membranes for electrochemical power sources", student Dmitrii S. Kondratnko
13. **2015**, "Self-assembly of block copolymer micelles decorated with metal nanoparticles in carbonic acid solutions", student Matvey V. Bulat (co-supervision with Res. Sci. M.A. Pigaleva)
14. **2017**, "Biocompatible composite materials for medical applications produced using carbon dioxide under high pressure", B.Sc. student Ilya V. Novikov (co-supervision with Res. Sci. M.A. Pigaleva)

15. **2017**, "Properties of fluorinated acrylic copolymers-based films deposited on a nylon surface from solutions in supercritical carbon dioxide" B.Sc. student Nikolay A. Lyubimtsev (co-supervision with Res. Sci. I.V. Elmanovich)
16. **2017**, "Advanced functional materials obtained using supercritical carbon dioxide", M.Sc. student Vadim V. Zefirov (co-supervision with Res. Sci. I.V. Elmanovich)

### SCIENTIFIC SUPERVISOR OF COMPLETED PhD WORKS

1. **2010–2013**, def. 06.2013 at Lomonosov Moscow State University, title of PhD thesis: "Structure and properties of chitosan films and coatings as obtained from solvents on basis of carbon dioxide at high pressure", Dr. Ivan S. Chaschin
2. **2010–2013**, def. 12.2013 at Lomonosov Moscow State University, title of PhD thesis: "Influence of polybenzimidazoles on the structure of three-phase boundary, proton conductivity and degradation mechanisms of platinum surface in active layers of electrodes of phosphoric acid fuel cells", Dr. Mikhail S. Kondratenko (co-supervision with Prof. G.A. Tsirlina)
3. **2011–2014**, def. 02.2015 at A. N. Nesmeyanov Institute of Organoelement Compounds, title of PhD thesis: "Optimisation of active layer of phosphoric acid fuel cell with polymer matrix", Dr. Igor V. Elmanovich
4. **2013–2015**, def. 12.2015 at Lomonosov Moscow State University, title of PhD thesis: "Features of organization of cationic copolymers in carbonic acid solutions and formation composites with metal nanoparticles on their basis ", Dr. Marina A. Pigaleva
5. **2010–2016**, def. 09.2016 at Lomonosov Moscow State University, title of PhD thesis: "Functional polymer films and structures deposited on substrates from solutions in supercritical carbon dioxide for fuel cells", Dr. Dmitriy O. Kolomytkin

### AWARDS and HONORS

1997–1999	ISF (Soros Foundation) Graduate Student Awards
2003–2004	Humboldt Research Fellowship (Alexander von Humboldt Foundation)
2004–2005	M.V. Lomonosov Moscow State University scholarships for young lecturers and scientists
2012	 Shuvalov Award (M.V. Lomonosov Moscow State University)
2016	Professor (honorary) in Chemistry and Materials Sciences (Russian Academy of Sciences)

### MEMBERSHIPS

The Royal Society of Chemistry, Member (MRSC) since 20 April 2012, membership number **472798**

### TEACHING EXPERIENCE

Course "[Diffusion in polymers](#)", lecturer.

Autumn 2004, 36 hours (Faculty of Physics, Lomonosov MSU, 4th year students)  
Autumn 2005, 36 hours (Faculty of Physics, Lomonosov MSU, 4th year students)  
Autumn 2007, 36 hours (Faculty of Physics, Lomonosov MSU, 5th year students)  
Autumn 2008, 36 hours (Faculty of Physics, Lomonosov MSU, 5th year students)  
Autumn 2009, 36 hours (Faculty of Physics, Lomonosov MSU, 5th year students)  
Autumn 2011, 36 hours (Faculty of Physics, Lomonosov MSU, 5th year students)  
Autumn 2012, 36 hours (Faculty of Physics, Lomonosov MSU, 5th year students)  
Autumn 2013, 36 hours (Faculty of Physics, Lomonosov MSU, 5th year students)  
Autumn 2014, 36 hours (Faculty of Physics, Lomonosov MSU, 5th year students)  
Spring 2016, 34 hours (Faculty of Physics, Lomonosov MSU, 1st year M.Sc. students)  
Spring 2017, 34 hours (Faculty of Physics, Lomonosov MSU, 1st year M.Sc. students)  
Spring 2018, 34 hours (Faculty of Physics, Lomonosov MSU, 1st year M.Sc. students)

Course "[Fuel cell fundamentals](#)", 1/2–1/3 of the course, lecturer.

Autumn 2006, 18 hours (Faculty of Physics, Lomonosov MSU, PhD students)  
Autumn 2007, 18 hours (Faculty of Physics, Lomonosov MSU, PhD students)

Autumn 2011, 18 hours (Faculty of Physics, Lomonosov MSU, PhD students)  
Autumn 2014, 18 hours (Faculty of Physics, Lomonosov MSU, PhD students)  
Autumn 2015, 12 hours (Faculty of Physics, Lomonosov MSU, PhD students)  
Autumn 2016, 12 hours (Faculty of Physics, Lomonosov MSU, PhD students)  
Autumn 2017, 12 hours (Faculty of Physics, Lomonosov MSU, PhD students)  
Spring 2018, 12 hours (Faculty of Physics, Lomonosov MSU, PhD students)

Course "[High-resolution microscopy techniques in nanomaterials research](#)", 1/2 of the course, lecturer

Autumn 2016, 18 hours (Faculty of Physics, Lomonosov MSU, 1st year M.Sc. students)  
Autumn 2017, 18 hours (Faculty of Physics, Lomonosov MSU, 1st year M.Sc. students)  
Autumn 2018, 18 hours (Faculty of Physics, Lomonosov MSU, 1st year M.Sc. students)

Course "[Functional materials for electrochemical power engineering](#)", 1/2 of the course, lecturer

Autumn 2016, 18 hours (Faculty of Physics, Lomonosov MSU, 2nd year M.Sc. students)  
Autumn 2017, 18 hours (Faculty of Physics, Lomonosov MSU, 2nd year M.Sc. students)  
Autumn 2018, 18 hours (Faculty of Physics, Lomonosov MSU, 2nd year M.Sc. students)

## INVITED TALKS

1. Marat Gallyamov, Alexei Khokhlov, Krzysztof Matyjaszewski, Martin Moeller. Vapour-induced conformational transitions of individual macromolecules visualised in real time by scanning force microscopy // European Polymer Congress 2005 (27 June – 1 July, 2005 Moscow, Russia). Invited lecture.
2. Marat O. Gallyamov, Krzysztof Matyjaszewski, Alexei Khokhlov, Martin Möller. Vapour-induced conformational changes of macromolecules at interfaces: real-time SFM observation // European Polymer Congress EPF'09 (12.-17. July 2009, Graz, Austria). Invited lecture.
3. M.O. Gallyamov. Modern methods of high-resolution microscopy as applied to study polymer structures // Fourth International Conference "Progress and trends in Bionanoscipy" (15–18 June 2010, Moscow, Russia). Invited lecture (in Russian).
4. M.O. Gallyamov. High-resolution microscopy techniques in polymer nanostructures research // All-Russian School-Conference for Young Scientists "Macromolecular nanoobjects and polymer nanocomposites" (24–29 October 2010, Moscow Reg., Russia). Plenary lecture (in Russian).
5. Marat Gallyamov. Polymer nanostructures as deposited from supercritical carbon dioxide: direct microscopy observations // First German-Russian symposium on nanomaterials – "New horizons" in the framework of "III Nanotechnology International Forum RUSNANOTECH 2010" (November 1–3, 2010, Moscow, Russia). Invited lecture.
6. Marat O. Gallyamov. Supercritical fluids: New Opportunities in Advanced Nanomaterials Research // German – Russian Symposium on Advanced Nanomaterials (02–06 May, 2011, Ulm University, Germany). Invited lecture.
7. Marat O. Gallyamov. Polymer Nanostructures as Deposited Directly from Solutions in Supercritical Carbon Dioxide // 8th East Asian Symposium on Polymers Advanced Technology (EASPAT 2011), (12–15 June, 2011, Jeju, Republic of Korea). Invited lecture.
8. Marat O. Gallyamov. New active layer materials for polymer fuel cell electrodes prepared using supercritical carbon dioxide // German – Russian Symposium Energy Related Nanomaterials: BMBF-i Final Meeting (03–04 June, 2013, Ulm University, Germany). Invited lecture.
9. Marat O. Gallyamov. Superhydrophobisation of synthetic fabrics by deposition of ultrathin fluoropolymer films from solutions in supercritical carbon dioxide // 4<sup>th</sup> SkolTech Innovation Program Conference / Center for Entrepreneurship and Innovation (03–04 June, 2014, Skolkovo / Moscow, Russia). Invited lecture.
10. Marat O. Gallyamov. Round table on "Modern techniques for study of nanoparticles and polymer nanocomposites" / V All-Russian conference with international participation for

young scientists "Macromolecular nanoobjects and polymer nanocomposites" (October 4–9, 2015 / Moscow Reg., Russia)

11. A.S. Simonov, M.S. Kondratenko, I.V. Elmanovich, M.V. Bulat, M.A. Pigaleva, M.O. Gallyamov. Solvents on the basis of pressurized CO<sub>2</sub> as applied to polymer materials / VII All-Russian Kargin conference "Polymers-2017", (June 13–17, 2017, Moscow). Plenary lecture (in Russian).
12. T.A. Pryakhina, I.V. Elmanovich, M.O. Gallyamov, A.M. Muzafarov. Hydrosilylation in sc CO<sub>2</sub> as a promising one-step process of aerogels synthesis / The 9th Scientific and Engineering Conference with International Participation "Supercritical Fluids: Fundamentals, Technologies, Innovations", (9-14 October 2017, Sochi, Russia). Invited lecture.
13. Marat O.Gallyamov. New materials for electrochemical applications obtained using supercritical carbon dioxide / International Conference of the U5 Partner Universities "Nanomaterials for Life Sciences, Batteries and Catalysis", (17-19 October 2017, Ulm, Germany). Invited lecture.

#### **GUEST EDITOR**

- "Nanomaterials" Section // Special issue of "Journal of Physics: Conference Series", Volume 291, 2011 on proceedings of "III Nanotechnology International Forum 1–3 November, 2010, Moscow, Russia" <http://iopscience.iop.org/1742-6596/291/1>

#### **RESEARCH INTERESTS**

Polymer physics, electrochemical power sources, scanning force microscopy of polymer surfaces and single macromolecules at interfaces, transmission electron microscopy of polymers, structure and properties of thin organic/polymer films, polymers in supercritical media, diffusion in polymers, polymer materials for electrochemistry

#### **CITATIONS**

h-index: 17 ([ISI](#)); total citation index: 1184 ([Corpus expertov](#)); citation index of the papers published over the last seven years: 208 ([Corpus expertov](#))