



# Dmitry G. Kvashnin

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## DATE AND PLACE OF BIRTH

August 5, 1989, USSR, Krasnoyarsk

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## CITATION INDECES

**h-index:** 9 (WoS) 10 (Google Scholar)

**Citations:** 1308 (WoS), 1684 (Google Scholar)

Total number of publications: 39

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## EDUCATION

Bachelor of Physic (with honors)

Jun 2006 — jul 2010

*Siberian Federal University, Krasnoyarsk, Russia*

Master of Physic (with honors)

Jul 2010 — Jun 2012

*Moscow institute of physics and technology, Moscow, Russia*

Master thesis title: "Simulation of electronic properties of nanographene"

PhD student

Aug 2012 — 2015

*Emanuel Institute of Biochemical Physics RAS, Moscow, Russia*

PhD

24/12/2015

*Lomonosov Moscow State University, Moscow, Russia*

PhD thesis title: "Features of physical and chemical properties of graphene based nanostructures"

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## WORK EXPERIENCE

Emanuel Institute of Biochemical Physics  
RAS

16/10/2010 — Present

*Research scientist*

National University of Science and  
Technology "MISiS"

18/12/2012 — Present

*Research scientist*

## COMPUTING SKILLS

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**Software packages:** Molecular modeling (HyperChem, GULP, LAMMPS), *ab initio* quantum-mechanical calculations (Quantum ESPRESSO, VASP, Siesta), Semi-empirical calculations (HyperChem), Tight-binding calculations (dOXON).

**Languages:** C/C++, MatLab, HTML

**Operating systems:** MS Windows, Linux

**Software Applications:** Scientific computing/visualization tools (MatLab, Maple, Chemcraft, Diamond, etc.); vector and raster graphics editors (CorelDraw, Adobe Photoshop, etc.); typesetting systems (MS office, LaTeX).

## ASSIGNED REVIEWER

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- Nanoscale
- Journal of Applied Physics
- Physica status solidi – rapid research letters
- Physical Chemistry Chemical Physics
- Superlattices and Microstructures
- Crystal
- Journal of Alloys and Compounds
- Journal of Vacuum Science and Technology

## SOCIAL ACTIVITY

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**24/08/2009 – 28/08/2009** - Assistant Secretary Workshop "Trends in nanomechanics and nanoengineering", Krasnoyarsk, Russia

**05/2017 – 12/2017** - Member of Executive Board of House-building cooperative "SPEKTR", Moscow, Troitsk, Russia

## LIST OF COURSES AND WORKSHOPS

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- 25/01/2009 – 05/02/2009 VII Winter school of theoretical physics «Introduction in the theory of nanostructures», Laboratory of theoretical physics of joint institute for nuclear research (LTP JINR), Dubna (Russia)
- 28/06/2009 – 04/07/2009 European Summer University "The Secrets of the Atomic Nucleus", UFR de Physique et ingénierie, Strasburg (France)
- 10/08/2009 – 20/08/2009 Summer school « Physics of elementary particles on the threshold of LHC », Protvino (Russia)
- 13/01/2011 – 15/01/2011 15th International Workshop on Computational Physics and Materials Science: Total Energy and Force Methods, The Abdus Salam International Center for Theoretical Physics (ICTP), Trieste, Italy
- 17/01/2011 – 21/01/2011 Hands-on Tutorial on Electronic Structure Computations, The Abdus Salam International Center for Theoretical Physics (ICTP), Trieste, Italy
- 18/07/2011 – 23/07/2011 Tutorial: Electronic structure with Elk Code, CECAM, EPFL, Lausanne, Switzerland
- 12/09/2011 - 16/09/2011 Nano and Giga Challenges in Electronics, Photonics and Renewable Energy, MSU, Moscow-Zelenograd
- 07/10/2011 – 12/10/2011 2011 World material Summit Student Congress, Washington DC, USA
- 04/03/2012 – 16/03/2012 43 IFF Spring School 2012 "Scattering Methods for Condensed Matter Research – Towards Novel Applications at Future Sources", Forschungszentrum, Jülich, Germany

## AWARDS, CONTRIBUTION IN SCIENTIFIC PROJECTS

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**(2008)** - Scientific conference of students, graduate students and young scientists NKSF – XXXVII, Siberian Federal University, Diploma third degree

**(2008)** - Fourteenth Russia scientific conference of students, graduate students and young scientists VNKSF - 14. Bashkir State University, Diploma

**(2008)** - Boundary value grant of the academician L. V. Kirensky - for achievements in the field of Mathematical and Physical Sciences, Certificate of awarding state scholarships Author

**(2009)** - Fifteenth Russia Conference of students, graduate students and young scientists VNKSF - 15**(2009)** Kemerovo State University, Diploma for the best correspondence to the report section "Materials (including nanomaterials)"

**(2009-2011)** - Member and Fellow of the competition for senior students-profit foundation "Dynasty"

**(2009)** - Government scholarships Russia Federation undergraduate and postgraduate university

**(2009)** - Best student of Siberian Federal University, Diploma in the first place in the nomination "For success in Science and Technology"

**(2011)** Scholarships of Moscow Institute of Physics and Technology (state university) for outstanding scientific achievements

**(2011-2012)** - MIPT's increased scholarship for achievements in scientific research

**(2012-2014)** - Scholarship of the President of the Russian Federation for young scientists and graduate students engaged in advanced research and development in priority areas of modernization of the Russian economy

**(2013)** - International symposium "Physics of crystals 2013", diploma for the best correspondence to the report in youth section of the symposium

**(2014-2015)** - Scholarship of the President of the Russian Federation from among the full-time students of educational institutions of higher education and graduate full-time students of educational institutions of higher education and secondary vocational education and scientific organizations enrolled in the areas of training (specialties) corresponding to the priority areas of modernization and technological development of the Russian economy, state-accredited educational programs of higher education in the 2014/2015 academic year

**(2016)** - Japan Society for the Promotion of Science (JSPS) Postdoctoral Fellowship for Overseas Researchers (Short-term)

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## CAREER/EMPLOYMENT (EMPLOYERS, POSITIONS AND DATES)

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**13/10/2011-13/11/2010** - Visiting researcher in Humboldt-Universität zu Berlin, Germany (Prof. John Bruening)

**08/04/2012-08/05/2012** - Visiting researcher in Humboldt-Universität zu Berlin, Germany (Prof. John Bruening)

**17/02/2013-20/03/2013** - Visiting researcher (FAEMCAR project) in Research Centre for Natural Sciences, Institute for Technical Physics and Materials Science, Budapest, Hungary (Prof. Laszlo P. Biro)

**03/03/2014-01/05/2014** - Visiting researcher (FAEMCAR project) in Research Centre for Natural Sciences, Institute for Technical Physics and Materials Science, Budapest, Hungary (Prof. Laszlo P. Biro)

**08/04/2014-11/04/2014** - Invited presentation at Technische Universität Dresden, Germany (Prof. Gotthard Seifert)

**07/09/2014-13/11/2014** - Visiting researcher at Technische Universität Dresden, Germany (Prof. Gotthard Seifert)

**21/08/2016-21/11/2016** - JSPS Fellow at National Institute of Material Science (Prof. Dmitri Golberg)

**14/10/2016** - Invited presentation at Nagoya University, Japan, Nagoya, ITbM Building, Prof. Irle's group "Low dimensional nanomaterials. Theoretical predictions and experimental support".

**12/12/2016** - Invited presentation at Skolkovo Institute of Science and Technology "SkolTech", Russian Federation, Moscow, Prof. Oganov's group "Two dimensional materials. Theory and Experiment".

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## GRANTS AND PROJECTS

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- The grant of Krasnoyarsk Regional Science Foundation for compensation of transportation costs for students, graduate students and young research workers - for conference participants: 12TS003 (2008)
- The program of the Presidium of RAS "Fundamental research of nanotechnology and nanomaterials" (2011)
- Russian Foundation of Basic Research program № 11-02-01453a (2011)
- Joint Russian-German DFG grant 436 RUS 113/990/0-1 (2011-2012)

- Russian Foundation of Basic Research program № 11-02-01453/12 (2012)
- Russian Foundation of Basic Research program № 12-02-31261 (2012)
- Russian Ministry of Education and Science (Contract No.14.B37.21.1645)
- Fundamental and Applied Electromagnetics of Nano-Carbons “FAEMCAR” (No. FP7-PEOPLE-2012-IRSES)
- Russian Ministry of Education and Science (No. 948 from 21 of November 2012)
- Russian Scientific Foundation (Contract No. 14-13-01217)
- Russian Scientific Foundation (Contract No. 17-72-20223)
- Russian Foundation of Basic Research program № 17-02-01095 (2017-2019)
- Russian Foundation of Basic Research program № 17-51-150006 (2017-2019)
- Grant of President of Russian Federation for government support of young PhD scientists (MK-3326.2017.2) (2017-2018)
- Russian Foundation of Basic Research program "mol\_a" №18-32-00682 (2018-2019)
- Russian Scientific Foundation #No.18-73-10135 (2018-2021)

## PUBLICATIONS (SCIENTIFIC JOURNALS)

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1. P.B Sorokin, P.V. Avramov, A.G. Kvashnin, **D.G. Kvashnin**, S.G. Ovchinnikov. Density functional study of <110> oriented thin silicon nanowires. Phys. Rev. B 77, 235417-235421 (2008) IF - 3.83 (Q2).
2. L.A. Chernozatonskii, P.B. Sorokin, A.G. Kvashnin, **D.G. Kvashnin**, Diamond-like C<sub>2</sub>H nanolayer, diamane: Simulation of the structure and properties. JETP Lett. 90 (2), 134 (2009) (Q3).
3. A.G. Kvashnin, P.B. Sorokin, **D.G. Kvashnin**, Theoretical study of mechanical properties of graphene membranes by means of molecular mechanics, Journal of Siberian Federal University. Mathematics & Physics 2 (4), 426-431 (2009) (Q3).
4. P.B. Sorokin, **D.G. Kvashnin**, A.G. Kvashnin, P.V. Avramov, L.A. Chernozatonskii, Theoretical Study of Elastic Properties of SiC Nanowires of Different Shapes, J. Nanosci. Nanotechnol. 10, 4992-4997 (2010) (Q3).
5. P.B. Sorokin, A.G. Kvashnin, **D.G. Kvashnin**, J.A. Filicheva, P.V. Avramov, A.S. Fedorov, L.A. Chernozatonskii, Theoretical Study of Atomic Structure and Elastic Properties of Branched Silicon Nanowires, ACS Nano 4 (5), 2784-2790, (2010) IF - 13.94 (Q1).
6. L. Song, L. Ci, H. Lu, P.B. Sorokin, C. Jin, J. Ni, A.G. Kvashnin, **D.G. Kvashnin**, J. Lou, B.I. Yakobson, P.M. Ajayan, Large Scale Growth and Characterization of Atomic Hexagonal Boron Nitride Layers, Nano Lett., 10 (8), 3209-3215, (2010) IF - 12.71 (Q1).
7. A.G. Kvashnin, P.B. Sorokin, **D.G. Kvashnin**, The Theoretical Study of Mechanical Properties of Graphene Membranes, Fullerenes, Nanotubes and Carbon Nanostructures 18, 4-6, 497-500, (2010) (Q3).
8. L.A. Chernozatonskii, P.B. Sorokin, A.A. Kuzubov, B.P. Sorokin, A.G. Kvashnin, **D.G. Kvashnin**, P.V. Avramov, B.I. Yakobson, Influence of Size Effect on the Electronic and Elastic Properties of Diamond Films with Nanometer Thickness, J. Phys. Chem. C 115 (1), 132-136, (2011) IF - 4.77 (Q1).
9. L.A. Chernozatonskii, A.A. Artuh, **D.G. Kvashnin**, Formation of quantum dots due to the hydrogen adsorption on graphene nanoribbon, JETP Lett., 95(5), 266-270 (2012) IF - 1.35 (Q3).
10. **D.G. Kvashnin**, P.B. Sorokin, A.G. Kvashnin, J. Brüning, L.A. Chernozatonskii. Strong influence of the configurations of graphane islands on the electronic properties of a graphane/graphane mixing structure, J. Phys. Chem. C 116 (37), 20035-20039 (2012) IF - 4.77 (Q1).
11. **D.G. Kvashnin**, P.B. Sorokin, L.A. Chernozatonskii, The impact of edges and dopants on the work function of graphane nanostructures. The way to high electronic emission from pure carbon medium, Appl. Phys. Lett. 102, 183112-183116 (2013) IF - 3.30 (Q1).
12. L.A. Chernozatonskii, **D.G. Kvashnin**, O.P. Kvashnina, N.A. Konstantinova, Similarity in Band Gap Behavior of Modified Graphane with Different Types of Functionalization, J. Phys. Chem. C 118, 1318-1321 (2014) IF - 4.77 (Q1).
13. D.-M. Tang, **D.G. Kvashnin**, S. Najmaei, Y. Bando, K. Kimoto, P.M. Ajayan, B.I. Yakobson, P.B. Sorokin, J. Lou, D.

- Golberg, Nanomechanical cleavage of MoS<sub>2</sub> atomic layers, *Nature Communications* 5, 3631-3638 (2014) IF - 11.47 (Q1).
14. **D.G. Kvashnin**, L.Yu. Antipina, P.B. Sorokin, R.Tenne, D. Golberg, Theoretical Aspects of WS<sub>2</sub> Nanotube Chemical Unzipping, *Nanoscale* 6, 8400-8404 (2014) IF - 7.76 (Q1).
  15. **D.G. Kvashnin**, L.A. Chernozatonskii, Impact of symmetry in transport properties of graphene nanoribbons with defects, *Appl. Phys. Lett.* 105, 083115-083118 (2014) IF - 3.30 (Q1).
  16. **D.G. Kvashnin**, P.B. Sorokin, O.P. Kvashnina, T.P. Sorokina, L.A. Chernozatonskii, Study of novel carbon nanostructures based on bilayered graphene with periodically arranged holes, *News of higher educational institutions, Chemistry and chemical technology*, 57 (5), 77-79 (2014) (ISSN 0579-2991).
  17. A.V. Krasheninnikov, N. Berseneva, **D.G. Kvashnin**, J. Enkovaara, T. Björkman, P. Sorokin, D. Stansky, R.M. Nieminen, D. Golberg, Towards, Stronger Al-BN Nanotube Composite Materials: Getting Insight into Bonding at the Al/BN Interface from First-principles Calculations, *J. Phys. Chem. C* 118(46), 26894-26901 (2014) IF - 4.77 (Q1).
  18. **D.G. Kvashnin**, S. Bellucci, L.A. Chernozatonskii, Sharp variations in the electronic properties of graphene deposited on the h-BN layer, *Phys. Chem. Chem. Phys.*, 17, 4354-4359 (2015) IF - 4.49 (Q1).
  19. **D.G. Kvashnin**, P.B. Sorokin, D. Shtansky, D. Golberg, A.V. Krasheninnikov, Line and rotational defects in boron-nitrene: Structure, energetics, and dependence on mechanical strain from first-principles calculations. *Phys. Status Solidi B* 252, 1725-1730 (2015) IF - 1.48 (Q2).
  20. **D.G. Kvashnin**, P. Vancsó, L.Yu. Antipina, G.I. Márk, L.P. Biró, P.B. Sorokin, L.A. Chernozatonskii, Bilayered semiconductor graphene nanostructures with periodically arranged hexagonal holes, *Nano Research* 8 (4), 1250-1258 (2015) IF - 7.01 (Q1).
  21. A.G. Kvashnin, O.P. Kvashnina, **D.G. Kvashnin**, Hydrogen adsorption study. Formation of quantum dots on graphene nanoribbons within tight-binding approach, *Nanotechnology* 26 (17), 175704-175707 (2015) IF - 3.82 (Q1).
  22. G.S. Bocharov, A.V. Eletsii, **D.G. Kvashnin**, L.A. Chernozatonskii, Operational characteristics of a graphene-based electron field emitter, *J. Vac. Sci. Technol. B* 33, 041801- 041806 (2015) IF - 1.46 (Q2).
  23. **D.G. Kvashnin**, P.B. Sorokin, Effect of Ultrahigh Stiffness of Defective Graphene from Atomistic Point of View, *J. Phys. Chem. Lett.*, 6, 2384–2387 (2015) IF - 7.48 (Q1).
  24. C. Zhang, Z. Xu, **D.G. Kvashnin**, D.M. Tang, Y.M. Xue, Y. Bando, P.B. Sorokin, D. Golberg, Opto-mechano-electrical tripling in ZnO nanowires probed by photocurrent spectroscopy in a high-resolution transmission electron microscope, *Appl. Phys. Lett.* 107, 091103-091106 (2015) IF - 3.30 (Q1).
  25. A.G. Kvashnin, **D.G. Kvashnin**, O.P. Kvashnina, L.A. Chernozatonskii, Transport investigation of branched graphene nanoflakes, *Nanotechnology* 26 (38), 385705-385710 (2015) IF - 3.82 (Q1).
  26. **D.G. Kvashnin**, P.B. Sorokin, G. Seifert, L.A. Chernozatonskii, MoS<sub>2</sub> decoration by Mo-atoms and the MoS<sub>2</sub>–Mo–graphene heterostructure: a theoretical study, *Phys. Chem. Chem. Phys.*, 17, 28770-28773 (2015) IF - 4.49 (Q1).
  27. **D.G. Kvashnin**, A.V. Krasheninnikov, D. Shtansky, P.B. Sorokin, D. Golberg, Nanostructured BN–Mg composites: features of interface bonding and mechanical properties, *Phys. Chem. Chem. Phys.*, 18, 965-969 (2016) IF - 4.49 (Q1).
  28. K.L. Firestein, **D.G. Kvashnin**, A.N. Sheveyko, I.V. Sukhorukova, A.M. Kovalskii, A.T. Matveev, O.I. Lebedev, P.B. Sorokin, D. Golberg, D.V. Shtansky, Structural analysis and atomic simulation of Ag/BN nanoparticle hybrids obtained by Ag ion implantation, *Materials and Design* 98, 167–173 (2016) IF - 3.50 (Q1).
  29. C. Zhang, O. Cretu, **D.G. Kvashnin**, N. Kawamoto, M. Mitome, X. Wang, Y. Bando, P.B. Sorokin, D. Golberg, Statistically Analyzed Photoresponse of Elastically Bent CdS Nanowires Probed by Light-Compatible In Situ High-Resolution TEM, *Nano Letters* 16, 6008-6013 (2016) IF – 12.71 (Q1).
  30. **D.G. Kvashnin**, M. Ghorbani-Asl, D.V. Shtansky, D. Golberg, A.V. Krasheninnikov, P.B. Sorokin, Mechanical properties and current-carrying capacity of Al reinforced with graphene/BN nanoribbons: a computational study, *Nanoscale*, 8, 20080-20089 (2016), IF – 7.76 (Q1).
  31. **D.G. Kvashnin**, O.P. Kvashnina, P.V. Avramov, P.B. Sorokin, A.G. Kvashnin, Novel Hybrid C/BN Two-dimensional Heterostructures, *Nanotechnology*, 28, 085205, (2017), IF – 3.57 (Q1).
  32. E. Kano, **D.G. Kvashnin**, S. Sakai, L.A. Chernozatonskii, P.B. Sorokin, A. Hashimoto, M. Takeguchi, One-atom-thick 2D copper oxide clusters on graphene, *Nanoscale*, 9, 3980-3985 (2017) IF – 7.76 (Q1).

33. Q. Weng, **D.G. Kvashnin**, X. Wang, O. Cretu, Y. Yang, M. Zhou, C. Zhang, D.-M. Tang, P.B. Sorokin, Y. Bando, D. Golberg, Tuning of the Optical, Electronic, and Magnetic Properties of Boron Nitride Nanosheets with Oxygen Doping and Functionalization, *Advanced Materials*, 29, 1700695-1700712 (2017) IF – 18.96 (Q1).
34. A.G. Kvashnin, P.V. Avramov, **D.G. Kvashnin**, L.A. Chernozatonskii, P. Sorokin, The Features of Electronic, Mechanical and Electromechanical Properties of Fluorinated Diamond Films of Nanometer Thickness, *J. Phys. Chem. C*, 121, 28484–28489 (2017) IF - 4.53 (Q1).
35. A.E. Steinman, S. Corthay, K.L. Firestein, **D.G. Kvashnin**, A.M. Kovalskii, A.T. Matveev, P.B. Sorokin, D.V. Golberg, D.V. Shtanskiy, Al-based composites reinforced with AlB<sub>2</sub>, AlN and BN phases: Experimental and theoretical studies, *Materials & Design*, 141, 88-98 (2018) IF - 4.36 (Q1).
36. K.L. Firestein, **D.G. Kvashnin**, A.M. Kovalskii, Z.I. Popov, P.B. Sorokin, D.V. Golberg, D.V. Shtansky, Compressive properties of hollow BN nanoparticles: theoretical modeling and testing using a high-resolution transmission electron microscope, *Nanoscale*, 10, 8099-8105 (2018) IF – 7.76 (Q1).

## PUBLICATIONS (ABSTRACTS OF CONFERENCE)

1. P.B Sorokin, A. G. Kvashnin, **D. G. Kvashnin**, The theoretical study of structure and properties of new silicon nanowires of different shapes. Book of abstracts of I Russian conference “Multiscale simulation of processes and structures in nanotechnology”. Moscow, Russia, March 12 – 14, 2008, p. - 133-135
2. P.B Sorokin, **D. G. Kvashnin**, A. G. Kvashnin, L. A. Chernozatonskii, The theoretical study of atomic structure and properties of silicon carbide nanowires. Book of abstracts of I Russian conference “Multiscale simulation of processes and structures in nanotechnology”. Moscow, Russia, March 12 – 14, 2008, p. -135-136
3. **D. G. Kvashnin**, Theoretical investigation of elastic properties of silicon carbide nanowires. Book of abstracts of scientific conference of students and young scientists NKSF – XXXVII (2008), Krasnoyarsk, Russia, April 11-12 2008, p. - 12.
4. A.G. Kvashnin, P.B. Sorokin, **D.G. Kvashnin**, The theoretical study of mechanical properties of graphene membranes. Book of abstracts 9th biennial International Workshop “Fullerene and Atomic Clusters”, St. Petersburg, Russia, July 6-10, 2009, p. – 80.
5. **D.G. Kvashnin**, P.B. Sorokin, A.G. Kvashnin, Theoretical investigation of the elastic properties of branched silicon nanowires. Book of abstracts 9th biennial International Workshop “Fullerene and Atomic Clusters”, St. Petersburg, Russia, July 6-10, 2009, p. – 101.
6. A.G. Kvashnin, P.B. Sorokin, **D.G. Kvashnin**, The theoretical study of mechanical properties of graphene membranes, Anniversary X Russian Youth Workshop on Physics of Condensed Matter. Ekaterinburg, 9-15 November, 2009 P. 237.
7. **D.G. Kvashnin**, P.B. Sorokin, A.G. Kvashnin. Mechanical properties of branched SiC nanowires. Anniversary X Russian Youth Workshop on Physics of Condensed Matter. Ekaterinburg, 9-15 November, 2009 P. 238.
8. L. A. Chernozatonskii, **D.G. Kvashnin**, A.G. Kvashnin, P.B. Sorokin, Graphene-Graphane mixing nanostructures: hydrogen functionalization of graphene, properties and applications, Book of abstracts of molecular simulation in material and biological sciences, Dubna-Moscow, Russia, September 26-29, p. – 61 (2009)
9. **D.G. Kvashnin**, L. A. Chernozatonski, Superlattices based on graphene and graphane. The theoretical investigation of the evolution of electronic properties. 12 Russian Youth Conference on the Physics of semiconductors and nanostructures, semiconductor opto-and nanoelectronics, St. Petersburg, Russia, 25-29 October 2010 p. 45.
10. **D.G. Kvashnin**, P.B. Sorokin, The theoretical investigation of elastic properties of silicon carbide nanowires. Book of abstracts of scientific conference of students and young scientists NKSF – XXXVII (2008), Krasnoyarsk, Russia, April 11-12 2008, p. - 63 - 68.
11. A.G. Kvashnin, **D.G. Kvashnin**, P.B. Sorokin, Investigation of mechanical properties of silicon nanowires. Collected papers «Multifunctional Nanomaterials and Nanotechnology », Tomsk, Russia, September 19-22, 2008, P. 239-241.
12. A. G. Kvashnin, **D. G. Kvashnin**, P. B Sorokin, The theoretical investigations of properties of graphene, Conference proceeding and abstracts of fifteenth Russia scientific conference of physicist and young scientists.

Kemerovo – Tomsk, Russia, March 26 – 2.04.2009, p. - 730-731.

13. P.B. Sorokin, **D.G. Kvashnin**, A.G. Kvashnin, P.V. Avramov, J.A. Filicheva, L.A. Chernozatonskii, The theoretical study of elastic properties of silicon nanowires, Book of abstracts Workshop “Trends in nanomechanics and nanoengineering”, Krasnoyarsk, Russia, August 24 – 28, 2009, p. – 17.
14. A.G. Kvashnin., P. B. Sorokin, **D. G. Kvashnin**, The theoretical investigation of mechanical properties of graphene, Book of abstracts Workshop “Trends in nanomechanics and nanoengineering”, Krasnoyarsk, Russia, August 24 – 28, 2009, p. – 22.
15. **D. G. Kvashnin**, P. B. Sorokin, A. G. Kvashnin, P. V. Avramov, Theoretical study of elastic properties of branched silicon nanowires, Book of abstracts Workshop “Trends in nanomechanics and nanoengineering”, Krasnoyarsk, Russia, August 24 – 28, 2009, p. – 23.
16. **D. G. Kvashnin**, A. G. Kvashnin, P. B. Sorokin, L. A. Chernozatonskii, Theoretical study of the evolution of the electronic properties of superlattices based on graphene and graphene, materials of the Seventh International Conference Carbon: fundamental problems in science, material science, technology. Structural and functional materials (including nanomaterials), and their production technology, Suzdal, 17-19 November 2010, P. 170-171.
17. L. A. Chernozatonskii, **D. G. Kvashnin**, P. B. Sorokin, A. G. Kvashnin, J. Bruening, Structures based on graphene and graphane as quantum dots, X Jubilee International Youth Conference IBCP Sciences, academic institutions, Moscow, 8-10 November 2010
18. L.A. Chernozatonskii, **D.G. Kvashnin**, P.B. Sorokin, A.G. Kvashnin, Mixing structures based on graphene and graphane: the theoretical study, Abstracts of graphene Brazil 2010, Belo Horizonte, Brazil, p. – 124
19. L.A. Chernozatonskii, V.I. Artyukhov, L. Biro, G. Mark, P.B. Sorokin, A.G. Kvashnin, **D.G. Kvashnin**, B.I. Yakobson Nanostructures based on H- (or F-) atom functionalized graphene elements for electronic and optic nanoengineering Abstracts of Joint International Conference “Advanced Carbon Nanostructures”, St Petersburg, Russia, 4 – 8 July 2011 p. 26
20. L.A. Chernozatonskii, **D.G. Kvashnin**, A. I. Eliseev, Quantum dots based on graphene and graphane ribbons: structure and properties, Abstracts of Joint International Conference “Advanced Carbon Nanostructures”, St Petersburg, Russia, 4 – 8 July 2011 p. 86
21. L. A. Chernozatonskii, A. A. Artyukh, **D. G. Kvashnin**, V. A. Demin, Simulation of structure, mechanical and electronic properties of superlattices based on bilayer-graphene with a holes, V Japan–Russia International Workshop MSSMBS 2012 "Molecular Simulation Studies in Material and Biological Sciences", p. 51, September 9-12, JINR, Dubna, Moscow Region
22. **D. G. Kvashnin**, P. B. Sorokin, L. A. Chernozatonskii, The strong influence of configurations of graphane islands to electronic properties of graphene/graphane mixing structure, book of abstracts of 12 International conference «Trends in Nanotechnology TNT 2011», Spain, Tenerife — Canarian Islands, 20-26 November 2011
23. **D.G. Kvashnin**, L.A. Chernozatonskii, Theoretical study of atomic structure and I-V characteristics of nanostructures based on graphene, abstracts book of 6th NANOSMAT Conference, Krakow, Poland, 17-20th October 2011
24. **D. G. Kvashnin**, L. A. Chernozatonskii, Transport properties of graphene-based branched nanoribbons. Theoretical study. International conference «Towards Reality in Nanoscale Materials V», Levi, Finland, 20-22 February 2012, p. – 73.
25. L. A. Chernozatonskii, **D. G. Kvashnin**, A. A. Arthukh, J. Bruening and P. B. Sorokin, Graphenes with nanoholes and CH(CF) nanoislands – comparison of analogous structures and similar electronic properties, applications, book of abstracts of 13th International workshop on nanoscience and nanotechnology, Frascati, Italy, October 1-4, 2012, p. – 7.
26. **D. G. Kvashnin**, P. B. Sorokin, L. A. Chernozatonskii, Theoretical study of changes of the work function of graphene nanostructures. The way to high electronic emission from pure carbon medium, book of abstracts of Physics Boat 2013 "Atomic structure of nanosystems from first-principles simulations and microscopy experiments", Helsinki (Finland) - Stockholm (Sweden), June 4-6 2013 p.-62.
27. P. B. Sorokin, **D. G. Kvashnin**, L. Yu. Antipina, D. V. Golberg, Theoretical aspects of unzipping of WS<sub>2</sub> nanotubes book of abstracts of Physics Boat 2013 "Atomic structure of nanosystems from first-principles simulations and microscopy experiments", Helsinki (Finland) - Stockholm (Sweden), June 4-6 2013, p.-69.
28. **D. G. Kvashnin**, P. B. Sorokin, L. A. Chernozatonskii, Investigation of the strong influence of the edges and

- dopants to the work function of graphene-based nanostructures, Book of abstracts of International Conference Advanced Carbon Nanostructures (ACNS'2013), St. Petersburg, Russia, July 01-05, 2013. p. - 80.
29. L.A. Chernozatonskii, **D.G. Kvashnin**, Band gap changes in graphene superlattices, Abstracts of Lectures of CECAM workshop "Novel 2D materials: tuning electronic properties on the atomic scale", Bremen, Germany, June 11-14, 2013, p. P5.
  30. **D. G. Kvashnin**, P. B. Sorokin, L. Yu. Antipina, D. Golberg, Theoretical explanation of unzipping process of WS<sub>2</sub> nanotubes, Abstracts of Symposium F, E-MRS Fall Meeting, Warsaw, Poland, 16-20 September 2013, Nano and Advanced Materials Workshop and Fair (NAMF 2013), Satellite of E-MRS Fall Meeting, Warsaw, Poland, 16-19 September 2013.
  31. L. A. Chernozatonskii, A. A. Arthukh, V. A. Demin, **D. G. Kvashnin**, P. B. Sorokin, P. Vancso, Connected carbon nanotube structures from bi-layered graphene: geometries, formation mechanisms, electronic and mechanic properties, applications, book of abstracts of International workshop on nanoscience and nanotechnology, Frascati, Italy, 30 September - 4 October 2013, p. 32
  32. **D. G. Kvashnin**, P. B. Sorokin, P. Vancsó, G. I. Márk, O. P. Kvashnina, L. A. Chernozatonskii, Investigation of novel carbon nanostructures based on bilayered graphene with periodically arranged holes, Book of Abstracts of workshop of young scientists "Participation of young scientists in fundamental and research investigations by producing of novel carbon and nanocarbon materials", Moscow, Zelenograd, 2-3 October 2013, p. - 61-63.
  33. **D. G. Kvashnin**, P. B. Sorokin, L. Yu. Antipina, D. V. Golberg, L. A. Chernozatonskii, Explanation of the process of unzipping of WS<sub>2</sub> nanotubes by theoretical methods, Annual International Youth Conference, Biochemical Physics RAS, universities, Moscow, October 28-30, 2013.
  34. **D. G. Kvashnin**, P. B. Sorokin, P. Vancsó, G. I. Márk, O. P. Kvashnina, L. A. Chernozatonskii, New carbon superlattices based on bilayered graphene, International symposium "Physics of crystals 2013", Moscow, 28 October- 2 November 2013, p – 98.
  35. **D. G. Kvashnin**, L. A. Chernozatonskii, The possible ways for decreasing of the work function from the graphene based nanostructures. Quantum-chemistry investigations, National Youth Conference on the physics of semiconductors and nanostructures, semiconductor opto- and nanoelectronics, Saint-Petersburg, 25-29 November 2013, p – 53.
  36. P. Vancsó, G. I. Márk, **D. Kvashnin**, V. A. Demin, L. Chernozatonskii, Ph. Lambin, A. Mayer and L. P. Biró, Wave packet dynamical calculations for complex sp<sup>2</sup> carbon superlattices, E-MRS 2014 Spring Meeting, Lille, France, 26-30 May 2014
  37. **D. G. Kvashnin**, L. A. Chernozatonskii, P. B. Sorokin, Hardening in the two-dimensional nanomaterials by introducing of point defects, book of abstracts, Physics Boat 2014 "Atomic structure of nanosystems from first-principles simulations and microscopy experiments", Helsinki (Finland) - Stockholm (Sweden), June 3-5 2014, p.-35
  38. G. I. Mark, P. Vancso, **D. Kvashnin**, V. A. Demin, L. A. Chernozatonskii, Ph. Lambin, C. Hwang, L. P. Biro, Time and energy dependent wave packet dynamical simulations for carbon nanostructures, NANO2014, Moscow, 13-18 July 2014
  39. **D. G. Kvashnin**, L. A. Chernozatonskii, Current-Voltage Characteristics of Graphene-Based Nanostructures, NANO2014, Moscow, 13-18 July 2014
  40. **D.G. Kvashnin**, P. Vancsó, L.Yu. Antipina, G.I. Márk, L.P. Biró, P.B. Sorokin, L.A. Chernozatonskii, Complex study of novel nanostructures based on bilayered graphene, Theory for Accelerated Materials Design: New Tool for Materials Science, Moscow, 1-2 December 2014
  41. **D.G. Kvashnin**, G.Seifert, L.A. Chernozatonskii, MoS<sub>2</sub> decoration study. Origin of strong binding and inertness, IMAGENANO2015, Bilbao, Spain, 9-13 March 2015
  42. **D.G. Kvashnin**, G.Seifert, L.A. Chernozatonskii, Covalently-bonded heterostructures based on graphene related 2D materials (MoS<sub>2</sub>), 12th International Conference Advanced Carbon NanoStructures (ACNS'2015), Saint-Petersburg, June 29 - July 3 2015
  43. **D.G. Kvashnin**, G. Seifert, L.A. Chernozatonskii, Covalent heterostructures based on MoS<sub>2</sub> and graphene, Trends in Nanotechnology (TNT'15), Toulouse, France, 6-11 September 2015
  44. G.S. Bocharov, A.V. Eletsii, **D.G. Kvashnin**, L.A. Chernozatonskii, Graphene as Source of Cold Electron Field



45. **D.G. Kvashnin**, L.Yu. Antipina, P.B. Sorokin, L.A. Chernozatonskii, BN-graphene and Graphene-graphene layered heterostructures. Atomic structure and electronic properties, Graphene 2D crystal and molecule, September 8-12 2015
46. **D.G. Kvashnin**, P.B. Sorokin, Composite materials based on Aluminum and graphene nanoribbons. Theoretical Simulations of structure and properties. School for Young Scientists "Carbon nanotubes and graphene - new horizons", November 30 - December 4 2015, P. 106
47. **D. G. Kvashnin**, G. Seifert, L.A. Chernozatonskii, Graphene-Mo-MoS<sub>2</sub> Covalent Heterostructures. Theoretical Predictions, EMRS-2016, Lille, France, 2-6 May, 2016, P.- Y.3.4.
48. **D. G. Kvashnin**, E. Kano, P. V. Avramov, L. A. Chernozatonskii, S. Sakai, A. Hashimoto, M. Takeguchi, P. B. Sorokin, Toward the two dimensional layered metals. Experimental observation and theoretical investigation of 2D Cu-based monolayers, Physics Boat 2016 "Atomic structure of nanosystems from first-principles simulations and microscopy experiments", Helsinki (Finland) - Stockholm (Sweden), 31 May-2 June 2016, p.-26
49. **D. G. Kvashnin**, P. B. Sorokin, G. Seifert, L. A. Chernozatonskii, Novel covalently bonded heterostructures based on graphene and MoS<sub>2</sub>, 9th International Conference MMT-2016 (Material Technologies and Modeling), Ariel University Center of Samaria, Ariel, Israel, 25-29 July, 2016, p. – 2-20
50. K. Hasegawa, K. Kimoto, F. Uesugi, I. Onishi, T. Hara, O. Cretu,**D. Kvashnin**, M. Tanaka, K. Nagata, A. Kamijo, M. Mitome, D. Golberg, Investigation of iron oxides in natural red orcher, EDGE 2017: Enhanced Data Generated by Electrons, May 14 - 19 2017, Okuma, Okinawa, Japan
51. **D. G. Kvashnin**, E. Kano, L. A. Chernozatonskii, S. Sakai, A. Hashimoto, M. Takeguchi, P. B. Sorokin, Recently observed novel 2D monolayer based on CuO. Characterization and physical properties, IWEPNM 2017, Kirchberg, Austria, 4-11 March 2017, p. -89
52. **D.G. Kvashnin**, E. Kano, L. A. Chernozatonskii, S. Sakai, A. Hashimoto, M. Takeguchi, P. B. Sorokin, Observation of novel 2D monolayer based on CuO, Graphene 2017, Barcelona, Spain, 28-31 March 2017
53. **D.G. Kvashnin**, E. Kano, L. A. Chernozatonskii, S. Sakai, A. Hashimoto, M. Takeguchi, P. B. Sorokin, One-atom-thick 2D material based on CuO. Experimental observations and theoretical study, Trends in Nanotechnology 2017, Germany, Dresden, June 5-9 2017
54. **D.G. Kvashnin**, S.V. Erohin, L. Yu. Antipina, E.Kano, A. Hashimoto, S. Sakai, L. A. Chernozatonskii, P. B. Sorokin, Formation of the holes in bilayered graphene. Theoretical predictions and experimental observation, Graphene 2D crystal and molecule, Novosibirsk, Russia, 6-11 August 2017
55. **D. G. Kvashnin**, E. Kano, L. A. Chernozatonskii, S. Sakai, A. Hashimoto, M. Takeguchi, P. B. Sorokin, 2D Copper Oxide. Experimental evidence on graphene and theoretical investigations, 9th annual Recent Progress in Graphene and Two-dimensional Materials Research Conference (RPGR2017), Singapore, 18-23 September 2017
56. **D.G. Kvashnin**, P. Vancso, O. P. Kvashnina, G. Mark, L. A. Chenozatonskii, Wave packet dynamics and electronic properties of bilayered graphene nanoribbons with holes, Rapidly varying asymptotics in stationary and nonstationary problems of mathematical physics, Marseille, France, 22-25 April 2018
57. **D. G. Kvashnin**, Q. Weng, O. Cretu, M. Zhou, C. Zhang, D.-M. Tang, P. B. Sorokin, Y. Bando, D. Golberg, Novel high-doped BN nanosheets. Electronic and optical engineering, Strasbourg, France, 18-22 June 2018

## PUBLICATIONS (PROCEEDINGS OF CONFERENCE)

---

1. **D. G. Kvashnin**, A. G. Kvashnin, P. B. Sorokin, The investigation of mechanical properties of SiC nanowires. Conference Proceedings and Abstracts of 14th Russian scientific conference of young physicists, Ufa, Russia, March 26 – April 3, 2008, P. 587-589.
2. A. G. Kvashnin, **D. G. Kvashnin**, P. B. Sorokin, The theoretical study of surface reconstruction of silicon nanowires of different shapes. Conference Proceedings and Abstracts of 14th Russian scientific conference of young physicists, Ufa, Russia, March 26 – April 3, 2008, P. 586-587
3. P. B. Sorokin, A. G. Kvashnin, **D. G. Kvashnin**, P. V. Avramov and L. A. Chernozatonskii, The elastic properties of branched silicon nanowires: the theoretical study. Proceedings of the Eighth Annual Youth Conference IBCP RAS, Moscow, Russia, November 11-13 2008, P. 210-213.

4. P. B. Sorokin, P. V. Avramov, **D. G. Kvashnin**, A. G. Kvashnin and L. A. Chernozatonskii, The study of the atomic structure and elastic properties of the silicon carbide nanowires. Proceedings of the Eighth Annual Youth Conference IBCP RAS, Moscow, Russia, November 11-13, 2008, p. - 207-210.
5. **D. G. Kvashnin**, P.B Sorokin. Hyperbranched silicon nanowires: atomic structure and elastic properties. Collected Proceedings of the Conference of Young Scientists KSC SB RAS, Krasnoyarsk, Russia, 2.04.2009, p. - 53-54.
6. **D. G. Kvashnin**, A. G. Kvashnin, P. B Sorokin, Investigation of hydrogen adsorption on the walls of the porous carbon nanostructures, Conference proceeding and abstracts of fifteenth Russia scientific conference of physicist and young scientists. Kemerovo – Tomsk, Russia, 26.03 – 2.04, 2009, p. - 731-732.
7. A. G. Kvashnin, P. B. Sorokin, **D. G. Kvashnin**, Investigation of mechanical properties of quasi two-dimensional nanostructures of hexagonal nitride boron (h-BN), Proceedings of the 53rd conference MIPT "Current Problems of Fundamental and Applied Sciences, Moscow - Dolgoprudny, MIPT, 2010, p. – 69.
8. **D. G. Kvashnin**, A. A. Artyukh, J. W. Bruning and L. A. Chenozatonskii, Graphene quantum dots and antidotes: possible way to preparation, Proceedings of the 7th International Conference MMT-2012 (Material Technologies and Modeling), Ariel University Center of Samaria, Ariel, Israel, August 20 - 23, 2012, p. – 4-79 – 4-89.
9. **D. G. Kvashnin**, L. A. Chernozatonskii, V. I. Artyukhov, O. P. Kvashnina, J. W. Bruening, Investigation of hydrogen adsorption on the bilayer graphene Moiré, Proceedings of the XII Annual International Youth Conference, Biochemical Physics RAS, universities. 29-31 October 2012, Moscow, p. - 70-71.

## MONOGRAPH

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1. **D. G. Kvashnin**, "Investigation of the electronic properties of the graphene-based nanostructures", LAP LAMBERT Publishing, ISBN: 978-3-659-37007-6.