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CITATION INDICES

h-index: 6(WoS), 7 (Google Scholar)
Citations: 744(WoS), 1026(Google Scholar)
Total number of publications: **28**
Number of oral presentations: **13**
Number of poster presentations: **43**

EDUCATION

Ph.D. in Condensed Matter Physics **September 2012 — March 2016**

Moscow Institute of Physics and Technology (MIPT)

M.Sc. in Applied Physics and Mathematics **July 2010 — June 2012**

Moscow Institute of Physics and Technology (MIPT)

B.Sc. in Physics **June 2006 — June 2010**

Siberian Federal University

WORK EXPERIENCE

Skolkovo Institute of Science and Technology (Skoltech) **May 2016 — Present**

Research Scientist

Group of Prof. Artem R. Oganov

Skolkovo Institute of Science and Technology (Skoltech) **November 2015 — May 2016**

Junior Research Scientist

Group of Prof. Artem R. Oganov

Technological Institute for Superhard and Novel Carbon Materials **January 2013 — October 2015**

Junior research scientist

Group of Prof. Pavel B. Sorokin

Technological Institute for Superhard and Novel Carbon Materials **June 2012 — October 2015**

System administrator

Trainee researcher
Group of Prof. Pavel B. Sorokin

University of Namur

July 2015 — July 2015

Visiting researcher
Group of Prof. Philippe Lambin

Rice University

August 2013 — December 2013

Visiting Research Scholar
Group of Prof. Boris I. Yakobson

Rice University

**September 2011 — December
2011**

Visiting International Scholar
Group of Prof. Boris I. Yakobson

**COMPUTING
SKILLS**

Software packages:

- Molecular modeling: HyperChem, GULP, LAMMPS
- Ab initio quantum chemistry calculations: Quantum ESPRESSO, VASP, SIESTA, DFTB+, Elk FP-LAPW Code, CP2K
- Semi-empirical calculations: HyperChem
- Tight binding calculations: dOXON

Languages:

- C/C++, MatLab, HTML, python, shell script

Operating systems:

- MS Windows, Linux (Ubuntu, CentOS, Red Hat, Debian)

Software Applications:

- Scientific computing/visualization tools: Chemcraft, Diamond, Ovito, XCrysDen, VMD, VESTA, gnuplot
- Vector and raster graphics editors: CorelDraw, Adobe Photoshop, etc.
- Typesetting systems: MS Office, OpenOffice, LaTeX

**AWARDS,
GRANTS,
SCIENTIFIC
PROJECTS**

- **(2008)** The grant of Krasnoyarsk Regional Science Foundation for compensation of transportation costs for students, graduate students and young research workers - for conference participants: 12TS002
- **(2008)** The grant of Siberian Federal University (SFU) "Competition of youth research projects (SFU) 2008" for the project "Investigation of low-dimensional nanostructures using quantum-chemical methods of calculations"
- **(2009)** Scientific conference of students, graduate students and young scientists NKSF – XXXVIII, Siberian Federal University. First degree diploma
- **(2009)** Diploma laureate head of the Krasnoyarsk city for young talent for excellence in scientific and educational activities
- **(2009-2010)** Scholarship President of Russia for students
- **(2010-2011)** L.V. Kirensky's scholarship for achievements in the field of Mathematical and Physical Sciences
- **(2010-2012)** Scholarship non-profit programs "Dynasty"
- **(2010)** XII National Youth Conference on the Physics of semiconductors and nanostructures, semiconductor opto- and nanoelectronics. Second degree diploma
- **(2011-2012)** MIPT's increased scholarship for achievements in scientific research

- **(2012)** International Seminar on Nanosciences and Nanotechnologies (NANO 4), Diplomas for 3 oral presentations, for 2 posters
- **(2012)** Certificate of Completion of Training supercomputing technologies and specialization in the field of "Administration of supercomputers"
- **(2012)** Research project of Federal Target program № 14.B37.21.1645. Investigation of fabrication ways and properties of single-crystal diamond film with nanometer thickness
- **(2012)** Russian Foundation of Basic Research program № 12-02-31261. Investigation of features of electronic, elastic and mechanical properties of materials based on diamond clusters with nanometer size
- **(2013-2015)** Scholarship of President of Russia for young scientists and PhD students (competition SP-2013)
- **(2014-2016)** Russian Science Foundation project № 14-12-01217. Simulations of structure and properties of new multilayered nanomaterials based on TMDs and BN-graphene layered structures
- **(2014-2015)** Scholarship of President of Russia for PhD students (№ 1434, November 10, 2014)
- **(2015-2016)** Skoltech Translational Research and Innovation Program. Design of low-k materials
- **(2016-2018)** Russian Science Foundation project № 16-13-10459. New methods for search of materials with optimal properties.

COURSES AND WORKSHOPS

- **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, Strasbourg, 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
- **05.03.2012-16.03.2012** 43rd IFF Spring School "Scattering Methods for "Condensed Matter Research: Towards Novel Applications at Future Sources", Forschungszentrum Jülich, Germany
- **25.06.2012-07.07.2012** Summer Supercomputer Academy, MSU, Moscow, Russia
- **08.04.2013-12.04.2013** Yambo hands-on tutorial on electronic and optical excitations: from basic to advanced applications, CECAM-HQ-EPFL, Lausanne, Switzerland
- **24.08.2014-05.09.2014** 5th International Summer School on MODERN COMPUTATIONAL SCIENCE, Computational Quantum Chemistry, University of Oldenburg, Oldenburg, Germany (earned 4 ECTS credit points)
- **06.10.2014-11.10.2014** Workshop Particle-based Simulations for Hard and Soft Matter, Institute for Computational Physics, University of Stuttgart, Germany

SOCIAL ACTIVITY

24.08.2009 – 28.08.2009, Assistant Secretary, Workshop "Trends in nanomechanics and nanoengineering", Krasnoyarsk, Russia

PUBLICATIONS IN SCIENTIFIC JOURNALS

Indexed by Scopus/WoS

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 (2008) (DOI:10.1103/PhysRevB.77.235417).
2. L.A. Chernozatonskii, P.B. Sorokin, **A.G. Kvashnin** and D.G. Kvashnin, Diamond-like C₂H nanolayer, diamane: Simulation of the structure and properties. JETP Letters, 90 2 pp. 134-138 (2009) (DOI:10.1134/S0021364009140112).
 3. 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), (DOI: 10.1166/jnn.2010.2424).
 4. P. B. Sorokin, **A. G. Kvashnin**, D. G. Kvashnin, J. A. Filicheva, P. V. Avramov, A. S. Fedorov and L. A. Chernozatonskii, Theoretical Study of Atomic Structure and Elastic Properties of Branched Silicon Nanowires, ACS Nano, 4, N5, 2784-2790 (2010), (DOI: 10.1021/nn9018027).
 5. 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 Letters, 10 (8), 3209-3215, (2010) (DOI:10.1021/nl1022139).
 6. **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) (DOI:10.1080/1536383X.2010.488160).
 7. 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), pp 132–136, (2011) (DOI: 10.1021/jp1080687).
 8. L.A. Chernozatonskii, D.G. Kvashnin, P.B. Sorokin, **A.G. Kvashnin**, J.W. Brüning, Strong Influence of Graphene Island Configurations on the Electronic Properties of a Mixed Graphene/Graphane Superlattice, J. Phys. Chem. C., 116 (37), 20035-20039 (2012) (DOI: 10.1021/jp304596y).
 9. Yu.A. Kvashnina, **A.G. Kvashnin**, P.B. Sorokin, Investigation of new superhard carbon allotropes with promising electronic properties, J. Appl. Phys. 114, 183708 (2013) (DOI: 10.1063/1.4829002)
 10. **A.G. Kvashnin**, P.B. Sorokin, Lonsdaleite Films with Nanometer Thickness, J. Phys. Chem. Lett., 5, pp 541–548 (2014) (DOI: 10.1021/jz402528q).
 11. **A.G. Kvashnin**, L.A. Chernozatonskii, B.I. Yakobson, P.B. Sorokin, Phase Diagram of Quasi-Two-Dimensional Carbon, From Graphene to Diamond, Nano Lett., 14 (2), pp 676–681 (2014) (DOI: 10.1021/nl403938g).
 12. Y. Sun, **A.G. Kvashnin**, P.B. Sorokin, B.I. Yakobson, W.E. Billups, Radiation-Induced Nucleation of Diamond from Amorphous Carbon: Effect of Hydrogen, J. Phys. Chem. Lett. 5, pp. 1924–1928 (2014) (DOI: 10.1021/jz5007912).
 13. **A.G. Kvashnin**, P.B. Sorokin, D. Tománek, Graphitic phase of NaCl. Bulk properties and nanoscale stability, J. Phys. Chem. Lett., 5, pp. 4014–4019 (2014) (DOI: 10.1021/jz502046f).
 14. P.B. Sorokin, **A.G. Kvashnin**, Z. Zhu, D. Tománek, Spontaneous Graphitization of Ultrathin Cubic Structures: A Computational Study, Nano Letters, 14, 7126-7130 (2014) (DOI: 10.1021/nl503673q).
 15. **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, 175704-175708 (2015) (DOI: 10.1088/0957-4484/26/17/175704).
 16. Yu.A. Kvashnina, **A.G. Kvashnin**, M.Yu. Popov, B.A. Kulnitskiy, I.A. Perezhogin, E.V. Tyukalova, L.A. Chernozatonskii, P.B. Sorokin and V.D. Blank, Toward the Ultra-incompressible Carbon Materials. Computational Simulation and Experimental Observation, J. Phys. Chem. Lett. 6, 2147–2152 (2015) (DOI: 10.1021/acs.jpcclett.5b00748).
 17. **A.G. Kvashnin**, P.B. Sorokin, B.I. Yakobson, Flexoelectricity in Carbon Nanostructures: Nanotubes, Fullerenes, and Nanocones, J. Phys. Chem. Lett. 6,

- 2740–2744 (2015) (DOI: 10.1021/acs.jpcclett.5b01041).
18. **A.G. Kvashnin**, D.G. Kvashnin, O.P. Kvashnina, L.A. Chernozatonskii, Transport investigation of branched graphene nanoflakes, *Nanotechnology*, 26, 385705-385711 (2015) (DOI: 10.1088/0957-4484/26/38/385705).
 19. **A.G. Kvashnin**, E.Y. Pashkin, B.I. Yakobson, P.B. Sorokin, Ionic Graphitization of Ultrathin Films of Ionic Compounds, *J. Phys. Chem. Lett.* 7, 2659–2663 (2016) (DOI: 10.1021/acs.jpcclett.6b01214)
 20. L.A. Chernozatonskii, **A.G. Kvashnin**, P.B. Sorokin, Heterostructures based on graphene and MoS₂ layers decorated by C₆₀ fullerenes, *Nanotechnology*, 27, 365201-365206 (2016) (DOI: 10.1088/0957-4484/27/36/365201)
 21. L.Yu. Antipina, A.G. Kvashnin, P.B. Sorokin, L.A. Chernozatonskii, The possible formation of magnetic FeS₂ phase in two-dimensional MoS₂ matrix, *Phys. Chem. Chem. Phys.*, 18, 26956-26959 (2016) (DOI: 10.1039/C6CP05065D)

Other Publications

1. **A.G. Kvashnin**, P.B. Sorokin, D.G. Kvashnin, Theoretical Investigation of Mechanical Properties of Graphene Membranes by Means of Molecular Mechanics, *Journal of Siberian Federal University. Mathematics & Physics*, 2(4), pp. 426-431 (2009) (in Russian).
2. **A.G. Kvashnin**, P.B. Sorokin, Study of Phase Transitions Features in Ultrathin Diamonds, *News of higher educational institutions, Chemistry and chemical technology*, 55 (6), p. 4–7 (2012) (in Russian).
3. **A.G. Kvashnin**, Yu.A. Kvashnina, L.Yu. Antipina, P.B. Sorokin, Pressure and temperature dependence of the "multilayered graphene - ultrathin diamond film" phase transition upon the thickness, *Natural and Technical Sciences*, 6, 43-44 (2012) (in Russian).
4. Yu.A. Kvashnina, **A.G. Kvashnin**, L.Yu. Antipina, T.P. Sorokina, P.B. Sorokin, Investigations of mechanical and electronic properties of new carbon allotropes, *News of higher educational institutions, Chemistry and chemical technology*, 56 (7), p. 30–33 (2013). (in Russian)
5. **A.G. Kvashnin**, Yu.A. Kvashnina, L.Yu. Antipina, O.P. Kvashnina, T.P. Sorokina, P.B. Sorokin, Phase transitions in quasi-two-dimensional carbon materials, *News of higher educational institutions, Chemistry and chemical technology*, 57(5), p. 71-74 (2014) (in Russian).
6. **A.G. Kvashnin**, O.P. Kvashnina, T.P. Sorokina, P.B. Sorokin, W.E. Billups, Modeling a phase transition of amorphous carbon to diamond induced with ionizing radiation, *News of higher educational institutions, Chemistry and chemical technology*, 58(5), p. 22-24 (2015) (in Russian).
7. Yu.A. Kvashnina, **A.G. Kvashnin**, T.P. Sorokina, O.P. Kvashnina, P.B. Sorokin, Model of ultrahard fullerite. Theoretical investigation, *News of higher educational institutions, Chemistry and chemical technology*, 58(5), p. 19-21 (2015) (in Russian).