

Dr. Svetlana LIPOVSKIKH (Borisova)

Education

2008-2012 RWTH Aachen University Aachen, Germany

Ph.D. in Physics

Faculty of Mathematics, Computer Science and Natural Sciences

Ph.D. thesis: "Fabrication and In-Situ STM Investigation of Growth Dynamics of Semiconductor Nanostructures Grown by MBE". Grade: "magna cum laude" ("with great honour").

2006-2008 Moscow Institute of Physics and Technology Moscow, Russia

MSc in Applied Physics and Math (with honours)

Department of General and Applied Physics. Chair of Low Temperature Physics and Technics

MSc thesis: "Investigation of Wide Band Gap Semiconductors by Scanning Tunneling Microscopy". Grade: 5 (excellent). GPA: 5.00/5.00

2002-2006 Moscow Institute of Physics and Technology Moscow, Russia

BSc in Applied Physics and Math (with honours)

Department of General and Applied Physics. Chair of Low Temperature Physics and Technics

BSc thesis: "High-Frequency LC-Filters for Applications of Low Temperature Physics". Grade: 5 (excellent). GPA: 4.84/5.00

Work experience

07.2016 – until now Skolkovo Institute of Science and Technology (Skoltech) Moscow, Russia

Research Scientist at Center for Electrochemical Energy Storage

- SEM/FIB investigation of materials energy storage
- TEM, electron diffraction, EDX mapping, HR STEM investigation of materials for energy storage

07.2016 – until now Skolkovo Institute of Science and Technology (Skoltech) Moscow, Russia

Research Project Manager at Center for Electrochemical Energy Storage

- General coordination of Center's operation (finances, statistical information, personnel, interaction with other departments and external partners, development of internal procedures)
- Managing partnership programs with leading international research organizations (MSU (Russia), MIT (USA), Helmholtz Society (Germany), etc.)
- Project management for grants
- Supporting Center's webpage, international scientific and educational events.

09.2014 – 06.2016 Skolkovo Institute of Science and Technology (Skoltech) Moscow, Russia

Coordinator at Center for Electrochemical Energy Storage

- General coordination of Center's launch at start-up stage (finances, statistical information, personnel, interaction with other departments and external partners, development of internal procedures)
- Managing partnership programs with leading research organizations (MSU (Russia) and MIT (USA))
- Managing laboratory operation and equipment purchases
- Supporting Center's webpage, international scientific and educational events.

06.2012 – 07.2013 Research Centre Jülich Jülich, Germany

PostDoc

Peter Gruenberg Institute (PGI-9)

Projects:

- Artificial crystals of ultra-dense ordered Ge quantum dots for single photon detection.
- Van der Waals epitaxy of topological insulators and their alloys on non-native substrates for device fabrication.

- Scientific publications (3), conference contributions (5).

	09.2008 – 05.2012	Research Centre Jülich	Jülich, Germany
	Ph.D. Student		<i>Peter Gruenberg Institute (PGI-9)</i>
	<u>Projects:</u>		
	<ul style="list-style-type: none"> ▪ Fabrication and investigation of growth dynamics of ultra-small period ordered Ge quantum dot arrays (development of ultra-small period prepatterned Si substrates; growth of large-period and ultra-small period Ge quantum dot arrays; in-situ STM investigation of growth dynamics). ▪ Investigation of growth dynamics of thin film of topological insulators (growth of ultrathin films of Bi₂Te₃, atomic structure and growth dynamics investigations by in-situ STM and TEM). 		
	- Operating, upgrade and technical support of in-situ UHV STM.		
	- Scientific publications (3), conference contributions (9).		
	09.2007 – 06.2008	Research Centre Jülich	Jülich, Germany
	Master Student		<i>Institute of Solid State Research (IFF-8)</i>
	Cross-sectional UHV STM on semiconductors (GaN). Sample preparation and its optimisation. Data processing and interpretation. MSc thesis. Scientific publications (4).		
	02.2004 – 09.2007	P.L.Kapitza Institute for Physical Problems	Moscow, Russia
	Probationer –Researcher		
	Design, fabrication and testing of low temperature LC-filters. Low temperature STM. Software development for processing of STM images. BSc thesis.		
	02.2005 – 05.2005	Company “Physicon”	Moscow, Russia
	Developer of software for computer tests		
Teaching	09.2013 – 08.2014	St. Vasilij Velikiy Gymnasium	Moscow, Russia
	Teaching of basic and special courses in Math and Computer Science		
	09.2012 – 10.2012	RWTH Aachen University	Aachen, Germany
	Tutorial in Mathematical Methods in Physics (in German)		<i>Department of Physics</i>
	10.2009 – 04.2010	RWTH Aachen University	Aachen, Germany
	Practical Training in Physics (in German)		<i>Department of Mechanical Engineering</i>
	09.2002 – 01.2005	Correspondence and Evening School attached to MIPT	Moscow, Russia
	Teaching of special courses in Physics and Math		
Key competences	Experimental Physics, Nanostructures, Thin Films Deposition, Semiconductors, Process Technologies, UHV STM, AFM, MBE, SEM, EBL, LEED, TEM, RIE, XRD, UHV, Chemical Wet Etching, Lithography, Raman, Ellipsometry, Low Temperature Physics and Technology, Clean Room Fabrication, Upgrade and Maintenance of Equipment, Data Processing, Project Management		
Skills and abilities	<p>Personal skills – analytical mind, broad-minded, initiative, creative, quick-learning, self-sufficient, goal-oriented, cooperative, communicative, excellent organizing skills</p> <p>Computer skills – advanced user for PC and Mac; Internet; Office; TeX; data acquisition and processing (laboratory software, Origin); design/graphics processing; web development: HTML, CSS; software development: C++, Delfi</p> <p>Driving licence - category B</p>		
Languages	<p>Russian – native speaker</p> <p>English – fluently (incl. professional communication)</p> <p>German – fluently (incl. professional communication)</p>		
Activities	Photography, journalism, travel, reading, and music		

Publications

1. J. Kampmeier, **S. Borisova**, L. Plucinski, M. Luysberg, G. Mussler, and D. Grützmacher, Suppressing Twin Domains in Molecular Beam Epitaxy Grown Bi_2Te_3 Topological Insulator Thin Films, *Crystal Growth and Design*, 15 (1), pp 390–394 (2015)
2. **S. Borisova**, J. Kampmeier, M. Luysberg, G. Mussler, and D. Grützmacher, Domain formation due to surface steps in topological insulator Bi_2Te_3 thin films grown on Si (111) by MBE, *Appl. Phys. Lett.* 103, 081902 (2013)
3. **S. Borisova**, M. Luysberg, J. Krumrain, G. Mussler, and D. Grützmacher, Nucleation and Growth Dynamics of MBE-Grown Topological Insulator Bi_2Te_3 Films on Si (111), *AIP Conference Proceedings, ICPS 2012 – 31st International Conference on the Physics of Semiconductors*, AIP Conf. Proc. 1566, 191 (2013)
4. **S. Borisova**, J. Krumrain, M. Luysberg, G. Mussler, and D. Grützmacher, Mode of Growth of Ultrathin Topological Insulator Bi_2Te_3 Films on Si (111) Substrates, *Crystal Growth and Design*, 12 (12), 6098 (2012)
5. **S. Borisova**, Fabrication and In-situ STM Investigation of Growth Dynamics of Semiconductor Nanostructures Grown by MBE, PhD Thesis, RWTH Aachen University (2012)
6. J. Krumrain, G. Mussler, **S. Borisova**, T. Stoica, L. Plucinski, C.M. Schneider, and D. Grützmacher, MBE Growth Optimization of Topological Insulator Bi_2Te_3 Films, *Journal of Crystal Growth* 324, 115-118 (2011)
7. H. Eisele, **S. Borisova**, L. Ivanova, M. Dähne and Ph. Ebert, Cross-sectional scanning tunneling microscopy and spectroscopy of nonpolar GaN(1-100) surfaces, *J. Vac. Sci. Technol. B* 28, C5G11 (2010)
8. H. Eisele, L. Ivanova, **S. Borisova**, M. Dähne, M. Winkelkemper, and Ph. Ebert, Doping Modulation in GaN Imaged by Cross-Sectional Scanning Tunneling Microscopy, *Applied Physics Letters* 94, 162110 (2009)
9. Ph. Ebert, L. Ivanova, **S. Borisova**, H. Eisele, A. Laubsch, and M. Dähne, Electronic Properties of Dislocations in GaN Investigated by Scanning Tunneling Microscopy, *Applied Physics Letters* 94, 062104 (2009)
10. L. Ivanova, **S. Borisova**, H. Eisele, M. Dähne, A. Laubsch, and Ph. Ebert, Surface States and Origin of the Fermi Level Pinning on Nonpolar GaN(1-100) surfaces, *Applied Physics Letters* 93, 192110 (2008).

Conference contribution

1. **Svetlana Borisova**, Self-assembled Si/Ge quantum dot crystals: growth optimization towards ultra-high densities, 8th International Conference in Silicon Epitaxy and Heterostructures, Fukuoka, Japan (2013), *oral presentation*
2. **Svetlana Borisova**, Challenges in Epitaxy of Topological Insulator Thin Films On Non-Native Substrates, European MBE Workshop, Levi, Finland (2013), *oral presentation*
3. **Svetlana Borisova**, Van der Waals Epitaxy of Thin Topological Insulator Bi_2Te_3 Films on Si Substrates, German MBE Workshop, Hannover, Germany (2012), *oral presentation*
4. **Svetlana Borisova**, Nucleation and Growth Dynamics of MBE-Grown Topological Insulator Bi_2Te_3 Films on Si (111), International Conference in Physics of Semiconductors 2012, Zurich (2012), Switzerland, *poster presentation*
5. **Svetlana Borisova**, Growth of Topological Insulator Bi_2Te_3 Films on Si (111) Substrates, 20th International Symposium on Nanostructures: Physics and Technology (2012), Nizhny Novgorod, Russia, *oral presentation*
6. **Svetlana Borisova**, Growth dynamics of topological insulator Bi_2Te_3 films on Si (111) substrates, 17th International Winterschool on New Developments in Solid State Physics, Mauterndorf, Austria (2012), *poster presentation*

7. **Svetlana Borisova**, Growth dynamics of topological insulator Bi_2Te_3 films on Si (111) substrates, JARA Science Days (2011), Schleiden, Germany, *poster presentation*
8. **Svetlana Borisova**, Untersuchung der Wachstumsdynamik von dünnen Schichten des topologischen Isolators Bi_2Te_3 (*Investigation of Growth Dynamics of thin films of topological insulator Bi_2Te_3*), German MBE Workshop, Berlin, Germany, (2011), *oral presentation*
9. **Svetlana Borisova**, Fabrication of small-period Si/Ge quantum dot crystals, SemiconNano, Traunkirchen, Austria (2011), *poster presentation*
10. **Svetlana Borisova**, Growth and characterization of small-period Si/Ge quantum dot crystals, Russian-German Workshop "Future Trends in Nanoelectronics", Jülich, Germany (2011), *oral presentation*
11. **Svetlana Borisova**, Small-period Si/Ge quantum dot crystals by MBE, European MBE Workshop, Alpe d'Huez, France (2011), *oral presentation*
12. **Svetlana Borisova**, Growth of small-period Si/Ge quantum dot crystals by MBE, German Physical Society Meeting (DPG), Dresden, Germany (2011), *oral presentation*
13. **Svetlana Borisova**, Growth of germanium dots on templated silicon substrates, "Международная зимняя школа по физике полупроводников" ("International Winter School in Semiconductor Physics"), St. Petersburg (2009), *oral presentation*
14. **Svetlana Borisova**, 2D photonische Kristalle von geätzten Ge-Quantenpunkt-Säulen auf vorstrukturierten Si Substraten (*2D photonic crystals of etched pillars of Ge quantum dots on prepatterned Si substrates*), German MBE Workshop, Bochum, Germany (2009), *oral presentation*