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PERSONAL DATA

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EDUCATION

- 2017 PhD in Physics, [University of Exeter](#), College of Engineering, Mathematics and Physical Sciences, Exeter, UK. <http://hdl.handle.net/10871/28863>
- 2012 M.Sc. in Physics, Belarusian State University, Physics Department, Minsk, Belarus.
- 2011 M.Phys. (Engineer-Physicist), [Belarusian State University](#), [Physics Department](#), Minsk, Belarus.

EXPERIENCE

Internships

- [University of Southampton](#), School of Physics and Astronomy, [Laboratory for Hybrid Optoelectronics](#): 01/08/2011-30/09/2011 – project "Engineering nonlinearities in organic semiconductor microcavities", supervisor: Prof. Pavlos Lagoudakis pavlos.lagoudakis(at)soton.ac.uk; [funded by IAESTE UK].
- [Emanuel Institute of Biochemical Physics](#), Russian Academy of Science: 01/10-30/11/2013 – project "Modeling of the structure and properties of asymmetrical edge-corrugated graphene nanoribbons", supervisor Prof. Leonid Chernozatonskii chernol-43(at)mail.ru; [funded by Russian Foundation for Basic Research grant "РФФИ № 13-02-90919"].

- [University of Namur](#): 02/06/-30/06/2014 – project “Electromagnetic properties of graphene”, supervisor Prof. Philippe Lambin; [funded by EU FP7 project FAEMCAR (FP7-318617)].
- [University of Picardy Jules Verne](#): 03-04/2015 – project “Optical properties of silicene and bilayer graphene nanoclusters”, supervisor Prof. Igor Lukyanchuk; [funded by EU FP7 ITN NOTEDEV (FP7-607521)].
- [University of Iceland](#): 04/2017 – project “Brightening of the excitonic ground state in carbon nanotubes in the strong light-matter coupling regime”, supervisor Prof. Ivan Shelykh; [funded by EU FP7 ITN NOTEDEV (FP7-607521)].
- ...

Grants

- Russian Foundation for Basic Research, “Modeling of the structure and properties of asymmetrical edge-corrugated graphene nanoribbons”, "мол_ин_нр" РФФИ № 13-02-90919, 01/10-30/11/2013, (RUR 140,000)[[role:PI](#)]
- Grant of the Ministry of Education of The Republic of Belarus “Electromagnetic wave retardation in system of two graphene nanoribbons”, 02-12/2014, (BYR 40,000,000) [[role:PI](#)]
- Belarusian State University Fellowship “The influence of width vector direction on electronic properties of edge-modified zigzag-shaped graphene nanoribbons”, 02-12/2014, (BYR 1,900,000) [[role:PI](#)]
- ...

Employment

- [Research Institute for Nuclear Problems](#), Belarusian State University, Minsk, Belarus: 2/2010-31/06/2011 – Laboratorian; 17/07/2011–31/07/2012 – Engineer; 01/08/2012–01/04/2014 – Junior Research Assistant; 01/04/2014–31/01/2018 – Junior Researcher; **01/02/2018– present – Researcher.**
- University of Exeter, College of Engineering, Mathematical and Physical Sciences, Exeter, UK: 04/08/2014–03/08/2017 – Early Stage Researcher

RESEARCH INTERESTS

Electronics, nanophotonics and nanoplasmonics of low-dimensional materials.

REFERENCES

[M.E. Portnoi](#) , Candidate of Sciences, Ph.D, Associate Professor, University of Exeter, College of Engineering, Mathematics and Physical Sciences, Exeter, UK.
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[L.A. Chernozatonskii](#), Doctor of Sciences, Professor, Head of nanomaterial modelling group, Emanuel Institute of Biochemical Physics, Russian Academy of Sciences, Moscow, Russia.
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[K.G. Batrakov](#), Candidate of Sciences, Associate Professor, Belarussian State University,

Minsk, Belarus.
Email: kgbatnikov(at)mail.ru.

PUBLICATIONS

Articles:

1. Konstantin G. Batnikov, **Vasily A. Saroka**, Sergey A. Maksimenko, Christian Thomsen, “Plasmon polariton deceleration in graphene structures”, *J. Nanophoton.* **6**, 061719 (2012).
<http://dx.doi.org/10.1117/1.JNP.6.061719>
2. **V. A. Saroka**, K. G. Batnikov, and L. A. Chernozatonskii, “Edge-modified zigzag-shaped graphene nanoribbons: Structure and electronic properties”, *Phys. Solid State* **56**, 2135 (2014).
<http://dx.doi.org/10.1134/S106378341410028X>
3. **V. A. Saroka**, K. G. Batnikov, V. A. Demin, and L. A. Chernozatonskii, “Band gaps in jagged and straight graphene nanoribbons tunable by an external electric field”, *J. Phys.: Condens. Matter* **27**, 145305 (2015).
<http://dx.doi.org/10.1088/0953-8984/27/14/145305>
4. H. Abdelsalam, M. H. Talaat, I. Lukyanchuk, M. E. Portnoi, and **V. A. Saroka**, “Electro-absorption of silicene and bilayer graphene quantum dots”, *J. Appl. Phys.* **120**, 014304 (2016).
<http://dx.doi.org/10.1063/1.4955222>
5. **V. A. Saroka** and K. G. Batnikov, “Zigzag-Shaped Superlattices on the Basis of Graphene Nanoribbons: Structure and Electronic Properties”, *Russ. Phys. J.* **59**(5), 633 (2016).
<http://dx.doi.org/10.1007/s11182-016-0816-6>
6. **V. A. Saroka**, M. V. Shuba and M. E. Portnoi, “Optical selection rules of zigzag graphene nanoribbons”, *Phys. Rev. B* **95**, 155438 (2017).
<http://dx.doi.org/10.1103/PhysRevB.95.155438>
7. **V. A. Saroka**, I. Lukyanchuk, M. E. Portnoi and H. Abdelsalam, “Electro-optical properties of phoshorene quantum dots”, *Phys. Rev. B* **96**, 085436 (2017).
<http://dx.doi.org/10.1103/PhysRevB.96.085436>
8. T. P. Collier, **V. A. Saroka**, and M. E. Portnoi, “Tuning terahertz transitions in a double-gated quantum ring”, *Phys. Rev. B* **96**, 235430 (2017).
<http://dx.doi.org/10.1103/PhysRevB.96.235430>
9. **V. A. Saroka**, A. L. Pushkarchuk, S. A. Kuten, and M. E. Portnoi, “Hidden correlation between absorption peaks in achiral carbon nanotubes and nanoribbons”, *J. Saudi Chem. Soc.* (2018).
<https://doi.org/10.1016/j.jscs.2018.03.001>
10. ...

Book chapters:

1. O. Fesenko et al. (eds.), *Nanomaterials Imaging Techniques, Surface Studies, and Applications*, Springer Proceedings in Physics 146, DOI: 10.1007/978-1-4614-7675-7_9, Book ISBN: 978-1-4614-7674-0, K. Batnikov and **V. Saroka**, Chapter 9 “Surface Plasmon Retardation in Graphene Bilayer”.
http://link.springer.com/10.1007/978-1-4614-7675-7_9
2. ...

Proceedings and others:

1. K. Batnikov, **V. Soroko** / Electron beam instability in graphene // *Physics, Chemistry and applications of nanostructures: Reviews and Short Notes*, Proceedings of International Conference Nanomeeting – 2011, Minsk, Belarus, 24 – 27 May 2011 / Editors: V.E.

- Borisenko, S.V. Gaponenko, V.S. Gurin, C.H. Kam.— Singapore, World Scientific, 2011. — P.307–310. http://dx.doi.org/10.1142/9789814343909_0073
2. K. Batrakov, S. Maksimenko, **V. Soroko**, C. Thomsen / Plasmon-polariton slowing down in graphene structures // Fundamental and Applied NanoElectroMagnetics FANEM'12 Conference Proceedings, Minsk, Belarus, May 22-25, 2012. —P.35. <http://nano.bsu.by/docs/FANEM12-PROCEEDINGS.pdf>
 3. **V. Saroka** / Reduction of plasmon-polariton phase velocity in a double-layer graphene // Physics, Chemistry and Applications of Nanostructures: Reviews and Short Notes, Proceedings of International Conference Nanomeeting – 2013, Minsk, Belarus, 28 – 31 May 2013 / Editors: V.E. Borisenko, S.V. Gaponenko, V.S. Gurin, C.H. Kam. — Singapore, World Scientific, 2013. — P.218-221. http://dx.doi.org/10.1142/9789814460187_0054
 4. **V. A. Saroka**, K.G. Batrakov / Dirac electrons of graphene nanoribbons tunable by transverse electric field // Physics, Chemistry and Application of Nanostructures: Reviews and Short Notes, Proceedings of International Conference Nanomeeting – 2015, Minsk, Belarus, 26 – 29 May 2015 / Editors: V.E. Borisenko, S.V. Gaponenko, V.S. Gurin, C.H. Kam. — Singapore, World Scientific, 2015. —P.240-243. http://dx.doi.org/10.1142/9789814696524_0060
 5. M. E. Portnoi, **V. A. Saroka**, R. R. Hartmann, and O. V. Kibis / Terahertz Applications of Carbon Nanotubes and Graphene Nanoribbons // Proceedings of IEEE Computer Society Annual Symposium on VLSI, ISVLSI 2015, Montpellier, France, 8-10 July, 2015 / Editor: L. O’Conner. —Los Alamitos, IEEE Computer Society CPS, 2015. —P.456–459. <http://dx.doi.org/10.1109/ISVLSI.2015.97>
 6. T. P. Collier, **V. A. Saroka**, and M. E. Portnoi / Tuning THz transitions in quantum ring with two gates // Physics, Chemistry and Applications of Nanostructures. Reviews and Short Notes to Nanomeeting-2017. International Conference on Physics, Chemistry and Application of Nanostructures "Nanomeeting-2017", Minsk, Belarus, 30 May – 2 June 2017/ Editors: V.E. Borisenko, S.V. Gaponenko, V.S. Gurin, C.H. Kam. — Singapore, World Scientific, 2017. — P.172-175. http://dx.doi.org/10.1142/9789813224537_0040.
 7. **V. A. Saroka**, R. R. Hartmann, and M. E. Portnoi / Terahertz transitions in narrow-gap carbon nanotubes and graphene nanoribbons // Physics, Chemistry and Applications of Nanostructures. Reviews and Short Notes to Nanomeeting-2017. International Conference on Physics, Chemistry and Application of Nanostructures "Nanomeeting-2017", Minsk, Belarus, 30 May – 2 June 2017/ Editors: V.E. Borisenko, S.V. Gaponenko, V.S. Gurin, C.H. Kam. — Singapore, World Scientific, 2017. — P.176-179. http://dx.doi.org/10.1142/9789813224537_0041

CONFERENCES

Talks:

1. **26/08-02/09/2012** International Summer School for young scientists “NANOTECHNOLOGY: from fundamental research to innovations” Institute of Physics NASU, Bukovel, Ukraine. “Surface plasmon retardation in graphene bilayer”. <http://www.iop.kiev.ua/~nanotwinning/iss/index.html>
2. **19-22/08/2013** International Nanoscience Student Conference 2013 (INASCON 2013), London Center for Nanotechnology, University College London, London, UK. “Band Gap Engineering in Asymmetric edge-Corrugated Graphene Nanoribbons” / V. Saroka, K. Batrakov. <http://inascon.eu/?cid=3>
3. **11-14/08/2015** 9th International Nanoscience Student Conference “INASCON 2015”, University of Basel, Basel, Switzerland. “Interband Terahertz Transitions in Narrow-gap Carbon Nanotubes and Graphene Nanoribbons” / V. Saroka, R. Hartmann, M. Portnoi. <http://inascon.eu/>

4. **09-12/09/2015** International Meeting on Materials for Electronic Applications “IMMEA-2015”, Marrakech, Morocco. “Terahertz emission from narrow-gap carbon nanotubes and graphene nanoribbons”/ V.A. Saroka, R.R. Hartmann, M.E. Portnoi. <http://www.immea.ferroix.net/>
5. **27/06-01/07/2016** International symposium “Nanostructures: Physics and Technology”, St Petersburg, Russia. “Terahertz transitions in narrow-gap carbon nanotubes and graphene nanoribbons” / V. A. Saroka, R. R. Hartmann, and M. E. Portnoi. <http://www.ioffe.ru/NANO2016/>
6. **24-30/07/2016** International school of solid state physics, Epioptics-14 and Silicene-2, Erice, Sicily, Italy. “Electro-absorption of silicene and bilayer graphene quantum dots” / V. A. Saroka, H. Abdelsalam, M. H. Talaat, I. Lukyanchuk, M. E. Portnoi, and O. Pulci. <http://www.ism.cnr.it/en/workshop/epioptics-14/>
7. **21-24/09/2016** International workshop “Novel Terahertz Devices”, Prague, Czech Republic. “Terahertz Transitions in Quasi-metallic Graphene Nanoribbons” / V. A. Saroka, R. R. Hartmann, and M. E. Portnoi. <http://www.notedevworkshop2016.eu/>
8. **04-06/12/2017** International conference and exhibition “Nanotech Middle East 2017”, Dubai, United Arab Emirates. "A hidden correlation between absorption spectra of graphene nanoribbons and carbon nanotubes"/ V. A. Saroka, M. V. Shuba and M. E. Portnoi. <http://www.nanotechme.com/>
9. ...

Posters:

1. **24-27/05/2011** International Conference “Nanomeeting–2011”, Belarusian State University of Informatics and Radioelectronics, Minsk, Belarus. “Electron beam instability in graphene” / K. Batrakov, V. Soroko. <http://www.nanomeeting.org/>
2. **22-25/05/2012** International Conference “FANEM-2012”, Belarusian State University, Minsk, May 22-25, 2012. Session “Electromagnetics and Plasmonics”/ “Plasmon-polariton slowing down in graphene structures”// K. Batrakov, S. Maksimenko, V. Soroko, C. Thomsen. <http://nano.bsu.by/fanem12/>
3. **28-31/05/2013** International Conference “Nanomeeting–2013”, Belarusian State University of Informatics and Radioelectronics, Minsk, Belarus. “Reduction of plasmon-polariton phase velocity in a double-layer graphene” / V. Saroka. <http://www.nanomeeting.org/>
4. **01-05/07/2013** International Conference “Advanced Carbon NanoStructures–2013”, Ioffe Institute, St. Petersburg, Russia. “Slow plasmon-polariton in carbon nanostructures for Cherenkov-type generators” / K. Batrakov, V. Saroka. <http://acns2013.org/>
5. **01/12-05/12/2014** 5th International symposium on Terahertz Nanoscience (TeraNanoV), Schoelcher, Martinique, France. “Surface Plasmon Slowing Down in a Double Layer Graphene”/ K. Batrakov, V. Saroka. <http://nanojapan.rice.edu/teranano5.shtml>
6. **25-27/05/2015** NATO Advanced Research Workshop “FANEM-2015”, 25-27 May, Minsk, Belarus. “Jagged Graphene Nanoribbons: Structure, Electronic Properties and the Effect of an External Electric Field”/ V.A. Saroka, K.G. Batrakov, V.A. Demin, L.A. Chernozatonskii. <http://www.fanem.org/>

7. **26-29/05/2015** International Conference “Nanomeeting-2015”, 26-29 May, Minsk, Belarus. “Dirac electrons of graphene nanoribbons tunable by a transverse electric field”/ V.A. Saroka, K.G. Batrakov. <http://www.nanomeeting.org/>
8. **08-09/09/2015** Optics of Graphene and 2D Materials (Workshop), University of Exeter, Exeter, UK. “THz transitions in graphene nanoribbons”/ V.A. Saroka, M.E. Portnoi. <http://people.exeter.ac.uk/tc340/index.html>
9. **15-23/09/2015** International School on Nanophotonics and Photovoltaics “ISNP-2015”, Sicily, Cefalu. “Terahertz emission from narrow-gap carbon nanotubes and graphene nanoribbons”/ V.A. Saroka, R.R. Hartmann, M.E. Portnoi. <http://www.mifp.eu/SCHOOLS/ISNP-2015/>
10. **27/06-02/07/2016** International summer school and workshop “Nanostructures for Photonics”, NSP 2016, St Petersburg, Russia. “Terahertz Transitions in Narrow-Gap Carbon Nanotubes and Graphene Nanoribbons” / V. A. Saroka, R. R. Hartmann, and M. E. Portnoi. (3rd prize in The Best Poster Award) <http://ipc.ifmo.ru/nsp2016/>
11. **30/05-02/06/2017** International Conference “Nanomeeting-2017”, Minsk, Belarus. “Terahertz transitions in narrow-gap carbon nanotubes and graphene nanoribbons” / V. A. Saroka, R. R. Hartmann, and M. E. Portnoi. <http://www.nanomeeting.org/>
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