

### Education and Qualifications

2010	B.Sc.	Electronics and Microelectronics	ETU
2012	M.Sc.	Nanotechnology and Diagnostics	ETU
2018	Ph.D.	Semiconductor Technology	ETU

### Positions

- 2013– **Teaching Assistant**, Department of Micro- and Nanoelectronics, ETU.  
2018– **Researcher**, Micro and Nanodiagnosics Center, ETU.

### Grants, awards and scholarships

- 2017 ETU Personal Grant for Scientific Projects of Young Researchers.  
2016 Grant of Russian Foundation for Basic Research on additive technologies "Creation of metal coatings on porous materials by additive technologies".  
2015 The Winner of Competition of Research and Innovation Projects of Graduate Students, Young Researchers and Teachers ETU "LETI".  
2014 Grant of Russian Science Foundation "Colloidal quantum dots as biomarkers for scientific research of pathological processes of the female reproductive system".  
2014 Grant of Russian Foundation for Basic Research "Development of a photometric method for express diagnostics of nanoporous membranes based on por-Al<sub>2</sub>O<sub>3</sub>".  
2014 Grant of Russian Foundation for Basic Research "Investigation of the structure of porous materials from the absorption spectra of lead chalcogenide nanoparticles introduced into the pores".  
2013 The Winner of Youth Research and Innovation Competition U.M.N.I.K.  
2012 Grant of Federal Target Program "Research and Scientific-Pedagogical Personnel of Innovative Russia".  
2012 Diploma of the 1st degree on the results of competition for the best master's thesis in 2011/2012 academic year.

### Research

- Since 2012 I have authored 117 papers, chapters or books on the synthesis and study of colloidal quantum dots and thin films of semiconductor materials. 48 publications are in Web of Science and Scopus databases (3 Q1 articles). The list of selected publications appears on the following page.
- My current research involves the effects of plasmon nanoparticles and quantum dots composite systems.

### References

1. Bogachev, YV, KG Gareev, LB Matyushkin, VA Moshnikov, and AN Naumova (2013). Study of magnetite nanoparticle suspensions by photometry and NMR relaxometry. *Physics of the Solid State* **55**(12), 2431–2435.
2. Bogachev, YV, JS Chernenco, KG Gareev, IE Kononova, LB Matyushkin, VA Moshnikov, and SS Nalimova (2014). The Study of Aggregation Processes in Colloidal Solutions of Magnetite–Silica Nanoparticles by NMR Relaxometry, AFM, and UV–Vis-Spectroscopy. *Applied Magnetic Resonance* **45**(4), 329–337.
3. Tarasov, SA, OA Aleksandrova, AI Maksimov, EV Maraeva, LB Matyushkin, EA Men'kovich, VA Moshnikov, and SF Musikhin (2014). Study of the self-organization processes in lead sulfide quantum dots. *Semiconductors* **48**(13), 1729–1731.
4. Matyushkin, LB, OA Ryzhov, OA Aleksandrova, and VA Moshnikov (2016). Synthesis of metal and semiconductor nanoparticles in a flow of immiscible liquids. *Semiconductors* **50**(6), 844–847.
5. Aleshin, AN, IP Shcherbakov, EV Gushchina, LB Matyushkin, and VA Moshnikov (2017). Solution-processed field-effect transistors based on polyfluorene–cesium lead halide nanocrystals composite films with small hysteresis of output and transfer characteristics. *Organic Electronics* **50**, 213–219.

6. Andronov, AO, LB Matyushkin, DV Khondryukov, AO Aleksandrova, and VA Moshnikov (2017). An automatic apparatus for the preparation of thin films by successive ionic layer deposition. *Instruments and Experimental Techniques* **60**(6), 888–891.
7. Matyushkin, LB, OA Aleksandrova, and VA Moshnikov (2017). A device for measuring the scattering indicatrix of the nanomaterial synthesis process. *Glass Physics and Chemistry* **43**(3), 263–266.
8. Matyushkin, LB, OS Ken, VA Moshnikov, YM Spivak, OM Sreseli, EI Terukov, and IN Yassievich (2017). EMRS Fall Meeting. In: *Symposium G. Perovskite Solar Cells*. EMRS, pp.G.8.3.
9. Matyushkin, LB and VA Moshnikov (2017). Photoluminescence of perovskite  $\text{CsPbX}_3$  ( $X = \text{Cl, Br, I}$ ) nanocrystals and solid solutions on their basis. *Semiconductors* **51**(10), 1337–1342.
10. Matyushkin, LB, EN Muratova, and MF Panov (2017). Determination of the alumina membrane geometrical parameters using its optical spectra. *IET Micro & Nano Letters* **12**(2), 100–103.
11. Matyushkin, LB, AA Reshetnikova, AO Andronov, PK Afonicheva, SV Myakin, NV Permiakov, and VA Moshnikov (2017). Morphology, optical, and adsorption properties of copper-oxide layers deposited from complex compound solutions. *Semiconductors* **51**(5), 586–590.
12. Matyushkin, L and A Percova (2017). Plasmonic enhancement of photoluminescence from cadmium sulfide and lead sulfide quantum dots. *Journal of Physics: Conference Series* **929**, 012091.
13. Mazing, DS, AI Shul'ga, LB Matyushkin, OA Aleksandrova, and VA Moshnikov (2017). Synthesis and characterization of colloidal nanocrystals of ternary chalcogenide compounds. *Optics and Spectroscopy* **122**(1), 110–113.
14. Mbwanche, RC, LB Matyushkin, OA Ryzhov, OA Aleksandrova, and VA Moshnikov (2017). Synthesis of Quantum Dot Nanocrystals and Plasmonic Nanoparticles Using a Segmented Flow Reactor. *Optics and Spectroscopy* **122**(1), 48–51.
15. Muratova, EN, VV Luchinin, VA Moshnikov, VA Lifshits, LB Matyushkin, MF Panov, NN Potrakhov, SA Galunin, VV Ishin, and AA Shemukhin (2017). Features of the formation of nanoporous membranes based on alumina from foil and new fields of applications. *Glass Physics and Chemistry* **43**(2), 163–169.
16. Percova, A and LB Matyushkin (2017). Synthesis and postsynthetic anion exchange of  $\text{CsPbX}_3$  ( $X = \text{Cl, Br, I}$ ) quantum dots. *Journal of Physics: Conference Series* **917**(6), 062041.
17. Reshetnikova, AA, LB Matyushkin, AA Andronov, VS Sokolov, OA Aleksandrova, and VA Moshnikov (2017). Layer-by-layer deposition of nanostructured  $\text{CsPbBr}_3$  perovskite thin films. *Journal of Physics: Conference Series* **917**(5), 052023.
18. Andrianov, A, A Aleshin, A Zakhar'in, and L Matyushkin (2018). Terahertz Optical Characteristics of Organometallic Lead-Iodide (Bromide) Perovskites and Cesium Lead Halide Nanocrystals. In: *2018 43rd International Conference on Infrared, Millimeter, and Terahertz Waves (IRMMW-THz)*. IEEE, pp.1–2.
19. Chikalova-Luzina, OP, AN Aleshin, IP Shcherbakov, VM Vyatkin, and LB Matyushkin (2018). Energy transfer in hybrid optoelectronic structures between perovskite nanocrystals and an organic matrix. *Synthetic Metals* **246**, 230–235.
20. Matyushkin, LB, A Pertsova, and VA Moshnikov (2018). Enhanced Luminescence of Quantum Dots near a Layer of  $\text{Ag/SiO}_2$  Nanoparticles. *Technical Physics Letters* **44**(4), 331–333.
21. Matyushkin, LB and NM Romanov (2018). Effect of gamma irradiation on the photoluminescence of  $\text{CsPbBr}_3$  and  $\text{CdSe/ZnS}$  nanocrystals. *Journal of Optical Technology* **85**(2), 119–121.
22. Muratova, E, L Matyushkin, V Moshnikov, K Chernyakova, and I Vrublevsky (2018). IR Scattering by Optically Inhomogeneous Nanoporous Anodic Alumina Films. *Inorganic Materials* **54**(6), 564–567.
23. Nestoklon, M, S Goupalov, R Dzhioev, O Ken, V Korenev, YG Kusrayev, V Sapega, C de Weerd, L Gomez, T Gregorkiewicz, et al. (2018). Optical orientation and alignment of excitons in ensembles of inorganic perovskite nanocrystals. *Physical Review B* **97**(23), 235304.
24. Romanova, V, L Matyushkin, and V Moshnikov (2018). One-Dimensional Photonic  $\text{SiO}_2\text{--TiO}_2$  Crystals: Simulation and Synthesis by Sol–Gel Technology Methods. *Glass Physics and Chemistry* **44**(1), 7–14.
25. Yurk, V, L Maskaeva, V Markov, E Maraeva, V Moshnikov, and L Matyushkin (2018). Effect of Ascorbic Acid Additions on the Mechanism Underlying the Growth of Nanostructured  $\text{PbSe}$  Films via Hydrochemical Deposition. *Inorganic Materials* **54**(3), 221–228.