



Fursova Aleksandra Dmitrievna
 Citizenship: Russia
 Date of Birth: 15.02.1994
 SCOPUS id: 57016724400
 ORCID: 0000-0002-7277-5767



Research interests:	Nanophotonics, solar cells, electronics, sensorics, perovskites, Mie-resonances, photodetectors, nanoparticles, nanomaterials, Chemistry
Academic Degree:	Ph.D. in Physics and Mathematics, PhD in Electronics and Engineering
Societies:	IEEE, SPIE
Number of publications in the last 5 years:	18
H-index:	10

Education:

- University of Rome Tor Vergata, Rome 09.2018 - 08.2021; PhD in Electronic Engineering (double degree); Thesis title: Resonant semiconductor nanostructures for efficiency enhancement of perovskite solar cells; Supervisor: prof. Aldo Di Carlo
- ITMO University, St. Petersburg 09.2017 - 08.2021; PhD in Condensed Matter Physics (double degree); Thesis title: ; Supervisor: prof. Sergey Makarov
- ITMO University, St. Petersburg 09.2015 - 06.2017; Master's degree in Biotechnology (graded with honors); Thesis title: Title: Creation of injectable luminescent hydrosol based hafnia nanoparticles; Supervisor: prof. Vladimir Vinogradov
- Saint-Petersburg State University, St. Petersburg 09.2011 - 06.2015; Bachelor's degree in Chemistry, Physics and Mechanics of Materials; Thesis title: Effect of biocompatible coating on the magnetic properties and relaxation factor of maghemite nanoparticles , promising contrast agents for MRI; Supervisor: prof. Olga Osmolovskaya

Work Experience

Dates: 2022 – present

Work address: ITMO University, Lomonosova street, 9, Saint Petersburg, Russia

<https://physics.itmo.ru>

Title: Postdoc

Dates: 2017 – present

Work address: ITMO University, Lomonosova street, 9, Saint Petersburg, Russia

<https://physics.itmo.ru>

Title: Junior researcher

Dates: 2015 - 2017

Work address: ITMO University, Lomonosova street, 9, Saint Petersburg, Russia

<https://scamt.ifmo.ru/ru/>

Title: engineer - researcher

Dates: 2014 - 2015

Work address: Saint Petersburg State University, Universitetsky Ave. 26, Saint Petersburg, Russia

<http://chem.spbu.ru/>

Title: engineer

Skills:

Chemical synthesis, optoelectronics, device preparation, modeling, optical analysis, morphological and electronic characterization, spectroscopy, teaching, student supervision, article preparation, grant leadership.

List of the main publications:

The list of publication are available here: https://scholar.google.ru/citations?hl=ru&user=Hv5M26AAAAAJ&view_op=list_works&sortby=pubdate

The candidate has 19 original papers published in Q1 and Q2 journals including Nano Energy, ACS Nano, Nanoscale, Advanced Optical Materials, ACS Applied Materials & Interfaces.

1. Hole-transport materials based on benzodithiophene-thiazolothiazole-containing conjugated polymers for efficient perovskite solar cells; MM Tepliakova, IE Kuznetsov, DS Zamoretskov, AN Zhivchikova, ... Dyes and Pigments, 111349, 2023
2. Enhancing Photovoltaic Performance of Hybrid Perovskite Solar Cells Utilizing GaP Nanowires; A Furasova, M Baeva, A Mozharov, P Tonkaev, S Raudik, V Neplokh, ... ACS Applied Energy Materials, 2023
3. Highly Efficient Bifacial MAPbI₃ Perovskite Solar Cells Improved by a Light-Trapping Electrode, AA Obraztsova, AD Furasova, D Baretin, SV Makarov; Bulletin of the Russian Academy of Sciences: Physics 86 (1), S152-S155, 2022

4. The Impact of Backbone Fluorination and Side-Chain Position in Thiophene-Benzothiadiazole-Based Hole-Transport Materials on the Performance and Stability of Perovskite Solar Cells, MM Tepliakova, IE Kuznetsov, AN Mikheeva, ME Sideltsev, AV Novikov, ... *International Journal of Molecular Sciences* 23 (21), 13375, 2022
5. Light-trapping electrode for the efficiency enhancement of bifacial perovskite solar cells, AA Obraztsova, D Baretin, AD Furasova, PM Voroshilov, M Auf der Maur, ... *Nanomaterials* 12 (18), 3210–3, 2022
6. Nanophotonics for perovskite solar cells; A Furasova, P Voroshilov, D Saponi, K Ladutenko, D Baretin, A Zakhidov, ... *Advanced Photonics Research* 3 (9), 2100326, 7, 2022
7. Mesoporous perovskite solar cells with Al-and Zn-based metal-organic frameworks; AD Furasova, G Hix, SV Makarov, A Di Carlo; *Journal of Physics: Conference Series* 2015 (1), 012042, 1, 2021
8. Mie-resonant mesoporous electron transport layer for highly efficient perovskite solar cells; Aleksandra Furasova, Pavel Voroshilov, Mikhail Baranov, Pavel Tonkaev ... *Nano Energy*, 106484, 16, 2021
9. Phase Transformation Dynamics in Sulfate-Loaded Lanthanide Triphosphonates. Proton Conductivity and Application as Fillers in PEMFCs; AC Inés R. Salcedo, Rosario M. P. Colodrero, Montse Bazaga-García, M. López ... *ACS Applied Materials & Interfaces*, 4, 2021
10. Improvement of methylammonium lead iodide based perovskite solar cells by phosphorus doped silicon nanoparticles; A Furasova, P Voroshilov, S Makarov, A Zakhidov, AD Carlo; *AIP Conference Proceedings* 2300 (1), 020034; 2020
11. Room-temperature lasing from Mie-resonant nonplasmonic nanoparticles; E Tiguntseva, K Koshelev, A Furasova, P Tonkaev, V Mikhailovskii, ... *ACS nano* 14 (7), 8149-8156, 96, 2020
12. Engineering the charge transport properties of resonant silicon nanoparticles in perovskite solar cells; A Furasova, P Voroshilov, E Lamanna, A Mozharov, A Tsytkin, I Mukhin, ... *Energy Technology* 8 (4), 1900877,13, 2020
13. Perovskite solar cell improvement by gold nanoparticles prepared by laser ablation in liquid; AD Furasova, E Lamanna, E Colabro, SV Makarov, A Di Carlo, *Journal of Physics: Conference Series* 1461 (1), 012043, 1, 2020
14. Halide-perovskite resonant nanophotonics; S Makarov, A Furasova, E Tiguntseva, A Hemmetter, A Berestennikov, ... *Advanced optical materials* 7 (1), 1800784, 163, 2019
15. Resonant silicon nanoparticles for efficiency and stability enhancement of perovskite solar cells; AD Furasova, AA Zakhidov, A Di Carlo, SV Makarov, *Journal of Physics: Conference Series* 1135 (1), 012067,1, 2018
16. Resonant silicon nanoparticles for enhanced light harvesting in halide perovskite solar cells; A Furasova, E Calabró, E Lamanna, E Tiguntseva, E Ushakova, ... *Advanced Optical Materials* 6 (21), 1800576–42, 2018
17. Synthesis of a rare-earth doped hafnia hydrosol: Towards injectable luminescent nanocolloids; AD Furasova, AF Fakhardo, VA Milichko, E Tervoort, M Niederberger, ... *Colloids and Surfaces B: Biointerfaces* 154, 21-26, 19, 2017

18. Inkjet fabrication of highly efficient luminescent Eu-doped ZrO₂ nanostructures; AD Furasova, V Ivanovski, AV Yakovlev, VA Milichko, VV Vinogradov, ... *Nanoscale* 9 (35), 13069-13078, 14, 2017
19. Thermodynamic parameters of bovine serum albumin adsorption at the surface of various nanoparticles; IP Mosiagin, AD Furasova, MA Kozlova, MG Osmolowsky, ... *Russian Journal of General Chemistry* 85, 2654-2656, 2, 2015

List of the patents:

Perovskite solar cell with resonant nanoparticles (number 206335, dated 06.09.2021)

Experience in leading and participating in research projects:

- RSF 22-79-00137 Resonant dielectric nanoantennas for increasing spectral sensitivity of thin-film organo-inorganic photodetectors 2022-2024 Head;
- Subsidies for young scientists from the committee for science and higher education 2022;
- Innovation Promotion Fund 16829FY/2021 Umnik NTI Development of perovskite solar cells with efficient generation of photocurrent due to integrated resonant semiconductor nanostructures 12.06.2021-12.06.2023 Head;
- Grants Council of the President of the Russian Federation 390318 research and development Fund Perovskite solar cells improved by resonant nanoparticles (Makarov Sergey Vladimirovich) 11.06.2019-31.12.2020 Responsible executor (gray cardinal);
- RSF 390323 research and development Fund Resonant optical nanostructures for improving photovoltaic and optoelectronic devices based on perovskites (Ladutenko Konstantin Sergeevich) 24.04.2019 - 31.12.2021 Participant (gray cardinal);
- Ministry of Science and Higher Education 370044 NIR-FUND Organo-inorganic materials with integrated nanophotonic structures for advanced optical devices (Zahidov Anvar Abdulakhadovich) 16.02.2017-31.12.2020 Participant;

Scholarships:

1. State scholarship (Russia, 2011-2015, 2015-2017, 2017-2021);
2. Scholarship of the Russian Government (Russia, 2019-2020);
3. Scholarship of the President of the Russian Federation for studying abroad (Russia, 2019-2020, 2020-2021);
4. State increased academic scholarship for high academic performance (Russia, 2015-2017, 2017-2021);
5. Scholarship of the Committee for Science and Higher Education (Russia, 2018, 2019);
6. Scholarship of the President of the Russian Federation to young scientists and graduate students (Russia, 2022 - 2024);

Participation in education:

Conducting scientific activities and preparing high school students for the Sakharov Readings conference;

Lecturer and seminarian at the Summer School of the ITMO Physics Department (2018 - 2020);

Lecturer at the elective course "Thin-film optoelectronics" (since 2022);

Online mini course “Material Scientists 2.0. Photovoltaics”
<https://edunano.ru/courses/materialovedy-2-0-fotovoltaika/>