



Vitalii Salnikov

research assistant

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REC "SMBA", IKBFU

Gaidara 6, 23600
Kaliningrad, Russia

Date of Birth: 21 August 2001
Place of Birth: Kaliningrad, Russia

Employment experience

Sep. 2023 – present Faculty of Physics, Lomonosov Moscow State University, *research assistant*;

Apr. – May, 2023 Dagestan State University, *research assistant*;

Aug. 2022 – present IKBFU, REC "Smart Materials and Biomedical Applications", *research assistant*.

Education

2023– present IKBFU, Institute of High Technology, *master-student*, supervisors: Dr. Alexander Omelyanchik;

2019–2023 IKBFU, Institute of High Technology with the bachelor degree of "Physics", supervisors: Dr. Alexander Omelyanchik
Thesis: "Synthesis and study of the structural and magnetic properties of manganese-cobalt spinel ferrite nanoparticles".

Other activity

2023 – Present Startup "Development of a binary nanocomposite based on magnetic nanoparticles for water purification", *Head of "MAGNITTEKHNOVA", Ltd*;

2022 – Present Center for development of gifted children (Kaliningrad), *Member of the Expert Council*.

Research interests

- 1) Synthesis and magnetic properties of nanoparticles and nanocomposites;
- 2) Multiferroic material;
- 3) Investigation of the magnetic interaction between nanoparticles.

Organizing work

Aug. 20 – 24, 2023 IBCM 2023 International Baltic Conference on Magnetism,
Svetlogorsk, Russia *Member of organizing committee*

Internships

Jun. 14 – Jun. 20, 2023 Faculty of Physics, Lomonosov Moscow State University –
(Moscow, Russia) under the supervision of Dr. Yuliya Alekhina;

Jul. 12 – Aug. 14 2021 Saratov State University – (Saratov, Russia) under the supervision of Dr.
Alexandr Sadovnikov.

Projects and grants

2022–2025 “Hybrid magneto-piezoelectric nanogenerators as a new class of smart
member of the team photocatalysts”
Russian Science Foundation (RSF); № 22-73-10091

2021–2024 “Development and investigation of multimaterials with magnetic
member of the team nano-inclusions for additive 3d-5d technologies”
Russian Science Foundation (RSF); № 21-72-30032

Experience

- Vibrating Sample Magnetometer (7400 System, Lakeshore);
- Powder X-Ray Diffraction (Proto Manufacturing, XRD Benchtop; Tongda, TD-3500);
- AFM and PFM measurements (NT-MDT, NTEGRA);
- Differential Scanning Calorimeter (F1 Phoenix, NETZSCH);
- Thermogravimetric Analyzer (F3 Tarsus, NETZSCH);
- Ball milling (Retsch E-Max);
- Scanning electron microscope (Toshiba, Tabletop Microscope TM4000II);
- Magnetoelectric measurements;
- Chemical laboratory.

Conferences and Schools

Nov. 15, 2023 XII Interuniversity Conference of Scientific Works of Students “Physical
Chemistry – The Basis of New Technologies and Materials” – (Saint-
Petersburg, Russia)

Oct. 3-6, 2023 XXIII All-Russian Conference on Physics of Ferroelectrics – (Tver, Russia)

Aug. 20-24, 2023 V International Baltic Conference on Magnetism 2023 – (Svetlogorsk, Russia)

Jul. 2-6, 2023 Samarkand International Symposium on Magnetism – (Samarkand,
Uzbekistan)

May 28-31, 2023 II Mathematical and computer modeling of the properties of soft magnetic
materials: from theory to experiments and applications – (Kaliningrad, Russia)

Apr. 10 – Apr. 21, 2023 XXX International Conference of Students, Postgraduate Students and Young
Scientists "Lomonosov" – (Moscow, Russia)

Aug. 29 – Sep. 2, 2021 IV International Baltic Conference on Magnetism 2021 – (Svetlogorsk, Russia)

Contributions by co-authors:

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- Oct. 3-6, 2023 XXIII All-Russian Conference on Physics of Ferroelectrics – (Tver, Russia)
- [C13] *1) Poster presentation (by VS): Study of the physical properties of PVDF/CFO multiferroic composite with different percentages of PZT*
V.V. Savin, P.A. Vorontsov, V.D. Salnikov, A.A. Ignatov, P.A. Ershov, V.V. Rodionova
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- Aug. 20 – 24, 2023 V International Baltic Conference on Magnetism – (Svetlogorsk, Russia)
IBCM
- [C12] *1) Oral presentation (by AA): “Photothermal properties of magnetic nanoparticles”*
A. Anikina, V. Salnikov, V. Khanadeev, C. Sangregorio, L. Panina, V. Belyaev, V. Rodionova;
- [C11] *2) Oral presentation (by PV): “Synthesis and characterization of PVDF-CFO composite films”*
P.A. Vorontsov, V.D. Salnikov, P.A. Ershov, A.S. Omelyanchik, V.V.; Rodionova;
- [C10] *3) Poster presentation (by LG): “Enhancing Crystallinity in CoFe₂O₄-PVDF Composites through Annealing with Optimized Temperature Regimes”*
L. Guryanova, V. Salnikov, P. Vorontsov, A. Omelyanchik, P. Ershov, V. Rodionova;
- [C9] *4) Poster presentation (by DP): “Effect of bismuth ferrite nanoparticle concentration on the magnetic and structural properties of PVDF-based composites”*
D. Petrukhin, V. Salnikov, A. Omelyanchik, P. Ershov, V. Rodionova;
- [C8] *5) Poster presentation (by VK): “FORC-analysis of magnetic behaviour in magnetic polymer-based composites”*
V.G. Kolesnikova, A.S. Omelyanchik, V.D. Salnikov, S. Aga-Tagieva, L.A. Makarova, V.V. Rodionova;
- [C7] *6) Poster presentation (by VK): Exploring the Photocatalytic and Magnetic Properties of ZincDoped Cobalt Ferrite Nanocomposites with PEG and PVDF*
S. Aga-Tagiyeva, V. Salnikov, A. Omelyanchik, K. Magomedov, F. Orudzev, V. Rodionova.
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- Jul. 3-8, 2023 New polymer composite materials. Mikitaevsky readings – (Elbrus, Russia)
- [C6] *1) Oral presentation (by PE): Synthesis and characterization of PVDF-CFO composite films*
Vorontsov P.A., Salnikov V.D., **Ershov P.A.**, Omelyanchik A.S., Rodionova V.V.
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- July 3–7, 2023 The 8th Asian Symposium on Advanced Materials – (Novosibirsk, Russia)
ASAM-8
- [C5] *1) Poster presentation (by DP): “Effect of Bismuth Ferrite Concentration on Magnetic and Structural Properties of PVDF-Based Composites”*
D.A. Petrukhin, V.D. Salnikov, A.S. Omelyanchik, P.A. Ershov, V.V. Rodionova (P. 388-389);
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[C4]	2) <i>Poster presentation (by PV)</i> : “Synthesis and Characterization of PVDF-CFO Composite Films” P.A. Vorontsov , <u>V.D. Salnikov</u> , P.A. Ershov, A.S. Omelyanchik, V.V. Rodionova (P. 71).
May 28-31, 2023	II Mathematical and computer modeling of the properties of soft magnetic materials: from theory to experiments and applications – (Kaliningrad, Russia)
[C3]	1) <i>Oral presentation (by PE)</i> : “Features of 3D printing of PVDF+CFO composite materials” Ershov P.A. , Murzin D.V., Amirov A.A., Omelyanchik A.S., Vorontsov P.A., Sergeev E.D., Rodionov V.V., Vorontsov S.A., <u>Salnikov V.D.</u> , Rodionova V.V.
March 1–4, 2023 Apricot	1 st International Conference APRICOT 2023 “Magnetic nanomaterials in biomedicine: synthesis and functionalization” – (Yerevan, Armenia)
[C2]	1) <i>Poster presentation (by VK)</i> : “FORC -Analysis as a Powerful Tool for Investigation of Magnetic Behaviour in Magnetoactive Nanocomposite” V.G. Kolesnikova , A.S. Omelyanchik, <u>V.D. Salnikov</u> , S. Aga-Tagieva, S.A. Voroncov, V. V. Rodionova.
Mar. 29 – Apr. 3, 2020	Magnetic Resonance and its Applications SPINUS-2020– (Saint Petersburg, Russia)
[C1]	1) <i>Poster presentations (by IM)</i> : “Using composite excitation pulses for T2 relaxation measurements with the inverse integral transformation” Poltorabatko D., <u>Salnikov V.</u> , Belivchenko K., Mershiev I. , Kupriyanova G.

Publications

2023

- Effect of PEG nanoparticle surface coating on the magnetic and structural properties of CoFe₂O₄/PVDF composites;
V.D. Salnikov, S.E. Aga-Tagieva, V.G. Kolesnikova, A.O. Tovpinets, A.S. Omelyanchik, V.V. Rodionova; Scopus: Q2 2022
Journal of Magnetism and Magnetic Materials;
DOI: 10.1016/j.jmmm.2023.171498
- Magnetic, optical and photothermal properties of Fe₃O₄ and CoFe₂O₄ nanoparticles coated with organic materials;
A. Anikin, V. Salnikov, S. Pshenichnikov, V.K. Belyaev, S. Jovanovic, A. Gurevich, E. Levada, V. Rodionova, L.V. Panina; Scopus: Q2 2022
Journal of Magnetism and Magnetic Materials;
DOI: 10.1016/j.jmmm.2023.171507