

CURRICULUM VITAE

Personal information

Name	Krasikova Mariia
Maiden name	Lesik Mariia
Age	28 y.o.
Date of birth	18.11.1995
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Work experience

Dates	September 2015 – March 2020
Name of employer	Lomonosov Moscow State University, Moscow, Russia
Occupation or position held	Intern
Main activities	2015 – 2017 Development of acoustic tweezers based on a focused ultrasonic transducer for trapping and movement of solid microparticles. Development of acoustic tweezers based on the vortex ultrasonic beam formed by an antenna grating for trapping and manipulation of solid spherical microparticles in water.
	2017 – 2020 Extraction and analysis of the pulmonary component of the second heart sound. Development of phonocardiogram registration scheme and software for extraction and analysis of the second heart sound. Project is aimed to make a device for non-invasive estimation of pulmonary arterial pressure and primary diagnostics of pulmonary hypertension. Current task is to gain statistical data and determine additional diagnostic parameters of pulmonary hypertension.
Dates	October 2020 – December 2020
Name of employer	Aalto University, Espoo, Finland
Occupation or position held	Visiting doctoral candidate
Main activities	Development of dual-physics power transfer systems.

Dates	January 2023 - July 2023, October 2023 - February 2024
Name of employer	Technical University of Munich, Munich, Germany
Occupation or position held	Visiting PhD student
Main activities	Acoustical methods and devices for medical applications

Dates	November 2019 – present time
Name of employer	ITMO University, Saint-Petersburg, Russia
Occupation or position held	Engineer-researcher
Main activities	Exploration of acoustic metamaterials and phononic structures for noise reduction (modeling and experiment); development of acoustic power transfer systems.

Education

Dates	2013 - 2017
University	Lomonosov Moscow State University, Moscow, Russia
Specialization	Physics
Degree	Bachelor of Science
Thesis	Radiation force acting on solid microparticles in the focused ultrasonic beam.

Dates	2017 – 2019
University	Lomonosov Moscow State University, Moscow, Russia
Specialization	Physical and applied Acoustics
Degree	Master of Science (Diploma with Honors)
Thesis	Separation and analysis of the pulmonary component of the second heart tone.

Dates	2020 – present time (expected date Dec. 2024 – Jan. 2025)
University	ITMO University, Saint-Petersburg, Russia
Specialization	Radiophysics
Degree	Candidate of sciences (PhD), in progress
Thesis (preliminary)	Resonant metastructures for acoustics field scattering and absorption.

Skills and competences

Working skills	<ul style="list-style-type: none"> ● Strong academic background in physics, experience in medicine (heart physiology, electro- and phonocardiography) and signal processing
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	<ul style="list-style-type: none"> • Experience of Comsol Multiphysics modeling, skills of programming in Matlab and Python
Research Interests	Acoustics, medical acoustics, physical methods in biology and medicine, wireless power transfer, acoustic metamaterials
Scientific output	20 papers (7 in peer-reviewed journals, 6 proceedings, and 7 conference thesis), 15 talks (9 at international and 2 at Russian conferences, 2 seminars and 2 popular science demonstrations), 1 registered computer program
Other skills	<ul style="list-style-type: none"> • Foreign languages: English (B2, upper-intermediate), German (A2). • Grants application and leadership experience (Russian grants: Russian Science Foundation, «Umnik», , «Student Startup», «Nauka XXI», “Basis” Foundation Scholarship; International grants: G-RISC, DAAD Bi-nationally Supervised Doctoral Degrees).
Awards and scholarships	<p>2024-2025 – Russian Science Foundation grant for small scientific groups (group lead, project 24-21-00275),</p> <p>2023 – Research grant for master and PhD students of ITMO University, lead of the scientific group (ITMO University, Saint-Petersburg, Russia),</p> <p>2022 – Student Startup grant (Innovation Promotion Fund, Russia),</p> <p>2022 – Scholarship for PhD students (Theoretical Physics and Mathematics Advancement Foundation “BASIS”, Russia),</p> <p>2022 – DAAD German language course (Marburg, Germany),</p> <p>2021 – DAAD Bi-nationally Supervised Doctoral Degrees (Technical University of Munich, Munich, Germany + ITMO University, Saint-Petersburg, Russia),</p> <p>2021 – G-RISC mobility project (Fraunhofer IPMS, Dresden, Germany) - postponed,</p> <p>2021 – Research grant for master and PhD students of ITMO University (ITMO University, Saint-Petersburg, Russia),</p> <p>2020 – Aalto University Summer Internship (host: Prof. Sergei A.Tretyakov, School of Electrical Engineering),</p>

2019 – Best young specialist’s report at XXXII session of Russian Acoustic Society, section of Bioacoustics and medicine application of acoustic methods. Moscow, Russia,
2018 – Personal grant “Umnik” (Innovation Promotion Fund, Russia),
2018-2019 – “Basis” Foundation Scholarship (Theoretical Physics and Mathematics Advancement Foundation “BASIS”, Russia),
2018-2019 – Russian Government scholarship for students for outstanding achievements in scientific work,
2018 – Lomonosov Moscow State University grant “Nauka XXI” (head of project),
2017 – Best report at International scientific conference of students and young scientists "Lomonosov-2017", Physics section, Radiophysics subsection, Moscow, Russia.

References

- Andrey A. Bogdanov, PhD, Senior Researcher
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- Prof. Dr. Steffen Marburg,
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List of published works

Krasikova (Lesik) Mariia

2024:

1. Krasikova, M., Pavliuk, A., Krasikov, S., Kuzmin, M., Lutovinov, A., Melnikov, A., ... & Bogdanov, A. (2024). Broadband noise-insulating periodic structures made of coupled Helmholtz resonators. *APL Materials*, 12(1).

2023:

2. Krasikova, M., Krasikov, S., Melnikov, A., Baloshin, Y., Marburg, S., Powell, D. A., & Bogdanov, A. (2023). Metahouse: Noise-Insulating Chamber Based on Periodic Structures. *Advanced Materials Technologies*, 8(1), 2200711.
3. Krasikova, M., Pavliuk, A., Krasikov, S., Melnikov, A., Powell, D. A., Marburg, S., & Bogdanov, A. (2023). Periodic structures based on coupled Helmholtz resonators for broadband noise suppression. In *Fortschritte der Akustik-DAGA 2023, 49. Jahrestagung für Akustik, 06.-09. März 2023, Hamburg*.
4. Krasikova, M., Lutovinov, A., Chiang, Y. K., Powell, D. A., Marburg, S., & Kapitanova, P. (2023). Transmission metalens for ultrasound focusing in water. In *Proceedings of the International Congress on Sound and Vibration, 29th International Congress on Sound and Vibration, ICSV 2023, 09.-13. July, Prague*.

2021:

5. Krasikova, M., Melnikov, A., Krasikov, S., Baloshin, Y., Slobozhanyuk, A., Marburg, S., ... & Bogdanov, A. (2021, August). Broadband noise mitigation using coupled Helmholtz resonators: a numerical study. In *INTER-NOISE and NOISE-CON Congress and Conference Proceedings* (Vol. 263, No. 2, pp. 3999-4007). Institute of Noise Control Engineering.
6. Song, M., Jayathurathnage, P., Zanganeh, E., Krasikova, M., Smirnov, P., Belov, P., ... & Krasnok, A. (2021). Wireless power transfer based on novel physical concepts. *Nature Electronics*, 4(10), 707-716.

2020:

7. Andreev, V. G., Gramovich, V. V., Krasikova, M. V., Korolkov, A. I., Vyborov, O. N., Danilov, N. M., ... & Rudenko, O. V. (2020). Time–Frequency Analysis of The Second Heart Sound to Assess Pulmonary Artery Pressure. *Acoustical Physics*, 66, 542-547.
8. Krasikova, M., Baloshin, Y., Slobozhanyuk, A., Melnikov, A., Powell, D., Petrov, M., & Bogdanov, A. (2020, December). Noise reduction using structures based on coupled Helmholtz resonators. In *AIP Conference Proceedings* (Vol. 2300, No. 1, p. 020069). AIP Publishing LLC.

2018:

9. M.V. Lesik, Korolkov A.I., V.G. Andreev. Methods for analyzing the pulmonary component of the second heart sound. *Memoirs of the Faculty of Physics, Lomonosov Moscow State University – 2018 - № 4*. p. 1840703-1 - 1840703–8.
10. Andreev V.G., Lesik M.V., Korolkov A.I. Extraction and analysis of pulmonal component of the second heart tone. 13th International Scientific Conference "Physics and Radioelectronics in Medicine and Ecology", Suzdal, Russia. p. 49-53.
11. M.V. Lesik, V.G. Andreev. Radiation force acting on solid microparticles in focused ultrasonic beam. XVIII scientific school “Nonlinear waves – 2018”, Nizhnii Novgorod, Russia. p. 99.

2017:

12. M.V. Lesik, S. I. Soloviyov, V.G. Andreev. Acoustic tweezer for capturing and moving microparticles based on a focused ultrasonic transducer. *Memoirs of the Faculty of Physics, Lomonosov Moscow State University – 2017 - № 5*. p. 1750704-1 - 1750704–5.

13. V.G. Andreev, M.V. Lesik, S. I. Soloviyov. Trap and movement of solid particles with use of vortex ultrasonic beam. *Memoirs of the Faculty of Physics, Lomonosov Moscow State University* – 2017 - № 5. p. 1751301–1 - 1751301–4.
14. M.V. Lesik, S. I. Soloviyov, V.G. Andreev. Acoustic tweezer for capturing and moving microparticles based on a focused ultrasonic transducer. II Russian acoustics conference, XXX session of Russian Acoustic Society, Nizhnii Novgorod, Russia. p. 138-139.
15. S. I. Soloviyov, M.V. Lesik, V.G. Andreev. Trap and movement of solid particles with use of vortex ultrasonic beam. II Russian acoustics conference, XXX session of Russian Acoustic Society, Nizhnii Novgorod, Russia. p. 65.

List of patents and inventions

Krasikova (Lesik) Mariia

2020:

1. Certificate of official registration of computer program No2020660629. Program for extraction and analysis of time-frequency characteristics of the second heart sound from phonocardiography or other acoustic signals of human heart. Holder(s): Krasikova M.V. (RU), author(s): Krasikova M.V., on request No2020619835, date of receipt: 27.08.2020, date of registration: 08.09.2020, country: Russian Federation.