

Rustam Balafendiev, M.S.

✉ rustam.balafendiev@metalab.ifmo.ru
🌐 https://physics.itmo.ru/ru/personality/rustam_balafendiev
🌐 <https://linkedin.com/in/rustam-balafendiev-2ab468221>
🆔 0000-0001-5081-5257
✉ 57221052547
📄 AAS-4785-2021
🔍 <https://scholar.google.com/citations?user=UUTDsv4AAAAJ>
🌐 <https://www.researchgate.net/profile/Rustam-Balafendiev>



Employment History

2019 – ···· 📌 **Engineer**, School of Physics and Engineering, ITMO University.

Education

- 2021 – ···· 📌 **Ph.D., ITMO Radiophysics.**
Thesis title: *Investigation of waveguides and resonators made with wire metamaterials.*
- 2019 – 2021 📌 **M.Sc. Physics, ITMO** in Radiophysics.
Thesis title: *Method for minimizing the electric field in a surface coil for magnetic resonance imaging with a constant field level of 7 T.*
- 2015 – 2019 📌 **B.Sc. Physics, SPbPU** in Radiophysics.
Thesis title: *Study of the focusing properties of a diffraction membrane (photon sieve).*

Research Publications

Journal Articles

- 1 Millar, A. J., Anlage, S. M., **Balafendiev, R.**, Belov, P., van Bibber, K., Conrad, J., ... Marvinney, C. (2023). Searching for dark matter with plasma haloscopes. *Phys. Rev. D*, 107, 055013. [🔗 doi:10.1103/PhysRevD.107.055013](https://doi.org/10.1103/PhysRevD.107.055013)
- 2 **Balafendiev, R.**, Simovski, C., Millar, A. J., & Belov, P. (2022). Wire metamaterial filled metallic resonators. *Physical Review B*, 106, 75106. [🔗 doi:10.1103/PhysRevB.106.075106](https://doi.org/10.1103/PhysRevB.106.075106)
- 3 **Balafendiev, R.**, Solomakha, G., Dubois, M., Abdeddaim, R., Enoch, S., Simovski, C., & Glybovski, S. (2022). An antenna based on three coupled dipoles with minimized e-field for ultra-high-field mri. *IEEE Transactions on Antennas and Propagation*, 1–1. [🔗 doi:10.1109/TAP.2022.3195515](https://doi.org/10.1109/TAP.2022.3195515)
- 4 Lezhennikova, K., Simovski, C., Abdeddaim, R., **Balafendiev, R.**, & Glybovski, S. (2021). Extending a birdcage coil for magnetic resonance imaging of a human head with an artificial magnetic shield. *Photonics Nanostructures - Fundam. Appl.*, 43, 100890. [🔗 doi:10.1016/j.photonics.2020.100890](https://doi.org/10.1016/j.photonics.2020.100890)

Conference Proceedings




- 1 **Balafendiev, R.**, Simovski, C., Millar, A., & Belov, P. (2022). Wire metamaterial use for dark matter detection. In *2022 sixteenth international congress on artificial materials for novel wave phenomena (metamaterials)* (pp. 1–3). [🔗 doi:10.1109/Metamaterials54993.2022.9920785](https://doi.org/10.1109/Metamaterials54993.2022.9920785)
- 2 **Balafendiev, R.**, Zalipae, V., Glybovski, S., & Solomakha, G. (2021). Optimization of leaky-wave surface coil current using an analytical approach. In *J. phys. conf. ser.* (Vol. 2015, p. 012011). [🔗 doi:10.1088/1742-6596/2015/1/012011](https://doi.org/10.1088/1742-6596/2015/1/012011)

- 3 Solomakha, G., Egorova, N., **Balafendiev, R.**, Simovski, C., & Glybovski, S. (2021). Wideband Coil Based on Microstrip Line for Multiheteronuclear Magnetic Resonance Spectroscopy. In *J. phys. conf. ser.* (Vol. 2015, p. 012146). [doi:10.1088/1742-6596/2015/1/012146](https://doi.org/10.1088/1742-6596/2015/1/012146)
- 4 **Balafendiev, R.**, Solomakha, G., Dubois, M., Abdeddaim, R., Simovski, C., & Glybovski, S. (2020). A method for E-field reduction using a surface coil based on three coupled dipoles. In *Aip conf. proc.* (Vol. 2300, p. 020006). [doi:10.1063/5.0031759](https://doi.org/10.1063/5.0031759)
- 5 Solomakha, G., **Balafendiev, R.**, & Glybovski, S. (2020). A method for current phase manipulation in RF-Cols for UHF MRI using individually driven slots. In *Aip conf. proc.* (Vol. 2300, p. 020121). [doi:10.1063/5.0031919](https://doi.org/10.1063/5.0031919)






Grants and Scholarships

2021  **ITMO Academic Scholarship**, ITMO University.

Teaching Experience

- 2021  **Basics of metamaterials.** Assistant lecturer to Yuri Baloshin.
- 2022  **General physics.** Assistant lecturer to Alexey Scherbakov.
-  **Simulations of optical effects.** Assistant lecturer to Kseniia Baryshnikova.

Skills

Languages		Strong reading, writing and speaking competencies for English and Russian Beginner level skills in Japanese
Coding		Python, Matlab, Mathematica, LabVIEW, \LaTeX
Simulation Software		COMSOL Multiphysics, CST mws, Qucs
Graphics Software		Inkscape, GIMP
Misc.		Academic research, Microwave measurements