



My research interests are in finding efficient ways to control electromagnetic fields with complex structures and metamaterials for better antennas

STATUS (UPD. AUGUST 24, 2019)

32 years old, PhD, Associate professor, The International Research Center for Nanophotonics and Metamaterials, ITMO University, St. Petersburg, Russia

## R&D EXPERIENCE

Senior Researcher ITMO University, 2014/04 - now

- Research and project management: experimental investigation of metamaterials
- R&D, project management: metamaterial-inspired antennas and RF-coils for MRI

Junior Researcher - Senior Researcher / Electromagnetics Scientific Center of Applied Electrodynamics, 2010-2014

- Antennas and RF Simulations, Arrays, Reflectors
- Mathematical modeling, Software development, Computation

Visiting Scientist Fraunhofer Institute for Integrated Circuits, 2011/10 - 2012/02

- Improvement of x-polarization properties of automotive GNSS antennas
- Simulation and measurements, mathematical modeling

Trainee Fraunhofer Institute for Integrated Circuits, 2010/02 - 2010/05

- Analytical investigation of curved microstrip lines
- Theory and simulations

Trainee Fraunhofer Institute for Integrated Circuits, 2009/06 - 2009/08

- Decoupling in low-profile antenna array using metamaterial structures
- Simulations and measurements

## TEACHING EXPERIENCE

Associate professor (part time) ITMO University, 2014/04 - now

- Lectures (M.Sc): Antenna theory, Metamaterials, Special chapters on antennas
- 4 M.Sc. graduated, 2 PhD students and 4 M.Sc. supervised

## CONTACT

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## FIELDS

- Antenna theory
- Microwave measurements
- Computational electromagnetics
- Metamaterials
- RF-coils for MRI

## INDICATORS

- Scopus: h-index 8, 486 citations
- Google Scholar: h-index 9, 653 citations

## TECHNOLOGIES

- PCB, VNA, Anechoic chamber
- CAD, EM Simulation, Programming
- HPC, Cluster, GPU
- 3D printing, programmable machines

## TOOLS

- CST Studio Suite, HFSS, FEKO
- NEC, Sim4Life, ADS
- Matlab, Delphi, Fortran
- Inkscape, CorelDraw, Photoshop
- LaTeX, Office, Windows

## ACTIVITIES

- Photography, graphic design
- Travel, swimming

## LANGUAGE

- Russian - mother Tongue
- English - advanced
- German - conversational

## PROJECTS

MetaMaterials antenna for ultra-high field MRI, EU Horizon 2020

European Union, 2017/01 - now

- › Role: research coordination in Work Package 4 (metasurfaces)
- › R&D on metasurface-based RF-coil for clinical and preclinical MRI

MRI antennas based on artificial magnetic shields

Russian Science Foundation, 2018/04 - now

- › Role: principal research member
- › R&D on metasurface-based RF-coil for clinical and preclinical MRI

Metamaterial-based microwave Luneburg lenses

Russian Foundation for Basic Research, 2016/01 - 2017/12

- › Role: leader
- › R&D on microwave Luneburg lenses based on artificial dielectrics

Development of metasurfaces for magnetic resonance imaging

Russian Science Foundation, 2015/01 - 2017/12

- › Role: principal research member
- › Research on metasurfaces for controlling RF fields in MRI scanner

Developments of metamaterial-based structure for suppression of surface waves and improvement of cross-polarization ratio of L-band antennas

Fraunhofer Institute for Integrated Circuits, 2015/05 - 2015/10

- › Role: principal research member
- › R&D on low-profile metamaterial-based structure for improvement of metal-mounted circularly polarized antennas

Metasurfaces for efficient controlling electromagnetic waves

Russian Foundation for Basic Research, 2015/01 - 2016/12

- › Role: principal research member
- › Research on metasurfaces for polarization conversion and routing surface waves

Wireless power transfer systems based on metamaterials

Russian Science Foundation, 2014/01 - 2016/12

- › Role: principal research member
- › Research on metamaterials for optimizing magnetic fields in WPT systems

## EDUCATION

Graduated as Candidate of Science (PhD equivalent) in Radio Science

Peter the Great St. Petersburg Polytechnic University, 2013/11

- › Thesis: Electrodynamics of radiating systems based on thin-wire meshes
- › Developed analytical and numerical models for reflector, microstrip and wire antennas with wire-mesh screens

Received M.Sc. degree

Peter the Great St. Petersburg Polytechnic University, 2010/06

- › Thesis: Image theory solutions for dipole and loop antennas over wire-mesh screens and underlying terrain
- › Made analytical investigation of dipole antennas in presence of isotropic and anisotropic wire-mesh screens

Received B.Sc. degree

Peter the Great St. Petersburg Polytechnic University, 2008/06

- › Thesis: Performance of an aircraft-based direction finder under the influence of electromagnetic wave diffraction
- › Made analytical description of diffraction of incident plane waves on a body of an aircraft

Received secondary education diploma

Physics and Mathematics Lyceum No.239, 2004/06

- › Specialization: mathematics
- › Specialization: programming

- [1] Georgiy Solomakha, Carel van Leeuwen, Alexander Raaijmakers, Constantin Simovski, Alexander Popugaev, Redha Abdeddaim, Irina Melchakova, and Stanislav Glybovski. The dual-mode dipole: A new array element for 7T body imaging with reduced SAR. *Magnetic Resonance in Medicine*, 2018.
- [2] A. Hurshkainen, A. Nikulin, E. Georget, B. Larrat, D. Berrahou, A.L. Neves, P. Sabouroux, S. Enoch, I. Melchakova, P. Belov, S. Glybovski, and R. Abdeddaim. A novel metamaterial-inspired RF-coil for preclinical dual-nuclei MRI. *Scientific Reports*, 8(1), 2018.
- [3] A.V. Shchelokova, C.A.T. van den Berg, D.A. Dobrykh, S.B. Glybovski, M.A. Zubkov, E.A. Brui, D.S. Dmitriev, A.V. Kozachenko, A.Y. Efimtcev, A.V. Sokolov, V.A. Fokin, I.V. Melchakova, and P.A. Belov. Volumetric wireless coil based on periodically coupled split-loop resonators for clinical wrist imaging. *Magnetic Resonance in Medicine*, 80(4):1726–1737, 2018.
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- [8] J.D. Baena, S.B. Glybovski, J.P. Del Risco, A.P. Slobozhanyuk, and P.A. Belov. Broadband and thin linear-to-circular polarizers based on self-complementary zigzag metasurfaces. *IEEE Transactions on Antennas and Propagation*, 65(8):4124–4133, 2017.
- [9] V.V. Zalipaev, S.B. Glybovski, and A.Y. Andreev. High-frequency asymptotic description of resonant antenna formed by two metallic parallel disks. *IEEE Transactions on Antennas and Propagation*, 65(2):507–513, 2017.
- [10] A. Sayanskiy, S. Glybovski, V.P. Akimov, D. Filonov, P. Belov, and I. Meshkovskiy. Broadband 3-D Luneburg lenses based on metamaterials of radially diverging dielectric rods. *IEEE Antennas and Wireless Propagation Letters*, 16:1520–1523, 2017.
- [11] S.Y. Kosulnikov, M.S. Mirmoosa, D.A. Vovchuk, S.A. Tretyakov, S.B. Glybovski, and C.R. Simovski. Enhancement of radiation with irregular wire media. *IEEE Transactions on Antennas and Propagation*, 64(12):5469–5474, 2016.
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