MIKHAIL Y. SHALAGINOV

Department of Materials Science & Engineering
Massachusetts Institute of Technology
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Web page: http://web.mit.edu/mys/www/

SUMMARY

Research highlights: demonstrated for the first time the use of metamaterials for enhancing single-photon emission and pioneered the all-dielectric phase-change metasurfaces in mid-IR.
Publications summary: h-index 8, in total 254 citations (Google Scholar); 3 co-authored book chapters; 14 publications in serial refereed journals; multiple presentations at international conferences, including 2 invited talks.
Highest award: 2017 College of Engineering Outstanding Graduate Student Research Award, given to 2 graduate students (out of 700+) from ECE at Purdue University.

EDUCATION

Ph.D., School of Electrical & Computer Engineering, 06/2017
Purdue University, West Lafayette, IN, USA
Thesis: Novel Plasmonic Materials and Nanodevices for Integrated Quantum Photonics
Advisor: Dr. Vladimir M. Shalaev

B.S., Applied Physics and Mathematics (summa cum laude), 06/2010
Moscow Institute of Physics and Technology,
Department of General and Applied Physics, Moscow, Russia
Thesis: Investigation of the temperature dependence of the surface impedance of iron pnictides at different frequencies
Advisor: Dr. Artem F. Shevchun

PROFESSIONAL CAREER

Postdoctoral Associate, Department of Materials Science & Engineering, 08/2017-present
Massachusetts Institute of Technology, MA, USA

Research Assistant, Birck Nanotechnology Center, 08/2010-08/2017
School of Electrical & Computer Engineering, Purdue University, IN, USA

Research Assistant, Institute of Solid State Physics, 04/2009-06/2010
Russian Academy of Sciences, Russia

HONORS & AWARDS

2017 College of Engineering Outstanding Graduate Student Research Award 04/2017
***awarded to 2 graduate students (out of 700+) from the School of Electrical & Computer Engineering at Purdue University**

2015 SPIE Officer Travel Grant 08/2015

Graduate Ambassador of Birck Nanotechnology Center 2013-2017
***awarded to top 10 graduate students at the Birck Nanotechnology Center**

Leadership and Service Award from ECE Graduate Student Association 12/2013

Semi-finalist in the 2013 OSA Foundation's Maiman Outstanding Student Paper Competition, for the paper titled: "Broadband enhancement of spontaneous emission from nitrogen-vacancy centers in nanodiamonds by hyperbolic metamaterials." 04/2013
*__highest scoring student paper in the category Metamaterials and Complex Media__

3rd prize, Second International Olympiad in Mathematical Physics, Samara State University, Russia 09/2010

1st prize, research project competition, International Summer School "Schola ludus 2010", Institute of Physical Biology South Bohemia University, Czech Republic. Project title: Modeling of hydrogen storage materials 07/2010

1st team prize & personal award for the best solutions of certain problems, Students Training Contest Olympiad in Mathematical and Theoretical Physics, Samara State University, Russia 05/2010

1st team prize, 3rd personal prize, Open Students' Olympiad in Mathematical Physics, Samara State University, Russia 04/2009

Winner certificate, All-Russian Olympiad in Applied Physics and Mathematics 2009, Moscow Institute of Physics & Technology, Russia 04/2009

Scholarship of the Abramov-Frolov's Fund for outstanding academic achievements 02/2007 – 02/2010

3rd prize, All-Russian School Physics Olympiad 2006 (regional stage), Russia 01/2006

RESEARCH INTERESTS

Photonic Materials, Nanophotonics, Quantum Optics, Integrated Photonics

RESEARCH SKILLS

Nanofabrication & Characterization: photolithography, e-beam lithography, focused-ion beam milling, evaporation deposition, magnetron sputtering, chemical vapor deposition, reactive ion etching, confocal scanning microscopy, time-resolved fluorescence microscopy, near-field scanning microscopy, spectroscopic ellipsometry, spectrophotometry, x-ray crystallography, atomic force microscopy, scanning electron microscopy, Raman spectroscopy

Software skills: numerical simulations of electromagnetic/thermal phenomena in nanoscale structures (MATLAB, COMSOL Multiphysics, CST Microwave Studio, Mathcad), quantum mechanical calculations (Wien2K), basics of programming in Java, C/C++, software development for experimental equipment automation and data acquisition (LabVIEW)
Other laboratory skills: microwave equipment**,** liquid helium cryogenic equipment

RESEARCH EXPERIENCE

All-dielectric phase-change metasurfaces (MIT): antenna/metasurface design and modelling using analytical and numerical approaches (CST Microwave Studio); development of deposition technique for phase-change materials ($Ge_2Sb_2Se_4Te_1$) thick-film evaporation; nanofabrication using e-beam lithography and RIE; characterization of metasurfaces by using SEM, Raman spectroscopy, FTIR, home-made mid-IR setup.

Enhancement of single-photon emission from diamond color centers coupled to metamaterials (Purdue University): estimation of emission enhancement using analytical/semi-analytical (MATLAB scripts) and numerical (COMSOL Waves & Optics) approaches; growth and material characterization

(SEM, TEM, XRD, spectroscopic ellipsometry) of epitaxially grown superlattices (TiN/AlScN); upgrading commercial confocal microscope setup for performing intensity correlation measurements to study the single-photon generation character. Results of this research work are presented in Ref. J[6]. In the scope of this project, we have performed rigorous characterization of available nanodiamonds J[3] and experimentally demonstrated broadband emission enhancement of nanodiamond nitrogen-vacancy ensembles by placing them on a gold/alumina-based hyperbolic metamaterial J[4]. Additionally, we adopted our numerical simulations for optimizing a simple patterning design of hyperbolic metamaterial to substantially improve photon collection efficiency J[13].

Electron spin contrast of Purcell-enhanced color centers in nanodiamonds (Purdue University): construction of custom-made experimental setup and software development in order to perform fluorescence-induced spin contrast measurements; sample fabrication (lithographically patterned TiN islands with spin-coated nanodiamonds) and characterization (SEM, spectroscopic ellipsometry); measurements of fluorescence lifetimes, spin relaxation times T1, and T1-based spin contrasts; numerical (COMSOL Waves & Optics) and semi-analytical calculations (MATLAB) of Purcell effect and collection efficiency. See J[12] for more details.

Plasmonic waveguides cladded by hyperbolic metamaterials (Purdue University): analytical derivations of mode dispersion in arbitrary anisotropic multilayer waveguides, numerical calculations of mode parameters, such as propagation length, mode confinement and figures-of-merit J[5,7,8].

CO-AUTHORED & EDITED BOOKS

B[3] **M. Y. Shalaginov**, R. Chandrasekar, S. Bogdanov, Z. Wang, X. Meng, O. A. Makarova, A. Lagutchev, A. V. Kildishev, A. Boltasseva, V. M. Shalaev, "Hyperbolic Metamaterials for Single-Photon Sources and Nanolasers", chapter in the book "Quantum Plasmonics"; Eds: S. I. Bozhevolnyi, L. Martin-Moreno, F. J. Garcia-Vidal, Springer International Publishing, ISBN 978-3-319-45819-9, pp. 97-120 (2017).

B[2] **M. Y. Shalaginov**, S. Bogdanov, V. V. Vorobyov, A. S. Lagutchev, A. V. Kildishev, A. V. Akimov, A. Boltasseva, and V. M. Shalaev, "Enhancement of Single-Photon Sources with Metamaterials", chapter in the book "From Atomic to Mesoscale: The Role of Quantum Coherehce in Systems of Various Complexities"; Eds: S. A. Malinovskaya and I. Novikova, World Scientific Publishing Co. PTE. LTD, ISBN: 978-981-4678-69-8, pp. 123-148 (2015).

B[1] G. S. Beloglazov, A. L. Bobrick, S. V. Chervon, B. V. Danilyuk, M. V. Dolgopolov, M. G. Ivanov, O. G. Panina, E. Yu. Petrova, I. N. Rodionova, E. N. Rykova, **M. Y. Shalaginov**, I. S. Tsirova, I. V. Volovich, A. P. Zubarev, "Mathematical Physics: Problems and Solutions of The Students Training Contest Olympiad in Mathematical and Theoretical Physics" (May 21st - 24th, 2010), ISBN 978-5-86465-494-1 (2011).

PEER-REVIEWED JOURNAL ARTICLES

J[14] S. K. H. Andersen, S. Bogdanov, O. Makarova, Y. Xuan, **M. Y. Shalaginov**, A. Boltasseva, S. I. Bozhevolnyi, and V. M. Shalaev, "Hybrid Plasmonic Bullseye Antennas for Efficient Photon Collection", ACS Photonics, DOI: 10.1021/acsphotonics.7b01194, 2018.

J[13] O. A. Makarova, **M. Y. Shalaginov**, S. Bogdanov, A. V. Kildishev, A. Boltasseva, V. M. Shalaev, "Patterned multilayer metamaterial for fast and efficient photon collection from dipolar emitters", Opt. Lett., 42 (19), 3968-3971, 2017.

J[12] S. Bogdanov, **M. Y. Shalaginov**, A. Akimov, A. S. Lagutchev, P. Kapitanova, J. Liu, D. Woods, M. Ferrera, P. Belov, J. Irudayaraj, A. Boltasseva, and V. M. Shalaev,"Electron spin contrast of Purcell-enhanced nitrogen-vacancy ensembles in nanodiamonds", Phys. Rev. B, 96, 035146, 2017.

J[11] R. Chandrasekar, Z. Wang, X. Meng, S. I. Azzam, **M. Y. Shalaginov**, A. Lagutchev, Y. L. Kim, A. Wei, A. V. Kildishev, A. Boltasseva, and V. M. Shalaev, "Lasing action with gold nanorod hyperbolic metamaterials", ACS Photonics, 4(3), 674−680, 2017.

J[10] V. Vorobyov, A. Kazakov, V. Soshenko, A. Korneev, **M. Y. Shalaginov**, S. Bolshedvorskii, V. N. Sorokin, A. Divochiy, Yu. Vakhtomin, K. V. Smirnov, B. Voronov, V. M. Shalaev, A. Akimov, G. Goltsman,"Superconducting detector for visible and near-infrared quantum emitters", Opt. Mater. Express, 7 (2), 513-526, 2017.

J[9] S. Bogdanov, **M. Y. Shalaginov**, A. Boltasseva, and V. M. Shalaev, "Material platforms for integrated quantum photonics", Opt. Mater. Express, 7 (2), 111-132, 2017 (**invited review, in top downloads of Optical Materials Express from Dec. 2016 till July 2017**).

J[8] V. E. Babicheva, **M. Y. Shalaginov**, S. Ishii, A. Boltasseva, and A. V. Kildishev, "Long-range plasmonic waveguides with hyperbolic cladding", Opt. Express, 23 (24), 31109-31119, 2015.

J[7] V. E. Babicheva, **M. Y. Shalaginov**, S. Ishii, A. Boltasseva, and A. V. Kildishev, "Finite-width plasmonic waveguides with hyperbolic multilayer cladding", Opt. Express, 23 (8), 9681-9689, 2015.

J[6] **M. Y. Shalaginov**, V. V. Vorobyov, J. Liu, M. Ferrera, A. V. Akimov, A. Lagutchev, A. N. Smolyaninov, V. V. Klimov, J. Irudayaraj, A. V. Kildishev, A. Boltasseva, and V. M. Shalaev, "Enhancement of single-photon emission from nitrogen-vacancy centers with TiN/(Al,Sc)N hyperbolic metamaterial", Laser Photonics Rev., 9 (1), 120-127, 2015 (**cover picture**, **highlighted in Purdue News Release**).

J[5] S. Ishii, **M. Y. Shalaginov**, V. E. Babicheva, A. Boltasseva, and A. V. Kildishev, "Plasmonic waveguides cladded by hyperbolic metamaterials" Opt. Lett. 39 (16), 4663-4666, 2014 (**ranked in top downloads, Optics InfoBase, August 2014**).

J[4] **M. Y. Shalaginov**, S. Ishii, J. Liu, J. Liu, J. Irudayaraj, A. Lagutchev, A. V. Kildishev, and V. M. Shalaev, "Broadband enhancement of spontaneous emission from nitrogen-vacancy centers in nanodiamonds by hyperbolic metamaterials", Appl. Phys. Lett. 102, 173114, 2013.

J[3] **M. Y. Shalaginov**, G. V. Naik, S. Ishii, M. N. Slipchenko, A. Boltasseva, J. X. Cheng, A. N. Smolyaninov, E. Kochman, V. M. Shalaev, "Characterization of nanodiamonds for metamaterial applications", Appl. Phys. B, 105, 191-195, 2011.

J[2] Ali H. Reshak, **M. Y. Shalaginov**, Yasir Saeed, I. V. Kityk, S. Auluck, "First-Principles Calculations of Structural, Elastic, Electronic, and Optical Properties of Perovskite-type KMgH3 Crystals: Novel Hydrogen Storage Material", J. Phys. Chem. B, 115 (12), 2836-2841, 2011.

J[1] **M. Y. Shalaginov**, M. G. Ivanov, M. V. Dolgopolov, "Problems with Laplace Operator on Topological Surfaces" (in Russian), Vestn. Samar. Gos. Tekhn. Univ. Ser. Fiz.-Mat. Nauki, 2(23), 2011.

SELECTED CONFERENCES & WORKSHOPS (* presenting author)

C[34] "Towards integrated plasmonic quantum devices" (**invited**),
S. Bogdanov*, **M. Y. Shalaginov**, J. C. Ndukaife, O. A. Makarova, A. V. Akimov, A. S. Lagutchev, A. V. Kildishev, A. Boltasseva, V. M. Shalaev
SPIE Optics + Photonics, San Diego, CA, USA, August 6-10, 2017.

C[33] "Massive parallel positioning of nanodiamonds on nanophotonic structures",
J. C. Ndukaife*, B. P. Isaacoff, **M. Y. Shalaginov**, S. Bogdanov, A. G. A. Nnanna, J. S. Biteen, M. Segev, V. M. Shalaev, A. Boltasseva,
Conference on Lasers and Electro-Optics 2017, San Jose, CA, USA, May 14-19, 2017.

C[32] "Spin contrast of Purcell-enhanced nitrogen-vacancy centers in diamond", S. Bogdanov*, **M. Y. Shalaginov**, A. V. Akimov, A. Lagutchev, J. Liu, D. Woods, M. Ferrera, P. Kapitanova, P. Belov, J. Irudayaraj, A. Boltasseva, V. M. Shalaev,
Conference on Lasers and Electro-Optics 2017, San Jose, CA, USA, May 14-19, 2017.

C[31] "Material Platforms for Integrated Quantum Photonics" (**invited**),
M. Y. Shalaginov*, S. Bogdanov, A. Boltasseva, V. M. Shalaev
2nd Annual Conference on Micro & Nanoscale Science for Addressing Grand Challenges, West Lafayette, IN, USA, April 12, 2017.

C[30] "Towards a plasmonic quantum register" (**invited**),
V. M. Shalaev*, S. Bogdanov, **M. Y. Shalaginov**, J. Ndukaife, V. Vorobyov, V. Soshenko, A. Korneev, U. Guler, A. Lagutchev, A. Boltasseva, G. Goltsman, A. Akimov
Quantum Nanophotonics Workshop, Benasque, Spain, February 26 - March 3, 2017.

C[29] "Patterning metamaterials for fast and efficient single-photon sources",
O. A. Makarova*, **M. Y. Shalaginov**, S. Bogdanov, U. Guler, A. Boltasseva, A. V. Kildishev, V. M. Shalaev,
SPIE Photonics West OPTO, San Francisco, CA, USA, January 28-Feruary 2, 2017.

C[28] "New material platforms and metasurface designs for quantum nanophotonics" (**invited**),
M. Y. Shalaginov, S. Bogdanov, R. Chandrasekar, Zh. Wang, V. Vorobyov, J. Liu, X. Meng, A. S. Lagutchev, A. V. Kildishev, J. Irudayaraj, A. Boltasseva, A. V. Akimov, and V. M. Shalaev*,
Metamaterials 2016, Crete, Greece, September 17-22, 2016.

C[27] "Towards sensors and quantum registers using color center in diamond and nanophotonic structures" (**invited**),
V. M. Shalaev, **M. Y. Shalaginov**, S. Bogdanov*, V. V. Vorobyov, J. Liu, A. V. Akimov, A. S. Lagutchev, J. M. K. Irudayaraj, A. V. Kildishev, A. Boltasseva,
SPIE Optics + Photonics, San Diego, CA, USA, August 28-September 1, 2016.

C[26] "New material platforms and metasurface designs for nanophotonics" (**keynote**),
V. M. Shalaev*, N. Kinsey, A. M. Shaltout, U. Guler, J. Kim, S. Bogdanov, **M. Y. Shalaginov**, A. Boltasseva,
SPIE Optics + Photonics, San Diego, CA, USA, August 28-September 1, 2016.

C[25] "Controlling quantum photonics with metamaterials" (**invited**),
M. Y. Shalaginov, S. Bogdanov, V. Vorobyov, J. Liu, A. S. Lagutchev, A. V. Kildishev, J. Irudayaraj, A. Boltasseva, A. V. Akimov, and V. M. Shalaev*,
META′16, Malaga, Spain, July 25-28, 2016.

C[24] "New materials for Plasmonics: Designs and applications from Flat Optics to Quantum Nanophotonics",
U. Guler*, H. Reddy, K. Chaudhury, A. Dutta, **M. Y. Shalaginov**, S. Bogdanov, V. M. Shalaev, A. Boltasseva,
Integrated Photonics Research, Silicon and Nanophotonics 2016, Vancouver, Canada, July 18-20, 2016.

C[23] "Subwavelength optics with hyperbolic metamaterials: waveguides, scattering, and optical topological transitions" (**invited**),
S. Ishii*, V. E. Babicheva, **M. Y. Shalaginov**, A. Boltasseva, A. V. Kildishev, and E. Narimanov,
ICTON 2016, Trento, Italy, July 10-14, 2016.

C[22] "Quantum photonics with color centers in diamond and nanophotonic structures" (**invited**),

S. Bogdanov*, **M. Y. Shalaginov**, J. Liu, V. V. Vorobyev, P. V. Kapitanova, M. Ferrera, A. S. Laguchev, A. V. Akimov, P. A. Belov, A. V. Kildishev, J. Irudayaraj, A. Boltasseva, V. M. Shalaev,
SPIE Photonics West OPTO, San Francisco, CA, USA, February 13-18, 2016.

C[21] "Optical interface to the NV center in diamond",
V. V. Vorobyov*, V Soshenko, A. V. Akimov, A. N. Smolyaninov, V. Sorokin, S. Bolshedvorsky, **M. Y. Shalaginov**, A. Lagutchev, V. M. Shalaev,
Quantum Information Processing & Communication 2015, Leeds, UK, September 13-18, 2015.

C[20] "Merging Metamaterials with Quantum Photonics" (**invited**),
M. Y. Shalaginov, S. Bogdanov, P. V. Kapitanova, A. S. Lagutchev, A. V. Kildishev, P. A. Belov, A. Boltasseva, V. M. Shalaev*,
9th International Congress on Advanced Electromagnetic Materials in Microwaves and Optics: Metamaterials 2015, Oxford, UK, September 7-12, 2015.

C[19] "Effect of photonic density of states on spin-flip induced fluorescence contrast in diamond nitrogen-vacancy center ensembles",
M. Y. Shalaginov, S. Bogdanov*, J. Liu, A. Lagutchev, A. V. Kildishev, D. Peroulis, J. Irudayaraj, A. Boltasseva, V. M. Shalaev,
SPIE Optics + Photonics, San Diego, CA, USA, August 9-13, 2015.

C[18] "Nitrogen-vacancy single-photon emission enhanced with nanophotonic structures" (**invited**),
V. M. Shalaev, **M. Y. Shalaginov***, V. V. Vorobyov, S. Bogdanov, A. V. Akimov, A. Lagutchev, A. V. Kildishev, A. Boltasseva,
SPIE Optics + Photonics, San Diego, CA, USA, August 9-13, 2015.

C[17] "Nanoscale sensing of photonic density of states with spins in diamond",
S. Bogdanov*, **M. Y. Shalaginov**, P. V. Kapitanova , A. V. Akimov, J. Liu, M. Ferrera, D. Woods, A. Lagutchev, J. Irudayaraj, P. Belov, A. Boltasseva, V. M. Shalaev,
Metamaterials Science & Technology Workshop, La Jolla, CA, USA, July 20-22, 2015.

C[16] "Metamaterials and transformation optics for single-photon emitters" (**keynote**),
V. M. Shalaev*, **M. Y. Shalaginov**, N. Kinsey, P. R. West, M. Ferrera, A. V. Kildishev, A. Boltasseva,
Progress in Electromagnetics Research Symposium (PIERS) 2015, Prague, Czech Republic, July 6-9, 2015.

C[15] "Enhanced multi-photon emission from single NV center coupled to graphene by laser-shaping",
J. Liu*, Y. Hu, P. Kumar, **M. Y. Shalaginov**, A. Lagutchev,V. M. Shalaev, G. J. Cheng, J. Irudayaraj,
Conference on Lasers and Electro-Optics 2015, San Jose, CA, USA, May 11-15, 2015.

C[14] "Effect of a hyperbolic metamaterial on radiation patterns of a single-photon source",
M. Y. Shalaginov*, A. Lagutchev, V. M. Shalaev, A. V. Kildishev,
Conference on Lasers and Electro-Optics 2015, San Jose, CA, USA, May 11-15, 2015.

C[13] "Multilayer cladding with hyperbolic dispersion for plasmonic waveguides",
V. E. Babicheva*, **M. Y. Shalaginov**, S. Ishii, A. Boltasseva, A. V. Kildishev,
Conference on Lasers and Electro-Optics 2015, San Jose, CA, USA, May 11-15, 2015.

C[12] "Towards practical realization of plasmonic waveguides cladded by hyperbolic metamaterials",
V. E. Babicheva*, **M. Y. Shalaginov**, S. Ishii, A. Boltasseva, and A. V. Kildishev,
SPIE Photonics West OPTO, San Francisco, CA, USA, February 7-12, 2015.

C[11] "Recent progress in nanophotonics" (**invited**),

M. Ferrera*, N. Kinsey, **M. Y. Shalaginov**, G. V. Naik, V. E. Babicheva, C. T. DeVault, A. V. Kildishev, A. Boltasseva, V. M. Shalaev,
SPIE/COS Photonics Asia, Beijing, China, October 9-11, 2014.

C[10] "Single-photon source based on NV center in nanodiamond coupled to TiN-based hyperbolic metamaterial" (**invited**),
V. M. Shalaev, **M. Y. Shalaginov***, V. V. Vorobyov, J. Liu, M. Ferrera, A. V. Akimov, A. Lagutchev, A. N. Smolyaninov, V. V. Klimov, J. Irudayaraj, A. V. Kildishev, A. Boltasseva,
SPIE Optics + Photonics, San Diego, CA, USA, August 17-21, 2014.

C[9] "From metamaterials to metadevices" (**plenary**),
V. M. Shalaev*, U. Guler, G. V. Naik, B. Saha, **M. Y. Shalaginov**, A. Lagutchev, A. V. Kildishev, M. Ferrera, N. Kinsey, A. Boltasseva,
2014 IEEE Photonics Society Summer Topicals, Montreal, Canada, July 14–16, 2014.

C[8] "Toward industry suitable spin-photon interface based on NV center",
A. V. Akimov*, **M. Y. Shalaginov**, V. V. Vorobyov, J. Liu, M. Ferrera, A. Lagutchev, A. N. Smolyaninov, V. V. Klimov, J. Irudayaraj, A. V. Kildishev, A. Boltasseva, and V. M. Shalaev,
9th Advanced Research Workshop NanoPeter 2014, Fundamentals of Electronic Nanosystems, Saint Petersburg, Russia, June 21-27, 2014.

C[7] "Single photon source based on NV center in nanodiamond coupled to TiN-based hyperbolic metamaterial",
M. Y. Shalaginov, V. V. Vorobyov*, J. Liu, M. Ferrera, A. V. Akimov, A. Lagutchev, A. N. Smolyaninov, V. V. Klimov, J. Irudayaraj, A. V. Kildishev, A. Boltasseva, and V. M. Shalaev,
Conference on Lasers and Electro-Optics 2014, San Jose, CA, USA, June 8-13, 2014.

C[6] "Enabling nanophotonics with plasmonics and metamaterials" (**invited**),
V. M. Shalaev*, U. Guler, G. V. Naik, X. Meng, **M. Y. Shalaginov**, A. Lagutchev, E. E. Narimanov, A. V. Kildishev, A. Boltasseva,
SPIE Photonics West 2014, San Francisco, CA, USA, February 1-6, 2014.

C[5] "Metamaterials for Quantum Optics" (**invited**),
V. M. Shalaev*, **M. Y. Shalaginov**, A. Lagutchev, and A. V. Kildishev,
International Conference on Quantum Technologies ICQT-2013, Moscow, Russia, July 20-24, 2013.

C[4] "Broadband enhancement of spontaneous emission from nitrogen-vacancy centers in nanodiamonds by hyperbolic metamaterials",
M. Y. Shalaginov*, S. Ishii, J. Liu, A. V. Kildishev, and V. M. Shalaev,
Conference on Lasers and Electro-Optics 2013, San Jose, CA, USA, June 9-14, 2013.

C[3] "Enhancement of spontaneous emission from NV centers by applying HMM",
M. Y. Shalaginov*, S. Ishii, J. Liu, and V. M. Shalaev,
2012 MRS Spring Meeting & Exhibit, San Francisco, USA, April 9-13, 2012.

C[2] "Characterization of nanodiamonds for metamaterial applications",
M. Y. Shalaginov*, G. V. Naik, S. Ishii, M. N. Slipchenko, A. Boltasseva, J. X. Cheng, A. N. Smolyaninov, E. Kochman, andV. M. Shalaev,
International Conference on Quantum Technologies, Moscow, Russia, July 13-17, 2011.

C[1] "Modeling of hydrogen storage materials"
M. Y. Shalaginov*, Y. Saeed, and A. H. Reshak,
International Summer School “Schola ludus 2010”,
Institute of Physical Biology South Bohemia University, Czech Republic, July 29-30, 2010.

CONFERENCE & WORKSHOP ORGANIZATION

CO[3] Workshop coordinator and leading member of the Organizing Committee
Purdue Quantum Center Workshop 2017 "Coherent Effects in Physics & Chemistry"
West Lafayette, IN, USA, April 28, 2017.

CO[2] Member of the Organizing Committee
International Workshop "Quantum Control of Light & Matter" (Purdue Quantum Center Kickoff), West Lafayette, IN, USA, October 14-15, 2015.

CO[1] Member of the Organizing Committee
International Workshop "Novel Ideas in Optics: From Advanced Materials to Revolutionary Applications", West Lafayette, IN, USA, May 31–June 2, 2012.

GRANT PROPOSAL EXPERIENCE

Contributed to successfully funded grant proposals: DURIP ONR 2015; DURIP ONR 2016; DoE 2016

TEACHING EXPERIENCE

Teaching assistant
ECE 412 "Introduction to Engineering Optics" (Fall semesters) 08/2013 – 12/2015
ECE 414 "Elements of Electro- and Fiber Optics" 01/2015 – 05/2015
Purdue University, West Lafayette, IN 47906, USA
Assisted in teaching, substituted instructor in giving lectures, conducted review sessions and office hours, graded exams and homework assignments

Teaching assistant
GK-12 Program, Lafayette Tecumseh Junior High School, 01/2013 – 04/2013
Lafayette, IN 47905, USA
Designed and delivered a lesson "Exploring the world of optical devices: Building a telescope"; obtained funding for community service/service learning projects; assisted in teaching 7th grade Math

Teaching assistant,
Distance Education Physics and Mathematics School, 09/2006 – 06/2009
Moscow Institute of Physics and Technology, Russia
Graded homework assignments and wrote reviews

MENTORING

undergraduate students at Purdue University
[1] Ran Cui 11/2014 – 05/2017
[2] Oksana Makarova 09/2015 – 08/2017
[3] Nathan Campbell 09/2016 – 12/2016
[4] Jihan Salsabila 11/2016 – 03/2017

PROFESSIONAL AFFILIATIONS

OSA, Optical Society of America, student member since 2011
MRS, Material Research Society, student member since 2011
SPIE, Society of Photographic Instrumentation Engineers, student member since 2012
IEEE, Institute of Electrical and Electronics Engineers, student member since 2013
APS, American Physical Society, student member since 2013

OUTREACH & SERVICE

Organizer of Purdue Quantum Journal Club 09/2015 – 09/2016

Founder of SPIE Purdue Student Chapter 11/2014

President of SPIE Purdue Student Chapter 11/2014–05/2015
Purdue University, West Lafayette, IN, USA

Session Chair and Judge at SURF Research Symposium 2013 07/2013
Purdue University, West Lafayette, IN, USA

President of Nanotechnology Student Advisory Council 06/2013 – 06/2014
Purdue University, West Lafayette, IN, USA

President of OSA Purdue Student Chapter, 09/2012 – 09/2013
President of ECE Graduate Student Association,
Research and Awareness Committee Member of Nanotechnology Student Advisory Council,
Purdue University, West Lafayette, IN, USA

Vice-President of OSA Purdue Student Chapter, 06/2011– 06/2012
Purdue University, West Lafayette, IN, USA

Founder of OSA Purdue Student Chapter, 06/2011
Purdue University, West Lafayette, IN, USA

Volunteer, NanoDays (educational activities for K-12 students) 04/2011-2016

Purdue University, West Lafayette, IN, USA

Participant of GK-12 Program 01/2013 – 04/2013

Judge, 2013 Undergraduate Research Poster Symposium 03/2013
Purdue University, West Lafayette, IN, USA

Reviewer for peer-reviewed scientific journal: Nano Letters, ACS Nano, JOSA B, Optics Letters, Optics Express, Optical Material Express, Applied Physics Letters, Physical Review A, Physical Review B

Organizer, Guest Olympiad in Mathematics and Physics of 02/2010
Moscow Institute of Physics and Technology, Kirov, Russia

Organizer, All-Russian School Physics Olympiad 2008 (regional stage), 11/2008
Moscow region, Russia