

Vladimir M. Shalaev

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149 pages

Education:

Ph.D. Krasnoyarsk State University (Russia), physics and mathematics (with honors), 1983
M.S. Krasnoyarsk State University (Russia), physics (with highest distinction), 1979

Professional Career:

Scientific Director for Nanophotonics, Birck Nanotechnology Center, Purdue	2011-pres
Founding co-Director of Purdue Quantum Center	2015
Bob and Anne Burnett Distinguished Professor of Electrical and Computer Engineering	2011-pres
Robert and Anne Burnett Professor of Electrical and Computer Engineering	2004-2011
Professor of Biomedical Engineering	2005-pres
Professor of Physics	2011-pres
Professor of ECE Department, Purdue University	2001-pres
George W. Gardiner Professor of Physics, New Mexico State University	1997–2001
Associate Professor, New Mexico State University	1993–1997
Research Associate Professor, University of Toronto (Canada)	1991–1993
Humboldt Foundation Fellow, University of Heidelberg (Germany)	1990–1991
Assistant Professor, Krasnoyarsk State University (Russia)	1983–1990
Research Fellow, Institute of Physics, Krasnoyarsk (Russia)	1983–1990

Professional Recognitions, Honors, Awards and Leadership

- Ranked **#9** in category “optics” out of 64,044 in the Stanford list of top 2% world scientists (career-long)
- Recognized as Highly Cited Researcher (in physics) by the Web of Science Group for 6 consecutive years, in 2017-2022, including the latest 2022
- Most cited author or/and published a most cited paper for various years in a number of journals, including *Laser and Photonics Reviews* (lifetime most cited author); *Optics Letters* (2005); *Applied Physics B: Lasers and Optics* (2010); *Laser Physics Letters* (2006); *Optical Materials Express* (2015, 2016); *Journal of Optics* (2005, 2018, 2019); *Journal of Nonlinear Optical Physics and Materials* (2002); *Light: Science and Application*, Nature Publishing Group (2013); *Springer Tract in Modern Physics* (2000); *Metamaterials* (2008); *Zeitschrift Fur Physik D – Atoms Molecules and Clusters* (1988); *Journal of Optical Society of America B: Optical Physics* (2015). Second-most cited author or/and published 2-nd most cited paper for different years in several journals, including *Journal of Nonlinear Optical Physics and Materials* (lifetime 2-nd most cited author); *Nature Photonics* (2007); *Journal of Optics* (2018); *Optical Materials Express*

(2018). Fourty one times listed among top ten most cited authors or /and as publishing a top-ten-most-cited paper for different years in various journals.

- Lead Specific Aim “Hybrid Quantum Sensors” in the DoE Quantum Science Center
- American Physical Society 2020 Frank Isakson Prize for Optical Effects in Solids
- Honorary Doctorate from University of Southern Denmark, 2015
- IEEE Photonics Society William Streifer Scientific Achievement Award, 2015
- Rolf Landauer medal of the ETOPIIM (Electrical, Transport and Optical Properties of Inhomogeneous Media) International Association, 2015
- Selected to the Purdue Innovator Hall of Fame (2014)
- The 2014 Goodman Book Award from OSA and SPIE
- The 2012 Nanotechnology Award from UNESCO
- The 2010 Optical Society of America Max Born Award
- The 2010 Willis E. Lamb Award for Laser Science and Quantum Optics
- The 2006 Top 50 Nano Technology Award Winner for “Nanorod Material”
- The 2009 McCoy Award, Purdue's highest honor for scientific achievement
- The 2006 College of Engineering Research Award
- The Acorn Award: Seed for Success, 2007
- Fellow of the Institute of Electrical and Electronics Engineers (IEEE), 2010-
- Fellow of the American Physical Society (APS), 2002-
- Fellow of the Optical Society of America (OSA), 2003-
- Fellow of the International Society for Optical Engineering (SPIE), 2005-
- Fellow of Materials Research Society (MRS), 2015-
- Robert and Anne Burnett Professor of Electrical and Computer Engineering, 2004-pres
- George W. Gardiner Endowed Professorship, New Mexico State University, 1997–2001
- NSF/NRC photonics committee member (chaired by T. Heinz) aimed with assessing most important areas of science and technology for future development
- Member of the Steering Committee for MIT-Skolkovo Tech, 2011-2013
- Member of the Scientific Advisory Council for Skolkovo Innovation Center (Moscow, Russia)
- Member of the Scientific Advisory Board for the Russian Quantum Center
- Member of the Executive Committee for the Russian Quantum Center
- General co-Chair for the 2011 CLEO/QELS conference
- Program co-Chair for the 2009 CLEO/IQEC conference
- Chair of the OSA Technical Group “Photonic Metamaterials”, 2008-2010
- Chair of the OSA Topical Group: Photonic Metamaterials: from Random to Periodic, 2004-2007
- Vice-Chair of the OSA Topical Group: Waves in Random and Periodic Media, 2002-2004
- Reviewing Editor for *Science*
- Co-Editor of *Applied Physics B – Lasers and Optics*, 2006-2013
- Co-Editor for *Advances in Nano-Optics and Nanophotonics* book series (Elsevier), 2006-2008
- Co-Editor for *Series in Nanooptics and Nanophotonics*, Taylor & Francis Books, Inc.2008-
- Topical Editor for *J. of Optical Society of America B*, 2005-2011

- Editorial Board for “*Nanophotonics*” journal, 2012-
- Editorial Advisory Board Member for *Laser and Photonics Reviews*, 2008-
- Editorial Advisory Board Member for *Laser Physics Letters*, 2006-2016
- Editorial Board Member for “Metamaterials” Journal, 2006-2015
- Editorial Board Member for *Journal of Nanotechnology*, 2008-2017
- Editorial Advisory Board Member for *International Journal of Theoretical Physics, Group Theory, and Nonlinear Optics*
- Editorial Advisory Board Member for *The J. Nonlinear Optical Physics and Materials (JNOPM)*
- Editor for Special Issue “Optics on the Nanoscale: Principles, Instrumentation and Applications” of Applied Physics B, v. 84, ##1 and 2, July/Aug. 2006.
- Guest Editor for IEEE's Journal of Selected Topics in Quantum Electronics (JSTQE) on Negative Index and Metamaterials, 2009
- Guest Co-Editor for J. of Optics B: Quantum and Semiclassical Optics special issue on Metamaterials, 2005.
- Associate Guest Editor for IEEE's Journal of Selected Topics in Quantum Electronics (JSTQE) on Nonlinear Optics, 2005
- Guest Editor/Coordinator for Journal of Optical Society of America B (JOSA-B) Focus Issue on Metamaterials, 2005
- Editor for Feature Issue of J. of the Optical Society of America A and B on “Photonic Metamaterials”, v. 24, #10, 2007
- OSA Max Born Award Committee, Member, 2005, 2006
- Organizer of a number of symposia for ACS, OSA, APS, and CLEO/QELS Annual Meetings, 1997-2005
- Chair and Member of Program Committees and International Advisory Committees for a number of International Conferences, Symposia, and Schools
- Visiting Professorships (1999-2000; sabbatical year) at:
 - Ecole Supérieure de Physique et de Chimie Industrielles, Paris
 - University of Science and Technology, Hong Kong
 - Ludwig-Maximilians Universität, Munich
- The Associated Western Universities Faculty Fellowship (Sandia National Laboratories), 1995
- International Humboldt Foundation Scholar (Paris-Sud Université, France), 1991
- Humboldt Foundation Fellow (Heidelberg, Germany, and Paris, France), 1990-1991
- USSR Academy of Science Grant for Young Investigators, 1988-1990
- 2nd Prize in the USSR Academy of Science Competition on Fundamental Studies, 1983

Publication Summary (h-index is 116, as of January 5, 2023, according to Google Scholar): Over **800 publications, in total**, including over **400 research papers in refereed journals, one monograph and two co-authored books, 4 edited/co-edited books, 30 invited book chapters, 30 patents, and over 400 conference proceedings** and other publications; over **63,000 citations, in total**. Over **500 invited presentations at International Conferences and leading research centers**, including a number of plenary and keynote talks.

The OPTICS category in the ISI Web of Science contains 94 journals; over 50,000 research articles, conference proceedings and book chapters are published each year in this category. Out of roughly 800,000 publications in total in the optics category of the Web of Science from January 2005 to January 2022, five papers from the Shalaev group are among the top 100 most cited publications.

For 6 consecutive years, listed as “**Highly Cited Researcher**” (multiple highly cited papers that rank in the top 1% by citations for field and year in Web of Science) by the 2017, 2018, 2019, 2020, 2021, and 2022 Clarivate Analytics Essential Science Indicators (ESI) - <https://recognition.webofsciencengroup.com/awards/highly-cited/2022/> and <https://recognition.webofsciencengroup.com/awards/highly-cited/2022/methodology/>

40 Most Cited Publications (as of January 2023, according to Google Scholar)

1. Shalaev, V. M. Optical Negative-Index Metamaterials. Nature photonics 1, 41-48, (2007). - **3365 citations**
2. Kildishev, A. V., Boltasseva, A., Shalaev, V. M. Planar Photonics with Metasurface. Science 339 (6125), 1232009 (2013). - **2671 citations**
3. Noginov, M. Zhu, G. Belgrave, A. Bakker, R. Shalaev, V.M. et al. Demonstration of a Spaser-Based Nanolaser, Nature 460, 1110-1112, (2009). - **2460 citations**
4. Cai, W., Chettiar, U. K., Kildishev, A. V. & Shalaev, V. M. Optical Cloaking with Metamaterials. Nature photonics 1, 224-227, (2007). - **2385 citations**
5. Shalaev, V. M. et al. Negative Index of Refraction in Optical Metamaterials. Optics Letters 30, 3356-3358, (2005). - **2117 citations**
6. Cai, W. & Shalaev, V. M. Optical Metamaterials. Vol. 10 (Springer, 2010). - **2111 citations**
7. West, P. R. Ishii, S. Naik, G.V. Emani, N.K. Shalaev, V.M. Boltasseva, A. Searching for Better Plasmonic Materials. Laser & Photonics Reviews 4, 795-808, (2010). - **2085 citations**
8. Naik, G. Shalaev, V.M. Boltasseva, A. Alternative plasmonic materials: beyond gold and silver. Advanced Materials 25 (24), 3264-3294 (2013). - **2065 citations**
9. Ni, X., Kildishev, A. V., & Shalaev, V. M. Metasurface Hologram for Visible Light. Nature Communications 4, 2807 (2007) - **1544 citations**
10. Ni, X., Emani, N. K., Kildishev, A. V., Boltasseva, A. & Shalaev, V. M. Broadband Light Bending with Plasmonic Nanoantennas. Science 335, 427-427, (2012). - **1524 citations**
11. Xiao, S. et al. Loss-Free and Active Optical Negative-Index Metamaterials. Nature 466, 735-738, (2010). - **904 citations**.
12. Brongersma, M. & Shalaev, V. The Case for Plasmonics. Science 328, (2010). - **720 citations**
13. Ni, X., Ishii, S., Kildishev, A.V., Shalaev, V.M., Ultra-thin, planar, Babinet-inverted plasmonic metalenses, Light: Science & Applications 2 (4), e72, (2013). - **704 citations**
14. W Li, U Guler, N Kinsey, GV Naik, A Boltasseva, J Guan, VM Shalaev, Refractory Plasmonics with Titanium Nitride: Broadband Metamaterials Absorber, Advanced Materials 26 (47), 7959-7965 (2014) – **595 citations**
15. Shalaev, V. M. Nonlinear Optics of Random Media: Fractal Composites and Metal-Dielectric Films. (Springer, 2000). - **543 citations**

16. Shalaev, V. M. Electromagnetic Properties of Small-Particle Composites. *Physics Reports* 272, 61-137, (1996). - **516 citations**
17. A.M. Shaltout, V.M. Shalaev, M.L. Brongersma, Spatiotemporal light control with active metasurfaces, *Science* 364, (6441) eaat3100 (2019). DOI: 10.1126/science.aat3100 – **497 citation**
18. Genov, D. A., Sarychev, A. K., Shalaev, V. M. & Wei, A. Resonant Field Enhancements from Metal Nanoparticle Arrays. *Nano Letters* 4, 153-158, (2004). -**494 citations**
19. Jacob, Z, Kim, JY, Naik, GV, Boltasseva, A, Narimanov, EE & Shalaev, V. M., Engineering photonic density of states using metamaterials, *Appl Phys B*, 100(1) (2010) – **479 citations**
20. S Grésillon, L Aigouy, AC Boccara, JC Rivoal, X Quelin, C Desmarest, P Gadenne, VA Shubin, AK Sarychev, Vladimir M Shalaev, Experimental Observation of Localized Optical Excitations in Random Metal-Dielectric Films. *Physical review letters* 82, 4520, (1999). -**455 citations**
21. Sarychev, A. K. & Shalaev, V. M. *Electrodynamics of Metamaterials*. (World Scientific, 2007). - **452 citations**
22. F Ding, Z Wang, S He, VM Shalaev, AV Kildishev, Broadband high-efficiency half-wave plate: a supercell-based plasmonic metasurface approach, *ACS nano* 9 (4), 4111-4119 – **414 citations**
23. Cai, W., Chettiar, U. K., Kildishev, A. V., Shalaev, V. M. & Milton, G. W. Nonmagnetic Cloak with Minimized Scattering. *Applied Physics Letters* 91, 111105, (2007). -**392 citations**
24. U Guler, A Boltasseva, VM Shalaev, *Refractory Plasmonics*, *Science* 344 (6181), 263-264 (2014) – **390 citations**
25. Sarychev, A. K. & Shalaev, V. M. Electromagnetic field fluctuations and optical nonlinearities in metal-dielectric composites, *Physics Reports* 335 (6), 275-371, (2000). -**389 citations**
26. Markel, V. et al. Near-Field Optical Spectroscopy of Individual Surface-Plasmon Modes in Colloid Clusters. *Physical Review B* 59, 10903, (1999). -**387 citations**
27. GV Naik, J Liu, AV Kildishev, VM Shalaev, A Boltasseva Demonstration of Al: ZnO as a plasmonic component for near-infrared metamaterials *Proceedings of the National Academy of Sciences* 109 (23), 8834-8838 (2012) – **377 citations**
28. Podolskiy, V., Sarychev, A. & Shalaev, V. Plasmon Modes and Negative Refraction in Metal Nanowire Composites. *Optics Express* 11, 735-745, (2003). -**371 citations**
29. A Boltasseva, VM Shalaev Fabrication of optical negative-index metamaterials: Recent advances and outlook *Metamaterials* 2 (1), 1-17 (2008) – **366 citations**
30. Stockman, M. I., Shalaev, V. M., Moskovits, M., Botet, R. & George, T. F. Enhanced Raman Scattering by Fractal Clusters: Scale-Invariant Theory. *Physical Review B* 46, 2821, (1992). - **364 citations**
31. L. Caspani, R. P. M. Kaipurath, M. Clerici, M. Ferrera, T. Roger, J. Kim, N. Kinsey, M. Pietrzyk, A. Di Falco, V. M. Shalaev, A. Boltasseva, and D. Faccio, Enhanced Nonlinear Refractive Index in ϵ -Near-Zero Materials, *Phys. Rev. Lett.* 116, 233901 (2016) - **359 citations**

32. C. Pfeiffer, N. K. Emani, A. M. Shaltout, A. Boltasseva, V. M. Shalaev, A. Grbic, Efficient Light Bending with Isotropic Metamaterial Huygens' Surfaces, *Nano Lett.*, 14, 2491-2497 (2014) – **356 citations**
33. V. M. Shalaev, Transforming Light, *Science* 384-386 (2008) – **354 citations**
34. M.A. Noginov, G. Zhu, M. Bahoura, J. Adegoke, C. Small, B.A. Ritzo, V.P. Drachev and V.M. Shalaev, The effect of gain and absorption on surface plasmons in metal nanoparticles, *Applied Physics B: Lasers and Optics* 86, 455-460, (2006) – **349 citations**
35. U. Guler, V. M. Shalaev, A. Boltasseva, Nanoparticle Plasmonics: Going Practical with Transition Metal Nitrides, *Materials Today* 18 (4), 227-237 (2014) – **348 citations**
36. V. M. Shalaev and A. K. Sarychev, Nonlinear optics of random metal-dielectric films, *Phys. Rev. B* 57, 13265, (1998) – **340 citations**
37. Tsai, D. P., Kovacs, J., Wang, Z., Moskovits, M., Shalaev, V. M., Suh, J. S., Botet, R. Photon scanning tunneling microscopy images of optical excitations of fractal metal colloid clusters, *Physical Review Letters* 72 (26), 4149, (1994). – **340 citations**
38. V. P. Drachev, U. K. Chettiar, A. V. Kildishev, H-K Yuan, W. Cai, and V. M. Shalaev, The Ag dielectric function in plasmonic metamaterials, *Optics Express*, Vol.16, No.2, pp.1186-95 (2008) – **338 citations**
39. W Cai, UK Chettiar, HK Yuan, VC de Silva, AV Kildishev, VP Drachev, V. M. Shalaev, Metamagnetics with rainbow colors, *Optics express* 15 (6), 3333-3341 (2007) – **337 citations**
40. V.A. Markel, V. M. Shalaev, E.B. Stechel, W. Kim, and R.L. Armstrong, Small-particle composites. I. Linear optical properties, *Phys. Rev. B* 53, 2425, (1996) – **329 citations**

Industry Engagement and Consulting Activities:

Co-founded and CTO of a startup company Q-Sensorix, 2019 - current
 Member of the Scientific Advisory Council for Skolkovo Innovation Center (2012 - 2022)
 Member of the Steering Committee for SkolTech-MIT (2012-2013)
 Executive Committee member for the Russian Quantum Center (2012-2013)
 International Advisory Board member for the Russian Quantum Center (until Feb 2022)
 Co-Founder and scientific director for Nano-Meta Technologies, Inc. (NMTI), 2012-2019
 Member of Scientific Advisory Board for SOLARIS Nanosciences Inc., 2004-2011
 Member of Scientific Advisory Board for Array Bioscience Inc. (Berkeley, CA) 1999-2001
 Consultant for Lasys Inc. (Las Cruces, NM) 2000-2003
 Consultant for Battelle Scientific Services Program, ARO, 1999-2009
 Consultant for Tienta Sciences Inc., 2006-2010
 Consultant for Science and Technology Corporation, 2009-2011

Research Grants and Contracts Received:

a. At Purdue University (since Fall 2001)

[1] “Plasmonic Nanophotonics and Optoelectronics” National Science Foundation, Nanoscale Interdisciplinary Research Team (NIRT), PI, NIRT#0210445, 07/01/02-06/30/06, \$1,300,000

- [2] “Surface-Enhanced Optical Detection of Proteins”, Indiana Proteomics Consortium (co-funded by Eli Lilly Company, Indiana University, and Purdue University), co-PI (with Dor Ben-Amotz), 04/01/02-08/31/05, \$2,100,101.
- [3] “Development of Novel Composite and Random Materials for Nonlinear Optics and Lasers”, NASA/Norfolk State University, PI (for Purdue) #: NCC5-514, 9/15/00-9/14/04. Total award \$2,000,000; PI for Purdue subcontract; Shalaev’s subcontract part: \$200,000.
- [4] “Nanooptics with Plasmonic Nanomaterials,” National Science Foundation, PI, Grant No. DMR-0121814, Nov. 2001 – Nov. 2005, \$234,321.
- [5] “Fractal Surface Enhanced Chemical and Biological Sensors” National Science Foundation, PI, DMR-0227473, 8/1/02-7/31/03, \$100,000
- [6] “Instrumentation for Research on Plasmonic Nanomaterials and their Applications in Photonics”, DoD: Defense University Research Instrumentation Program (DURIP), PI, DAAD19-02-1-0124, \$206,994
- [7] “Nanostructured Metal-Dielectric Films: New Avenues for Photonics and Spectroscopy,” Army Research Office/New Mexico State University, PI, DAAD19-01-1-0682, 10/1/01-6/30/04. Total award - \$330,000; Purdue part -\$120,000.
- [8] “Nonlinear Optics of Nanocomposites in Microcavities”, NSF/New Mexico State University, PI (for Purdue) DMR-0071901, 10/01/01-09/30/04. Total award - \$285,000; Purdue part - \$50,000.
- [9] “Nanometer Laser Spectroscopy Using Fractal Template”, PI (for Purdue) NASA/New Mexico State University, NAG8-1710, 9/1/01-3/31/03. Total award - \$300,000; Purdue Part - \$40,000.
- [10] “Plasmonic Nano-Photonics”, Purdue Research Foundation, PI, 4/7/01-4/7/03, \$26,000. PI
- [11] “Systematic Study of Electromagnetic Absorption and Scattering by Fractal Aggregates,” Battelle Research Triangle/ARO, PI, 03/01/02-07/01/03, \$38,775.
- [12] “Metal-Dielectric Composite Filters with Spectral Windows of Transparency,” Battelle Research Triangle/ARO, PI, 05/01/02-04/30/03, \$48,681. PI
- [13] “Center for Research and Education in Advanced Materials,” NASA NRA 02 OEOP-01 (University Research Centers), with Norfolk State University; \$6,000,000 total for 5 years; PI for Purdue subcontract; the Purdue part is \$300K.
- [14] “Center for Photonic Materials Research: Engineering basic physical and spectroscopic principals of random lasers and other nano-composite photonic

materials”, NSF-CREST, 9/1/03-02/28/09, with Norfolk State University, \$4,000,000 total for 5 years; PI (at Purdue); the Purdue part is \$300K.

[15] “Acquisition and Customization of a Facility for the In-situ X-ray Structural Analysis of Nanomaterials”, NSF, co-PI, \$613,822, 10/01/03-09/30/06.

[16] “Innovative Nanotechnology Research at Purdue”, DARPA (co-PI); Total \$2,000,000; Shalaev’s part is \$500,000.

[17] Negative Refraction in the Optical Range and Left-Handed Photonics, ARO, 08/01/04-12/31/06, total costs: \$320,000. PI

[18] Engineering Basis Physical and Spectroscopic Principles of Random Lasers and other Nano-Composition Photonic Materials, 09/01/03-08/30/08; total \$4,000,000. With Norfolk State University. PI for Purdue subcontract. Shalaev’s subcontract is \$300,000.

[19] Plasmonic Filters with Infrared Windows Transparency, ARO via Battelle Operations, 01/12/05-01/11/07, \$277,000. PI.

[20] Spectral Properties of Negative-Index Materials in Optics, ARO, Defense University Research Instrumentation Program (DURIP), \$200K. 04/01/2005/03/31/06. PI

[21] Tunable Super-Lens for Nanoscale Optical Bio-Imaging, Phase I STTR/ARO project with Tienta Inc., \$100,000; Sept 1., 2005- Aug. 31, 2006

[22] MURI-ARO Award “Tunable and Reconfigurable Optical Negative-Index Materials with Low Losses, \$5.4M. PI (May 1, 2006 to Apr 30, 2011).

[23] NSF-PREM Award for PREM Center “Photonic Metamaterials” (Aug. 2006-Aug 2011). PI for Purdue University subcontract. Total \$2M; Purdue’s part \$500K.

[24] STTR-ARO Phase II Award “Super-Lens for Bio-Sensing” (with Tienta Sciences Inc.; Oct. 2006-Oct. 2008); \$800K. PI for Purdue; the Purdue part \$400K.

[25] MURI-ARO Award “Passive All-Optical Switching” (Aug. 2006-Aug. 2011). Total \$5M. PI for Purdue subcontract; the Purdue budget \$750K.

[26] ARO-Battelle Research Triangle Park Office “Long Pass Plasmonic-Molecular Filters for Mid-Infrared”, 03/09/07-03/08/09, PI, \$111,000

[27] ARO, “Spectroscopic Ellipsometry of Optical Metamaterials”, co-PI, 06/02/2009 – 02/01/2010, \$145K

- [28] ARO-MURI, “Transformation Optical Metamaterials”, co-PI (PI for Purdue), 09/28/2009 – 01/27/2011, \$2,153,250
- [29] ARO, “Searching for Better Plasmonic Materials,” co-PI, 09/15/2009 – 06/14/2010, \$50K
- [30] Science and Technology Corp., “Bi-spectral Plasmonic onsurants,” PI, 04/01/2009 – 12/31/2010, \$150K
- [31] ARO-DURIP, “Glancing Angle Deposition System for Transformation-Optics Devices”, co-PI, 08/10/2010-09/09/2011, \$150K
- [32] CIA, “A Planar Magnifying Hyperlens”, PI, 07/12/2010-07/11/2012, \$240K.
- [33] The Boeing Company, “Hyperbolic Metamaterials for Controlling Thermal Radiation: Feasibility Study”, co-PI, \$50K, 07/01/2010-12/17/2010
- [34] MURI-ONR, “Large-Area, 3D Optical Metamaterials with Tunability and Low Loss”, co-PI, \$1.3M (Shalaev’s part), 08/01/2010-07/31/2015
- [35] ARO, “Unlocking New Physics with Improved Plasmonic Materials”, co-PI, \$100K (Shalaev’s part), 08/01/2011-07/30/2014
- [36] MURI-AFOSR, “Intergrated Hybrid Nanophotonic Circuits”, co-PI, \$750K (Shalaev’s part), 06/01/2011-05/31/2016
- [37] NSF-MRSEC “Center for Photonic Materials (C-PHOM)”, co-PI, \$1M (Shalaev’s part), 8/01/2011-07/30/2016
- [38] co-PI, NSF-PREM Award for PREM Center “META-PREM” (Aug. 2012-Aug 2017). PI for Purdue University subcontract. Total \$3.4M; Purdue’s part \$900K; Shalaev’s part \$450K.
- [39] University of York, “Advnaced Transformation Optical Methods,” \$31K, 06/15/2013-06/14/2015.
- [39] PI, ARO, “Flat Photonics with Metasurfaces”, total \$1.4M; Shalaev’s part \$0.7M, 01/01/13-12/31/16
- [40] Co-PI, (PI: M. Stockman, Georgia State University), ONR-MURI, “Novel Nonlinear Optical Processes in Active, Random, and Nanostructured Systems” total \$6M; Shalaev’s part \$1.2M, 07/01/2013-06/30/2018
- [41] Co-PI, (PI: F. Capasso, Harvard), AFOSR-MURI, “Active Metasurfaces for Advanced Wavefront Engineering and Waveguiding” total \$6M; Shalaev’s part \$800K, July 2014-July 2019

[42] Co-PI (PI: A. Boltasseva), NSF, “OP: Enabling High-Temperature Photonic Technologies with Plasmonic Ceramics,” total \$600,000; Shalaev’s part \$200,000, 9/1/2015-4/1/2019.

[43] PI, ONR DURIP, “Time-Resolved Fluorescence Spectroscopy with Nanoscale Manipulation Capability for Novel On-Chip Nanophotonic Quantum Devices”, \$278,613, 07/15/2016-07/14/2017

[44] Co-PI, (PI: E. Marinero, Purdue), ONR, “Merging Spintronics and Nanophotonics: The Confluence of Spin, Photons, Plasmons and Charge for Novel Hybrid Photonics and Nano---Electronics Devices”, Shalaev’s part: \$100,000; total \$300,000; 2016-2018.

[45] Co-PI (PI: A. Boltasseva), DOE, “Control of light-matter interaction with epsilon-near-zero homogeneous alternative plasmonic materials,” total \$1,309,000, Shalaev’s part \$450k, 07/018/2017-076/30/2020

[46] Co-PI (PI: A. Boltasseva), AFOSR, Hot-Electrons Generation in New Plasmonic Materials for Integrated On-Chip Devices, \$750,000, Shalaev’s part \$350k, period: 04/27/2017 – 04/26/2020

[47] Co-PI (PI: A. Boltasseva), ONR, DURIP: Optical Characterization System for Novel On-Chip Nanoscale Light Sources, period: Total \$170,000, 06/01/2017-05/31/2018

[48] PI, AFOSR, Space-Time Photonic Metamaterials: From Design and Materials to Device Concepts, total: \$795K, Shalaev’s budget \$100,000/year, period: 11/15/2017-11/14/2021

[49] Co-PI (PI: Y. Chen, Purdue), Purdue University, Big Idea Challenge Research, Shalaev’s budget 40k, 04/01/2017-03/31/2019

[50] PI, ONR, DURIP, Versatile Sputtering Tool for New Optical Materials for High-Temperature Plasmonics, Robust On-chip Nanophotonics, and Quantum Devices, \$456,000, 07/15/2018-07/14/2019

[51] Co-PI, (PI: E. Marinero, Purdue), ONR, Topology and Magneto-Photonics: Novel Platform for Advanced Metasurface and Magnonic Devices, Total \$450,000, 07/01/2018-06/30/2021

[52] Co-PI (PI: Upadhyaya), NSF, “EAGER: Enabling Quantum Leap: Electrically tunable, long-distance coherent coupling between room temperature qubits mediated by magnons in low-dimensional magnets”, total \$300k (Shalaev’s part \$100k), 07/15/2018-06/30/2020

[53] PI, ONR, DURIP, “Advanced Pulsed Laser Deposition for Ultrafast, Tunable Metal and Magneto Oxide Nanophotonic Devices” 7/1/2019-6/30/2020; \$162,150

[54] Co-PI (PI: Boltasseva) ONR, “Extreme Nonlinear Optics with Low-Index Materials,” total \$300k, Shalaev’s part \$150k, 01/01/2020 -12/31/2021

[55] PI, Office of Naval Research (ONR) DURIP, Ultra-high Vacuum Tool for Growth of Hybrid Magnetic and Plasmonic/Photonic Materials for Novel Magnetophotonic Devices and Quantum Information, \$968,275; 02/01/2020-01/31/2021

[56] co-PI (PI: Boltasseva), Breakthrough Prize Foundation, Exploring Materials and Nanophotonic Structures for LightSail: From Temperature-Dependent Properties to Global Design Optimization, total \$150,000; 11/1/2020-10/31/2021

[57] co-PI. ARO, MURI, “Near-Field Radiative Heat Transfer and Energy Conversion in Nanogaps of Nano and Meta-Structured Materials”, Total: \$2.5M, Shalaev’s part \$510K, 06/01/2019 -05/31/2024

[58] co-PI (PI: Boltasseva), AFOSR, “Trans-Dimensional Photonics: From Evolution of Material Properties to Exploring”, total: \$800K, Shalaev’s part \$400K, 01/01/2020 -12/31/2023

[59] co-PI (PI: Boltasseva), Basic Energy Sciences (BES), U.S. DOE Office of Science, Opening New Frontiers of Near-Zero-Index (NZI) Optics: from Photonic Time Crystals to Non-Reciprocity and Novel Localization Regimes, renewal; total \$1,403,000; Shalaev’s part \$450K; 07/01/2020-06/30/2023

[60] PI, National Science Foundation, Quantum MetaQuantum: Hybrid Plasmonic-Photonic Meta-Structures for Quantum Information Systems, total \$420,000; Shalaev’s part \$250k; 09/15/2020-08/31/2023

[61] co-PI (PI: Boltasseva), National Science Foundation, Machine-Learning-Optimized Refractory Metasurfaces for Thermophotovoltaic Energy Conversion, \$450,000; Shalaev’s part \$225k; 09/15/2020-08/31/2023

[62] Co-PI (PI: M. Khajavikhan, University of Southern California), Air Force Office of Scientific Research (AFOSR) Multidisciplinary University Research Initiative (MURI), Novel Light-Matter Interactions in Topologically Non-Trivial Weyl Semimetal Structures and Systems, Purdue’s part \$2,483,750; Shalaev’s part \$750,000; 09/15/2020-09/14/2025

[63] PI, Office of Naval Research (ONR) Multidisciplinary University Research Initiative (MURI) renewal, Novel Materials and Approaches for Nanolasing, Total \$4,826,764, Shalaev part \$1,800,000; 09/01/2020-09/30/2023

[64] Co-PI (Purdue PI: Y. Chen), the U.S. Department of Energy (DOE) Office of Science National Quantum Information Science Research Center, the Quantum Science Center (QSC), Total Purdue part \$11,066,000; Shalaev part's \$1,250,000 10/01/2020-09/30/2025

[65] Co-PI, (PI: E. Marinero, Purdue), Office of Naval Research (ONR), Magneto-Plasmonic Magnonics: Spin Wave Manipulation and Topological Magnonic and Photonic Crystals (total \$300,000 07/01/2021-06/30/2023)

[66] Co-PI, AFOSR, Topological Plasma Structures for Control of Electromagnetic Interactions (08/2021-08/2024; total \$2.5M; Shalaev's part \$750K)

[67] Co-PI, NSF, IUCRC Planning Grant Purdue University: Center for Quantum Technologies (CQT); 05/2021-04/2022; \$20K

[68] Co-PI, ONR, A milli-kelvin optical and microwave system for next generation quantum hybrids, DURIP, 05/2021-05/2022; \$228K

[69] Co-PI, (PI: Boltasseva), ONR, Meta-Cavity-Mediated Strong Light-Matter Coupling in Two-Dimensional Materials (06/01/2022 - 05/31/2025; total \$1M; Shalaev's part \$300K)

[70] PI, AFOSR, Hybrid, Room-Temperature, Quantum On-Chip Photonic Systems: Integrating Quantum Emitters with Nanoplasmonics (08/01/2022 - 07/31/2026; total \$880K; Shalaev's part \$350K)

b. At New Mexico State University

[1] Principal Investigator, "Radiation Scattering by Fractal Clusters in Aerosols," Environmental Protection Agency, Grant No. R822658-01-0, 1995-97, 1994-1997, \$155,609.

[2] Principal Investigator, "Near-Field Optics of Fractal Surfaces, NATO, Grant No. CRG 950097, 1995-97, \$15,000

[3] Principal Investigator, "Near-Field Optics of Fractals," National Science Foundation, Grant No. DMR-9500258, 1995-98, \$200,000

[4] Co-principal Investigator (PI, R. Armstrong), "Nanocomposites in Microcavities," National Science Foundation, Grant No. DMR-9623663, 1996-2000, \$250,000. Professor Shalaev's share was \$125,000.

[5] Principal Investigator, "Optical Properties of Self-Affine Films, NATO, Grant No. CRG 970098, 1997-1998, \$15,000.

[6] Principal Investigator, "Culturally Diverse Traineeship Program to Develop Personnel for Career in Environmental Research," GEM Consortium, 1997-98, \$25,000

[7] Principal Investigator, "Fractal Surface Enhanced Nonlinear Optics & Spectroscopy," Petroleum Research Funds at the American Chemical Society, Grant No. 32319-AC5, 1997-99, \$50,000

[8] Principal Investigator, "Nonlinear Near-Field Optics of Fractal Thin Films." National Science Foundation, Grant No. DMR-9810183, 1998-2001, \$200,000.

[9] Co-principal Investigator (PI,, R. Armstrong), "Light Control in Fractal Nanoparticles," Army Research Office, Grant No. DAAAG55-98-1-0425, 1998-2001, \$210,000. Professor Shalaev's share is \$105,000.

[10] Co-principal Investigator (PI, C. Ying), "Acquisition of a Femtosecond Laser System," National Science Foundation, Grant No. DMR-9977358, 1999-2000, \$139,000. Professor Shalaev's share was \$46,333.

[11] Principal Investigator, "Surface-Enhanced Optical Spectroscopy in Composite Materials." Petroleum Research Funds at the American Chemical Society, Grant No. 35028-AC5, 1999-2001, \$30,000.

[12] Co-principal Investigator (PI, R. Armstrong), "Nonlinear Optics of Nanocomposites in Microcavities." National Science Foundation, Grant No. DMR-0071901, 2000-03, \$285,000. Professor Shalaev's share is \$142,500.

[13] Co-principal Investigator (PI, C. Ying), "Nanometer Laser Spectroscopy Using Fractal Media." NASA, Grant No. AS00-0037, 2000-03, \$300,000. Professor Shalaev's share is \$150,000.

[14] Principal Investigator (of subcontract) "Development of Novel Composite & Random Materials." NASA, Agency proposal #: NCC5-514, 2000-04, \$4,000,000. \$400,000 subcontracted from Norfolk State University.

[15] Principal Investigator, " Nanostructured Metal-Dielectric Films: New Avenues for Photonics and Spectroscopy," Army Research Office, Grant No. DAAD19-01-1-0682, 2001-04, \$330,000.

Professional Society Activities:

Organizations:

Materials Research Society (MRS), Fellow: 2015-present
IEEE (Institute of Electrical and Electronics Engineers), Fellow: 2010-present
APS (American Physical Society). Fellow: 2002—present
OSA (Optical Society of America). Fellow: 2003-present
The International Society for Optical Engineering (SPIE) Fellow: 2005-present

OSA Max Born Award Committee, Member, 2005, 2006
APS (American Physical Society). Member: 1992—present
OSA (Optical Society of America). Member: 1995-present
Vice-Chair for OSA Topical Group “Waves in random and periodic structures”,
2002- 2004
Chair of the OSA Topical Group: Photonic Metamaterials: from Random to
Periodic, 2004-2006
ACS (American Chemical Society). Member: 1997-99
MRS (Materials Research Society). Member: 1996-99, 2002-
SPIE (International Society for Optical Engineers). Member 2002-
IEEE-Senior Member, 2005-
IEEE LEOS Nanophotonics Member Committee, 2004-2007
Chair of OSA Technical Group “Photonic Metamaterials”, 2008-2010

Activities:

i. Conference Committees and Conference Chair Positions

- [1] Session Organizer and Chair, "Nanostructured Materials: Clusters, Composites, and Thin Films," at the 213th American Chemical Society Meeting, San Francisco, CA, April 13-17, 1997.
 - Editor of a book developed from this session (with the same title), published by the ACS Symposium Series, Vol. 679, ACS Books, 1997.
- [2] Member of the Program Committee and Chair of a session at XI International Vavilov Conference on Nonlinear Optics, Novosibirsk, Russia, June 24-28, 1997.
- [3] Member of the International Advisory Committee and Chair of a Session at the Fifth International Conference on Electrical Transport and Optical Properties of Inhomogeneous Media (ETOPIM5), Hong Kong, June 1999
- [4] Organizer and Chair, "Nonlinear Optics of Random Media," Symposia at the Annual Optical Society of America meetings in Baltimore, October 1998 and California in 1999
 - Editor of a book based on the 1999 symposia (with the same title) in the Springer Verlag series *Topics in Applied Physics*, to be published 2001.
- [5] Member of the Program Committee, Sixth International Conference on Electrical Transport and Optical Properties of Inhomogeneous Media (ETOPIM6), Salt Lake City, UT, July 2002.

- [6] Member of the International Program Committee for VIII International Conference “Laser and Laser-Information Technology”, Sept. 27-Oct. 1, 2003, Plovdiv, Bulgaria.
- [7] Member of the International Program Committee for The 4th Asia-Pacific Conference on Near-Field Optics, Taipei, Taiwan, October 14 -17, 2003.
- [8] Chair of Sub-Committee “Fundamental Optics in Periodic and Random Media” for Quantum Electronics and Laser Science 2003 Conference, Baltimore
- [9] Co-Chair for Symposium “Waves in Random and Periodic Media” for 2002 Annual OSA Meeting in Orlando, FL.
- [10] Co-Chair for Symposium “Waves in Random and Periodic Media” for 2004 Annual OSA Meeting in Rochester
- [11] Program Committee Member for Symposium “Plasmonics: Metallic Nanostructures and Their Optical Properties” at SPIE 48th Annual Meeting, August 2003, San Diego, Ca.
- [12] Co-Chair for Technical Group “Waves in Random and Periodic Media” for 2004 “Frontiers in Optics” OSA Meeting in Rochester, NY.
- [13] Program Committee Member for Symposium “Complex Mediums IV” at SPIE 48th Annual Meeting, August 2003, San Diego, Ca.
- [14] Program Committee Member for Symposium “Complex Mediums V: Light and Complexity” at SPIE 49th Annual Meeting, 4-5 August 2004, Denver, Co.
- [15] Chair for Technical Group “Photonic Metamaterials: from Random to Periodic,” for 2005 “Frontiers in Optics” OSA Meeting in Tucson, AZ
- [16] Member of International Advisory Board for Asia-Pacific Conference on Near-Field Optics (AP-NFO05), Niigata City, Japan, Nov. 15-17, 2005.
- [17] Program Committee Member for Symposium “Complex Mediums V: Light and Complexity” at SPIE 50th Annual Meeting, 2005, San Diego, CA
- [18] Co-Chair for Symposium “Plasmonic Nano-imaging and Nanofabrication” at SPIE 50th Annual Meeting
- [19] Co-Chair for OSA Topical Meeting “Photonic Metamaterials: from Random to Periodic” held on Bahamas, June 2006

- [20] Member of the Program Committee, Seventh International Conference on Electrical Transport and Optical Properties of Inhomogeneous Media (ETOPIM7), Sydney, Australia, July 2006.
- [21] Co-Chair and Member of the Program Committee for MRS Symposium “Plasmonics – Nanoscale Optics and Photonics Based on Metals”, Materials Research Society Fall Meeting, Nov. 28-Dec. 2, 2005, Boston, MA (2005).
- [22] Member of the Advisory and Program Committee of The Annual International Workshop Laser Physics, LPHYS’06.
- [23] Program Committee Member for International Conference on Nanophotonics and Matamaterials (NanoMeta 2007) held in Seefeld in Austria in January 2007.
- [24] Co-Chair for Symposium “Plasmonic Nano-imaging and Nanofabrication” at SPIE Annual Meeting in August, 2006, San Diego, CA
- [25] Co-Chair of a Symposium on Metamaterials at the American Physical Society March Meeting in 2006.
- [26] International Program Committee Member for a conference “Laser and Laser-Informational Technologies: Fundamental Problems and Applications” 2004, Bulgaria, and 2006, Smolian, October 4-7, 2006, Bulgaria.
- [27] International Program and Steering Committee Member for 1-st International Congress “Metamaterials” October 2007, Rome, Italy
- [28] Program Committee Member for Symposium “Complex Mediums V: Light and Complexity” at SPIE Annual Meeting, 2006, San Diego, CA
- [29] Co-Chair for Symposium “Plasmonic Nano-imaging and Nanofabrication” at SPIE Annual Meeting, 2007, San Diego, CA
- [30] Program Committee Member for Symposium “Plasmonics: Metallic Nanostructures and their Optical Properties IV” at SPIE Annual Meeting, 2006, San Diego, CA
- [31] Chair of OSA Topical Group “Photonic Metamaterials: from Random to Periodic”, Division of Optical Sciences, 2006.
- [32] Program Committee Member for Symposium “Plasmonics: Metallic Nanostructures and their Optical Properties IV” at SPIE Annual Meeting, 2007, San Diego, CA

- [33] Program Committee Member for Symposium “Complex Mediums V: Light and Complexity” at SPIE Annual Meeting, 2006, San Diego, CA
- [34] Co-Chair for Symposium “Plasmonic Nano-imaging and Nanofabrication” at SPIE Annual Meeting, 2008, San Diego, CA
- [35] Program Committee Member for Symposium “Complex Mediums VII: Light and Complexity” at SPIE Annual Meeting, 2008, San Diego, CA
- [36] Program Committee Member for Symposium “Plasmonics: Metallic Nanostructures and their Optical Properties VI” at SPIE Annual Meeting, 2008, San Diego, CA
- [37] International Steering Committee Member for the 2-nd International Congress “Metamaterials” 2008, Pamplona, Spain
- [38] Program Chair of OSA Topical Meeting: Photonic Metamaterials: from Random to Periodic, Jackson Hole, Wy, June 4-7, 2007.
- [39] Co-Chair for Symposium “Plasmonic Nano-imaging and Nanofabrication” at SPIE Annual Meeting, 2009, San Diego, CA
- [40] Program Committee Member for Symposium “Complex Mediums VIII: Light and Complexity” at SPIE Annual Meeting, 2009, San Diego, CA
- [41] Program Committee Member for Symposium “Plasmonics: Metallic Nanostructures and their Optical Properties VII” at SPIE Annual Meeting, 2009, San Diego, CA
- [42] Program Committee Member for International Conference on Nanophotonics and Matamaterials (NanoMeta 2009) held in Seefeld, Austria, in January 2009.
- [43] International Steering Committee Member for the 3-nd International Congress “Metamaterials” 2009, London, UK.
- [44] Program Committee Member of 5th International Conference on Materials for Advanced Technologies 2009, Singapore, 28 June – 3 July, 2009.
- [45] Member of the Advisory and Program Committee for Laser Physics Workshop, Trondheim, Norway. June 30 - July 4, 2008.
- [46] Member of the Advisory and Program Committee for Laser Physics Workshop, Barcelona, Spain, July 13-17, 2009.
- [47] Electrical Transport and Optical Properties of Inhomogeneous Media (ETOPIM) Association Committee Member; the eighth International Conference. Crete, Greece, June 8-12, 2009.

- [48] Member of the Program Committee for The 8th Pacific Rim Conference on Lasers and Electro-Optics (CLEO / Pacific Rim); Aug. 30 – Sep. 3, 2009, Shanghai, China.
- [49] Program co-Chair for the 2009 CLEO/IQEC conference
- [50] Symposium Organizer, 2009 MRS Fall Meeting.
- [51] Sub-committee co-chair for the program topic “Nanophotonics and Plasmonics” of ICONO-2010 conference (International Conferences on Coherent and Nonlinear Optics); August 23-27, 2010, Kazan, Russia
- [52] Program Committee Member for Symposium “Thin Films” at SPIE Annual Meeting, 2010, San Diego, CA
- [53] Program Committee Member for Symposium “Metamaterials” at SPIE Annual Meeting, 2010, San Diego, CA
- [54] Program Committee Member for Symposium “Plasmonics VIII” at SPIE Annual Meeting, 2010, San Diego, CA
- [55] Member of the Advisory and Program Committee for Laser Physics Workshop, Foz do Iguacu, Brazil, July 5 - 9, 2010
- [56] Co-Chair of International conference ICMAT 2011, Singapore
- [57] A member of the International Program Committee (IPC) for the IASTED International Conference on Antennas, Radar and Wave Propagation (ARP 2009)
- [58] A member of the International Program Committee (IPC) for the IASTED International Conference on Antennas, Radar and Wave Propagation (ARP 2010; Cambridge, Massachusetts, USA from November 01, 2010 to November 03, 2010)
- [59] A member of Technical Program Committee of CLEO Europe-EQEC 2011 (Munich)
- [60] General co-Chair for the 2011 CLEO/QELS conference
- [61] International Adviser Board Member for Symposium “Smart & Adaptive Optics” at 4th CIMTEC Conference (Montecatini Terme, Italy, 2012)
- [62] Program Committee Member for the SPIE conference LA112 on Synthesis and Photonics of Nanoscale Materials IX (21-26 January 2012, San Francisco, CA)

- [63] International Program and Steering Committee Member for International Congress “Metamaterials” in 2012 (St. Petersburg)
- [64] International Program and Steering Committee Member for International Congress “Metamaterials” in 2013 (Bordeaux, France)
- [65] Member of the International Advisory Committee for a conference Modern Problems of Laser Physics, MPLP-21013 to be held in Novosibirsk, Russia, Aug. 25-31, 2013
- [66] International Program and Steering Committee Member for International Congress “Metamaterials” in 2014 (Copenhagen, Denmark)
- [67] International Adviser Board Member for Symposium “Smart & Adaptive Optics” at 4th CIMTEC Conference (Montecatini Terme, Italy, 2013)
- [68] International Advisory Committee member for META’ 14, Singapore, May 20-23, 2014
- [69] Program Committee Member for the SPIE conference 9163 Plasmonics: Metallic Nanostructures and Optical Properties XII (17-21 August 2014, San Diego, CA)
- [70] Advisory Board Member for the 9-th International Congress “Metamaterials” 2014, 25-30 August, Copenhagen, Denmark
- [71] Gordon Conference on Plasmonics, July 6-11, 2014. Discussion leader.
- [72] Member of the International Advisory Committee the 6th International Conference "Frontiers of Nonlinear Physics", a boat cruising from Nizhny Novgorod to St.-Petersburg from July 17 through July 23, 2016
- [73] Advisory Board Member for International Congress “Metamaterials” in 2015 (Oxford, UK)
- [74] International Advisory Committee member for META’ 15, NYC, NY, Aug 3-7, 2015
- [75] Program Committee Member for the SPIE conference 9163 Plasmonics: Metallic Nanostructures and Optical Properties XIII (August 2015, San Diego, CA)
- [76] Advisory Board Member for International Congress “Metamaterials” in 2016 (Crete, Greece)
- [77] International Adviser Board Member for Symposium “Smart & Adaptive Optics” at 4th CIMTEC Conference (Perugia, Italy, June 5-9, 2016)

- [78] Member of International Advisory Committee, META'16 Malaga, Spain, July 25-28, 2016
- [79] Member of Advisory & Program Committee, International Laser Physics Workshop, July 17-21, 2017, Kazan, Russia
- [80] Member of Program Committee, Plasmonics Conference, SPIE, 6-10 August 2017, San Diego, CA, USA
- [81] Scientific Advisory Board Member, Metamaterials Congress, 28 Aug – 2 Sept, 2017, Marseille, France
- [82] Advisory Board Member for International Congress “Metamaterials” in 2018 (Finland)
- [83] International Advisory Committee member for META'18, Marseille, France, June 24-30, 2018
- [84] International Advisory Board and Program Committee, Electrical Transport and Optical Properties of Inhomogeneous Media (ETOPIM) 2018 (Prague, Czech)
- [85] Program Committee Member for Symposium “PLASMONICS” at SPIE Annual Meeting, August 2018, San Diego, CA
- [86] Program Committee Member for International Conference “Novel Optical Materials and Applications (NOMA)”, Cetraro, Italy, June 2019.
- [87] Scientific Advisory Committee member, META 2019, Lisbon, Portugal, July 2019.
- [88] Program Committee member, SPIE Optics and Photonics Plasmonics: Design, Materials, Fabrication, Characterization, and Applications XVII, San Diego, CA, August 2019.
- [89] Technical Program Committee member, Metamaterial Congress, Rome, Italy, September 2019.
- [90] Program Committee member, SPIE Optics and Photonics, Plasmonics: Design, Materials, Fabrication, Characterization, and Applications XVIII, (online) August (2020).
- [91] Member of the Advisory Board and/or Program Committee for International Congresses and Conferences: “Metamaterials-2020” (online)
- [92] Member of the Advisory Board and/or Program Committee for International Congresses and Conferences: META'21 (Warsaw, Poland)

- [93] Member of the Advisory Board and/or Program Committee for International Conference “Novel Optical Materials and Applications (NOMA)” (Cetraro, Italy, October 2021).
- [94] Program Committee member, SPIE Optics and Photonics, Plasmonics: Design, Materials, Fabrication, Characterization, and Applications XVIII, (online) August (2021).
- [95] Technical Program Committee member, The 14th Metamaterial Congress, Siena, Italy, September 12-17, 2022
- [96] Program Committee Member for International Conference “Novel Optical Materials and Applications (NOMA)”, Cetraro, Italy, June 2022.
- [97] Scientific Advisory Committee member, META 2022, Torremolinos, Spain, July 2022
- [98] Scientific Advisory Committee member, META 2023 (Paris, France; July 18-23, 2023)
- [99] Member of the Advisory Board and/or Program Committee for International Conference “Novel Optical Materials and Applications (NOMA)” (Cetraro, Italy, June 2023).
- [100] Program Committee member, SPIE Optics and Photonics, Plasmonics: Design, Materials, Fabrication, Characterization, and Applications XX, August (2023).
- [101] Technical Program Committee member, The 15th Metamaterial Congress, Crete, Greece, September 11-16, 2023

ii. Conference Seminar Organization

- [1] Organizer and Chair of eight seminar sessions on "Novel Optics," "Nano-Optics," and “Plasmonic Nanophotonics,” at International Winter Colloquia on the Physics of Quantum Electronics (PQE) in Snowbird, UT, January 1998, 1999, 2000, 2001, 2002, 2003, 2004, and 2005.
- [2] Co-chair of seminar "Modern Trends in Laser Physics," at the International Laser Physics Workshop (LPHYS'01), Moscow, Russia, July 3-7, 2001.
- [3] Co-chair of seminar "Modern Trends in Laser Physics," at the International Laser Physics Workshop (LPHYS'02), Bratislava Slovak Republic, July 1-5, 2002.

- [4] Co-chair of seminar "Modern Trends in Laser Physics," at the International Laser Physics Workshop (LPHYS'03), Federal Republic of Germany, Hamburg, August 25-29, 2003.
- [5] Co-chair of seminar "Modern Trends in Laser Physics," at the International Laser Physics Workshop (LPHYS'04), Italy, Trieste, July 12-16, 2004
- [6] Co-chair of seminar "Modern Trends in Laser Physics," at the International Laser Physics Workshop (LPHYS'05), Kyoto, Japan. July 4-9, 2005
- [7] Organizer and Chair of "Photonic Metamaterials" Symposia at International Winter Colloquium on the Physics of Quantum Electronics (PQE) in Snowbird, UT, January 2006, and January 2008.
- [8] Chair of OSA Topical Meeting: Photonic Metamaterials: from Random to Periodic, Jackson Hole, Wyoming, June 4-7, 2007.
- [9] Chair for CLEO/QELS Joint Symposium on Nanophotonics, Baltimore, MD, May 6-11, 2007
- [10] Chair for QELS Symposium on Nanophotonics with Metamaterials, San Jose, CA, May 16-21, 2010
- [11] Chair for 2009 Fall MRS Symposium "Excitons and Plasmon Resonances in Nanostructures II", Boston, MA, November 30 – December 4, 2009
- [12] Chair for 2012 International Workshop "Novel Ideas in Optics", West Lafayette, IN, Purdue University, May 31 – June 2, 2102
- [13] Organizer and co-Chair of "Metamaterials" Sessions at International Winter Colloquium on the Physics of Quantum Electronics (PQE) in Snowbird, UT, January 2014.
- [14] Organizer and co-Chair of "New Material Platforms for Nanophotonics" Session at International Winter Colloquium on the Physics of Quantum Electronics (PQE) in Snowbird, UT, January 2016
- [15] Organizer and co-Chair of "Quantum Control of Light and Matter" International Workshop, Purdue, West Lafayette, IN, Oct 14-15, 2015
- [16] Organizer and co-Chair of "Coherent Phenomena in Physics and Chemistry", April 2017, Purdue, West Lafayette
- [17] Organizer and Program Committee Member of International Symposium on Quantum Science and Technology, April 21-23, 2019, Purdue University, West Lafayette, IN

- [18] The 51th Winter Colloquium on the Physics of Quantum Electronics (PQE), Snowbird, Utah, USA, January 5-9, 2021 – PLENARY talk, session organizer (postponed to 2022; Jan 10-14)
- [19] The 52nd Winter Colloquium on the Physics of Quantum Electronics (PQE), Snowbird, Utah, USA, January 8-12, 2023 – PLENARY talk, session organizer

PhD Thesis Supervision or co-Supervision Completed:

i. At Krasnoyarsk State University, Russia

- [1] V. A. Butenko, “Nonlinear Optics of Fractal Composites.” Physics Department, Krasnoyarsk University, Russia. 1996.

ii. At New Mexico State University

- [1] V. A. Markel, “Optical Properties of Clusters and Nanocomposites.” Physics Department, New Mexico State University, 1995.
- [2] E. Y. Poliakov, “Optical Phenomena in Fractal Clusters and Self-Affine Films.” Physics Department, New Mexico State University, 1998.
- [3] V. A. Podolskiy, “Optical Properties of Metal-Dielectric Composites”, Physics Department, New Mexico State University, 2002

iii. At Purdue University

- [1] Dentcho Genov, “Electromagnetic Properties of Complex Media: Nano-Structured Semicontinuous Films and Fractal Aggregates, 2005
- [2] Eldar Khaliullin, “Quantum Size and Nonlinear Effects in Metal Nanostructures and Bio-Applications with SERS, 2005
- [3] Wenshan Cai, “Optical Metamaterials: Basic Structures and Potential Applications” May 2008
- [4] Hsiao-Kuan Yuan, “Optical metamaterials, July 2008
- [5] Uday Chettiar, “Simulation, modeling, and design of optical metamaterials”, December 2008.
- [6] Reuben Bakker, “Optical Nanoantennae: Enhanced Electromagnetic Fields and Enhanced Fluorescence”, August 2008.

- [7] Piotr Nyga, “Plasmonic Nanomaterials for Midinfrared and their Photomodification”, December 2008.
- [8] Mark Thoreson, “Metal-Dielectric Composite Plasmonic Films and their Applications”, December 2009
- [9] Shumin Xiao, Tunable and Active Optical Negative Index Metamaterials, August 2010
- [10] Zhengtong Liu, Modeling and Characterization of Plasmon Nanostructures, August 2010
- [11] Joshua Borneman, Optical Metamaterials: Linear and Nonlinear Characterization and Applications to Optical Limiting, May 2010
- [12] Ji Young Kim, Near-field Optical Microscopy and Spontaneous Emission Engineering with Plasmonic Metamaterials, December 2010
- [13] Kuo Ping Chen, December 2010
- [14] Xingjie Ni, October, 2012
- [15] Satoshi Ishii, November, 2012
- [16] Guru Naik, Summer 2013 (co-advisor)
- [17] Urcan Guler, December 2013
- [18] Jingjing Liu, August 2015
- [19] Amr Shaltout, November 2015
- [20] Rohith Chandrashekhar, Spring 2016
- [21] Jieran Fang (co-advisor), Summer 2016
- [22] Mikhail Shalaginov, Summer 2017
- [23] Zhuoxian Wang, PhD (co-adviser), 2018
- [24] Clayton Devault, December 2018
- [25] Di Wang, October 2019
- [26] Harsha Reddy, Summer 2020
- [26] Soham Saha, January 2021

[27] Deesha Shah, 2022 (co-adviser)

[28] Xiaohui Xu, November 2022 (co-adviser)

Master's Thesis Supervision Completed:

i. At Krasnoyarsk State University, Russia

[1] V. Gomer, “Self-Affine Surfaces”. Physics Department, Krasnoyarsk University, Russia. 1993.

[2] A. Butenko, “Numerical Simulations of Fractal Clusters,” Physics Department, Krasnoyarsk University, Russia. 1990.

ii. At New Mexico State University

[1] V. Shubin, “Optical properties of Percolation Films”, Physics Department, New Mexico State University, 1999.

iii. At Purdue University

[1] T. Goyani, “Detection of Bio-Chemical Warfare Agents with Surface-Enhanced Raman Spectroscopy,” Purdue University, 2004.

[2] Reuben Bakker, “Imaging of Engineered Plasmonic Nanostructures with Near-Field Scanning Optical Microscopy” 2004

[3] Mark D. Thoreson, “Adaptive Surface-Enhanced Raman Scattering Substrates: Fabrication and Characterization” 2004.

[4] Weiqiang Chen, “Study of Ultra-Thin Ultra-Smooth and Low-Loss Silver and Silver-Silica Composite Films for Superlensing Applications”, November 2009

[5] Ranga Koswatta, 3D FDTD Numerical Modeling of Optical Metamaterials, May 2010.

[6] Vashista de Silva, May 2011

[7] Jieran Fang, 2012

Master’s and PhD Students Currently Being Supervised:

[1] Samuel Peana, PhD (co-adviser)

- [2] Bruce Ding, PhD
- [3] Zach Martin, PhD
- [4] Blake Wilson, M. Sci. (co-adviser)
- [5] Morris Yang, PhD
- [6] Mustafa Ozlu, PhD
- [7] Omer Yesilyurt, PhD (co-adviser)
- [8] Sarah Chowdhury, PhD (co-adviser)
- [9] Yueheng Chen, PhD
- [10] Owen Matthiassen, PhD
- [11] Miroslava Marinova, PhD (co-adviser)

Recent Recognitions, Honors, and Awards Received by Students:

- 2022 Maria Goeppert Mayer Fellowship, Argonne National Lab (Soham Saha)
- 2021 Puskas Memorial Fellowship, Purdue Graduate School (Samuel Peana)
- 2021 Director's Fellowship, Los Alamos National Lab (Soham Saha)
- 2021 COE Outstanding Graduate Student Research Award, College of Engineering, Purdue University (Soham Saha)
- 2021 Corning Women in Optical Communications Scholarship (Deesha Shah)
- 2021 The School of Electrical and Computer Engineering Bilsland Dissertation Fellowship (Deesha Shah)
- 2021 The 2021 Dimitris N. Chorafas Foundation award (Soham Saha)
- 2021 The Society of Vacuum Coaters Foundation award (Omer Yesilyurt)

Courses Developed:

Phys. 573/673 Optics of Advanced Nanomaterials (Spring 1999; at New Mexico State)

ECE 695S (currently ECE60421) "Nanophotonics and Metamaterials" (Fall 2004, Fall 2006, Spring 2008, Fall 2009, Fall 2011, Fall 2013, Fall 2015, Fall 2017, Fall2019)

Courses "In Charge Of":

Phys. 472/572 Nonlinear Optics (Spring 1994-2001; at New Mexico State)

ECE 60421 Nanophotonics and Metamaterials

ECE552 Introduction to Lasers

ECE 615 Nonlinear Optics

Teaching Evaluation (based on evaluable reports; mean scores):

“Nanophotonics and Metamaterials” was recorded on nanoHUB. It has been viewed by nearly 70,000 times with nearly perfect readers rating and very positive comments, including such as this one: “Prof. Shalaev is terrific in explaining difficult concepts...I got way more than I expected out of this course!” “As a new researcher in the field of Plasmonics and Metamaterials, I think this is the best resource available so far to get a pedagogical development in the field. Thank you for everyone who participated in making this work available for everyone :)” This course has also been adopted by his colleagues and taught with great success at various international institutions including universities in Denmark and Germany.

School Committee Activities (at Purdue only):

Co-Founder, co-Chair of Purdue Quantum Center (now Purdue Quantum Science and Engineering Institute); currently, founding chair 2015-

Committee: ECE Distinguished Professorship

Activity: Member, current

Committee: ECE Named and Distinguished Professorship

Activity: Member, current

Committee: Arden Bement Award

Activity: Member, 2016-2017

Committee: McCoy Award

Activity: Member, 2014-2017

Committee: BNC Strategic Committee

Activity: Member

Committee: Search for faculty for “Quantum Photonics” preeminent team

Activity: Chair – 2014-2015

Committee: Advisory Committee for Birck Nanotechnology Center

Activity: Member

Committee: Search for faculty for “Quantum Photonics” preeminent team

Activity: Chair - 2013

Committee: Search for BNC Deputy Director

Activity: Member - 2013

Committee: Purdue University's Global Council
Activity: an Inaugural Member - 2012

Committee: External Awards
Activity: Chair (interim) 2007

Committee: College of Engineering "Eric" Program
Activity: Member

Committee: Nanotechnology Cluster Hire Steering Committee
Activity: Member

Committee: Sub-cluster on hire in Nanophotonics/Photonics area
Activity: Chair, 2005-07

Committee: Dean's Advisory Committee
Activity: Member, 2003-2004

Committee: Graduate Committee
Activity: Member, 2001 – 2004

Committee: Graduate Admission
Activity: Member, 2003-2006

Committee: Director Search for BNC Committee
Activity: Member, 2006

Committee: Global Portfolio strategy area for the College of Engineering
strategic plan, 2009.
Activity: ECE Head Search Committee, 2009-2010

Research Books and Book Contributions:

a. Authored and Edited Books

- [7] W. Cai and Vladimir M. Shalaev, Optical Metamaterials: Fundamentals and Applications, Springer, 2010. - Winner of the 2014 Joseph W. Goodman Book Writing Award from OSA and SPIE.
- [6] S. Kawata and V. M. Shalaev (Editors), Tip Enhancement (Advances in Nano-Optics and Nano-Photonics), Elsevier, 2007.

- [5] V. M. Shalaev and S. Kawata (Editors), *Nanophotonics with Surface Plasmons (Advances in Nano-Optics and Nano-Photonics)*, Elsevier, 2007.
- [4] A. K. Sarychev and V. M. Shalaev, *Electrodynamics of Metamaterials*, World Scientific, Singapore, 2007.
- [3] V. M. Shalaev (Editor), *Optical Properties of Random Nanostructures*, Springer Verlag, Topics in Applied Physics, Berlin Heidelberg 2002.
- [2] V. M. Shalaev and M. Moskovits (Editors), *Nanostructured Materials: Clusters, Composites, and Thin Films*, ACS Symposium Series v. 679, ACS Books, 1997.
- [1] V. M. Shalaev, *Nonlinear Optics of Random Media: Fractal Composites and Metal-Dielectric Films*, Springer Tracts in Modern Physics, v.158, Springer, Berlin Heidelberg 2000.

b. Book Chapters

- [30] Zh. A. Kudyshev, A.V. Kilidishev, V. M. Shalaev, and A. Boltasseva, Machine-learning assisted global optimization of photonic devices, pp. 381-394, a chapter in “Frontiers in Optics and Photonics” edited by Federico Capasso and Dennis Couwenberg, Walter de Gruyter GmbH, Berlin/Boston (2021)
- [29] K. Chaudhuri, Z. Wang, M. Alhabeab, K. Maleski, Y. Gogotsi, V. Shalaev, A. Boltasseva, “Optical Properties of MXenes”, chapter in “2D Metal Carbides and Nitrides (MXenes): Structures, Properties and Applications”; Eds: B. Anasori, Y. Gogotsi, Springer Nature Switzerland AG, ISBN 978-3-030-19025-5, pp. 327-346 (2019).
- [28] 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).
- [27] 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 "From Atomic to Mesoscale: The Role of Quantum Coherence 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).

- [26] N. M. Litchinitser, V. M. Shalaev, *Metamaterials: State of the Art and Future Directions*, Chapter 3 in *Photonics, Nanophotonic Structures and Materials*, Eds: David L. Andrews, John Wiley & Sons 2015.
- [25] Satoshi Ishii, Xingjie Ni, Vladimir P. Drachev, Mark D. Thoreson, Vladimir M. Shalaev, and Alexander V. Kildishev, "Active and Tuneable Metallic Nanoslit Lenses", *Active Plasmonics and Tuneable Plasmonic Metamaterials*, Wiley, 2013.
- [24] S. Xiao and V. M. Shalaev, *Tunable and Active Optical Negative Index Metamaterials*, Chapter 9 in *World Scientific Series in Nanoscience and Nanotechnology - Vol. 4, PLASMONICS AND PLASMONIC METAMATERIALS - Analysis and Applications*, edited by G. Shvets & I. Tsukerman (2012). Pp. 255-284.
- [23] N. M. Litchinitser, I. R. Gabitov, A. I. Maimistov, and V. M. Shalaev, *Linear and Nonlinear Metamaterials and Transformation Optics*, pp. 1-27, in book "Tutorials in Metamaterials", Eds. M. A. Noginov and V. A. Podolskiy; series in *Nano-Optics and Nanophotonics*, Series Eds. S. Kawata and V. M. Shalaev; CRC Press, Taylor & Francis Group, New York, NY, 2012.
- [22] A. Boltasseva, R. B. Nelson, C. Jeppesen, A. Kristensen, R. Bakker, Z. Liu, H.-K. Yuan, A. V. Kildishev, and V. M. Shalaev, *Fabricating Plasmonic Components for Nano- and Meta-Photonics*, chapter in "Metamaterials and Plasmonics: Fundamentals, Modelling, Applications", NATO Science for Peace and Security Series B: Physics and Biophysics; Eds: S. Zouhdi, A. Sihvola, and A. P. Vinogradov, Springer, pp. 209-221, 2009.
- [21] N. M. Litchinitser and V. M. Shalaev, *Optical Metamaterials: Invisibility in Visible and Nonlinearities in Reverse*, in *Nonlinearities in Periodic Structures and Metamaterials: Springer Series in Optical Sciences*, Vol. 150, edited by C. Denz, S. Flach, and Yu. S. Kivshar (Springer, 2009).
- [20] N. M. Litchinitser and V. M. Shalaev, *Negative refraction*, *The McGraw-Hill 2008 Yearbook of Science & Technology*, pp. 230-233.
- [19] N. M. Litchintser, I. R. Gabitov, A. I. Maimistov, V. M. Shalaev. *Negative Refractive Index Metamaterials in Optics*, *Progress in Optics*, V. 51, Chapter 1, pp 1-68 (2008).
- [18] A.V. Kildishev, T.A. Klar, V.P. Drachev, and V.M. Shalaev, *Thin metal-dielectric nanocomposites with a negative index of refraction*, Chapter 9 in: *Nanophotonics with Surface Plasmons*, ed. by V.M. Shalaev and S. Kawata, Elsevier, 2007.

- [17] M.A. Noginov, G. Zhu, V.P. Drachev, and V.M. Shalaev, Surface plasmons and gain media, Chapter 5 in: *Nanophotonics with Surface Plasmons*, ed. by V.M. Shalaev and S. Kawata, Elsevier, 2007.
- [16] V.P. Drachev, M. D. Thoreson, and V.M. Shalaev, Sensing Proteins with Adaptive Metal Nanostructures, Chapter 14 in: *Surface Plasmon Nanophotonics*, Springer Series in Optical Sciences, Vol. 131, ed. by M.L. Brongersma, and P.G. Kik (2007).
- [15] A. K. Sarychev, G. Shvets, and V. M. Shalaev, Magnetic Plasmon Resonance, chapter 1 in *Nanoplasmics: From Fundamentals to Applications*, Handai Nanophotonics, volume 2, pp.3-13, Eds: S. Kawata and H. Masuhara, Elsevier (2006).
- [14] V.P. Drachev and V.M. Shalaev, Biomolecule sensing with adaptive plasmonic nanostructures, *Surface Enhanced Raman Scattering - Physics and Applications*, ed. by K. Kneipp, M. Moskovits, and H. Kneipp, Springer Verlag, Topics in applied physics, 2006.
- [13] Andrey K. Sarychev and Vladimir M. Shalaev, Plasmonic Nanowire Metamaterials, Chapter 8 in: *Negative Refraction Metamaterials: Fundamental Properties and Applications*, edited by G. V. Eleftheriades and K. G. Balmain, John Wiley & Sons, Inc., 2005, pp. 313-337.
- [12] D. A. Genov, V. M. Shalaev, A. K. Sarychev, Surface Plasmons Excitation in Semicontinuous Metal Films, in: *Frontiers in Condensed Matter Physics Research*, Ed. John V. Chang, Publisher: Nova Science Publishers, Inc. Hauppauge, NY, USA (2006).
- [11] Dentcho A. Genov, Andrey K. Sarychev and Vladimir M. Shalaev, Local Field Statistic and Plasmon Localization in Random Metal-Dielectric Films, in: *Wave Scattering in Complex Media: From Theory to Applications*, Eds: Sergey Skipetrov and Bart van Tiggelen, Publisher: Kluwer Academic Publishers, Dordrecht, Netherlands (2003)
- [10] Andrey K. Sarychev and Vladimir M. Shalaev, Optical Properties of Metal-Dielectric Films, in *Introduction to Complex Mediums for Optics and Electromagnetics*, Editors: Werner S. Weiglhofer and Akhlesh Lakhtakia, SPIE PRESS Vol. PM123 * October 2003, pp. 397-420.
- [9] Vladimir M. Shalaev, "Optical Properties of Fractal Composites," Chapter in: *Optical Properties of Nanostructured Random Media*, Ed: Vladimir M. Shalaev, Springer Verlag, Topics in Applied Physics, Berlin Heidelberg, 2002.
- [8] W.T. Kim, V. P. Safonov, V. P. Drachev, V. A. Podolskiy, V. M. Shalaev, and R.L. Armstrong, "Fractal-Microcavity Composites: Giant Optical Responses," Chapter in: *Optical Properties of Nanostructured Random*

Media, Ed: Vladimir M. Shalaev, Springer Verlag, Topics in Applied Physics, Berlin Heidelberg 2002.

- [7] A. K. Sarychev and V. M. Shalaev, "Theory of Nonlinear Optical Responses in Metal-Dielectric Composites," Chapter in: *Optical Properties of Nanostructured Random Media*, Ed: Vladimir M. Shalaev, Springer Verlag, Topics in Applied Physics, Berlin Heidelberg, 2002.
- [6] V. M. Shalaev, "Fractal Nano-Composites: Giant Local-Field Enhancement of Optical Responses," Chapter in: *Nanoscale Linear and Nonlinear Optics*, eds: M. Bertolotti and C. Sibilia, AIP, 2001.
- [5] V. A. Markel, V. M. Shalaev, and T. F. George, "Some Theoretical and Numerical Approaches to the Optics of Fractal Smoke," Chapter in: *Optics of Nanostructured Materials*, Eds: V.A. Markel and T.F. George, Wiley, 2000.
- [4] A. K. Sarychev and V. M. Shalaev, "Field Distribution, Anderson localization, and optical phenomena in random metal-dielectric films," Chapter in: *Optics of Nanostructured Materials*, Eds: V.A. Markel and T.F. George, Wiley, 2001.
- [3] V.M. Shalaev, "Surface-Enhanced Optical Phenomena in Nanostructured Fractal Materials," Chapter in: *Handbook of Nanostructured Materials and Nanotechnology*, Volume 4: Optical Properties, Edited by H. S. Nalwa, Academic Press, 2000.
- [2] V. A. Markel and V. M. Shalaev, "Computational Approaches in Optics of Fractal Clusters," Chapter in *Computational Studies of New Materials*, edited by D.A. Jelski and T. F. George (World Scientific, Singapore, 1999).
- [1] V. M. Shalaev, V. P. Safonov, E.Y. Poliakov, V. A. Markel, and A. K. Sarychev, "Fractal Surface Enhanced Optical Nonlinearities", Chapter 8: *Nanostructured Materials: Clusters, Composites, and Thin Films*, Eds: V. M. Shalaev and M. Moskovits, ACS Symposium Series v. 679, ACS Books, 1997.

Serial Journal Articles*:

*) Note that for some papers only the first pages of articles are indicated

H-index is 116, as of January 5, 2023, according to Google Scholar): Over **800 publications, in total**, including over **400 research papers in refereed journals, one monograph and two co-authored books, 4 edited/co-edited books, 30 invited book chapters, 30 patents, and over 400 conference proceedings** and other publications; over **63,000 citations**, in total. Over **500 invited presentations at International Conferences and leading research centers**, including a number of plenary and keynote talks.

The OPTICS category in the ISI Web of Science contains 94 journals; over 50,000 research articles, conference proceedings and book chapters are published each year in this category. Out of roughly 800,000 publications in total in the optics category of the Web of Science from January 2005 to January 2022, five papers from the Shalaev group are among the top 100 most cited publications.

*For 6 consecutive years, listed as “**Highly Cited Researcher**” (multiple highly cited papers that rank in the top 1% by citations for field and year in Web of Science) by the 2017, 2018, 2019, 2020, 2021, and 2022 Clarivate Analytics Essential Science Indicators (ESI) - <https://recognition.webofsciencetagroup.com/awards/highly-cited/2022/> and <https://recognition.webofsciencetagroup.com/awards/highly-cited/2022/methodology/>)*

[407] X. Xu, A. Solanki, D. Sychev, X. Gao, S. Peana, A. S. Baburin, K. Pagadala, Z. O. Martin, S. N. Chowdhury, Y. P. Chen, I. A. Rodionov, A. V. Kildishev, T. Li, P. Upadhyaya, A. Boltasseva, V. M. Shalaev, “Greatly Enhanced Emission from Spin Defects in Hexagonal Boron Nitride Enabled by a Low-Loss Plasmonic Nano-Cavity,” *Nano Letters* (November 16, 2022)

[406] G. Tartakovsky, A. V. Sokolov, M. Ivanov, V. G. Arkipkin, S. A. Myslivets, B. Luk’yanchuk, A Boltasseva and Vladimir M. Shalaev, A tribute to the memory of professor Alexander K. Popov, *Nanophotonics* (2022); doi.org/10.1515/nanoph-2022-0655

[405] A. Senichev, S. Peana, Z. O. Martin, O. Yesilyurt, D. Sychev, A. S. Lagutchev, A. Boltasseva, V. M. Shalaev, “Silicon Nitride Waveguides with Intrinsic Single-Photon Emitters for Integrated Quantum Photonics,” *ACS Photonics* 2022 9 (10), 3357–3365 (September 13, 2022)

[404] S. Saha, M. Goksu Ozlu, S. N. Chowdhury, B. T. Diroll, R. D. Schaller, A. Kildishev, A. Boltasseva, V. M. Shalaev, “Tailoring the Thickness-Dependent Optical Properties of Conducting Nitrides and Oxides for Epsilon-Near-Zero-Enhanced Photonic Applications,” *Advanced Materials* doi.org/10.1002/adma.202109546 (August 2, 2022)

[403] A. Boltasseva, V. M. Shalaev, N. I. Zheludev, Mark Stockman, the knight of plasmonics, *Nature Photonics* 15 (5), 321-322 (May 2021)

[402] W. Jaffray, E. Carnemolla, C Dobas, F. Belli, M. Mackenzie, J. Travers, A. K. Kar, M. Clerici, C. DeVault, V. Shalaev, A. Boltasseva, M. Ferrera, “Near-zero-index ultra-fast pulse characterization,” *Nature Communications* 13 (1), 3536 (June 20, 2022)

[401] D. Shah, M. Yang, X. Xu, Z. A. Kudyshev, V. M. Shalaev, I. V. Bondarev, A. Boltasseva, “Thickness-Dependent Drude Plasma Frequency in Transdimensional Plasmonic TiN,” *Nano Letters* 22 (12), 4622–4629 (May 31, 2022)

[400] L. Mascaretti, A. Schirato, P. Fornasiero, A. Boltasseva, V. M. Shalaev, A. Alabastri, A. Naldoni, “Challenges and prospects of plasmonic metasurfaces for photothermal catalysis,” *Nanophotonics* doi.org/10.1515/nanoph-2022-0073 (May 23, 2022)

- [399] W. Jaffray, S. Saha, V.M. ShalaeV, A. Boltasseva, M. Ferrera, "Transparent conducting oxides: from all-dielectric plasmonics to a new paradigm in integrated photonics," *Advances in Optics and Photonics* 14 (2), 148-208 (June 30, 2022)
- [398] R. Yalavarthi, O. Yesilyurt, O. Henrotte, S. Kment, V. M. ShalaeV, A. Boltasseva, A. Naldoni, "Multimetallic Metasurfaces for Enhanced Electrocatalytic Oxidations in Direct Alcohol Fuel Cells," *Laser & Photonics Reviews* doi.org/10.1002/lpor.202200137 (April 28, 2022)
- [397] A. B. Solanki, S. I. Bogdanov, M. M. Rahman, A. Rustagi, N. R. Dilley, T. Shen, W. Tong, P. Debashis, Z. Chen, J. Appenzeller, Y. P. Chen, V. M. ShalaeV, P. Upadhyaya, Electric field control of interaction between magnons and quantum spin defects, *Phys. Rev. Research*, 4, L012025 – Published 23 February 2022
- [396] C. Fruhling M. G. Ozlu, S. Saha, A. Boltasseva, V. M. ShalaeV, "Understanding All-Optical Switching at Epsilon-Near-Zero: A Tutorial Review," *Applied Physics B* 128 (2), 1-12 (February 2022)
395. B. A. Wilson, Z. A. Kudyshev, A. V. Kildishev, S. Kais, V. M. ShalaeV, and Alexandra Boltasseva, "Machine Learning Framework for Quantum Sampling of Highly-Constrained, Continuous Optimization Problems," in review, *Applied Physics Reviews* 8, 041418, <https://doi.org/10.1063/5.0060481> (December 2021) (Highlighted in AIP SciLight)
394. Z. Kudyshev, A. Kildishev, V. ShalaeV, A. Boltasseva, "Optimizing Startshot lightsail design: a generative network-based approach," *ACS Photonics*, <https://doi.org/10.1021/acsp Photonics.1c01352> (published online December 2021)
393. R. Yalavarthi, L. Mascaretti, Z. Kudyshev, A. Dutta, S. Kalytchuk, R. Zbořil, P. Schmuki, V. ShalaeV, S. Kment, A. Boltasseva, A. Naldoni, "Enhancing Photoelectrochemical Energy Storage by Large-Area CdS-Coated Nickel Nanoantenna Arrays," *ACS Applied Energy Materials* 4 (10), 11367-11376 (October 2021)
392. Y. Wang, Q. Chen, W. Yang, Z. Ji, L. Jin, X. Ma, M. Song, A. Boltasseva, J. Han, V. ShalaeV, S. Xiao, "High-efficiency broadband achromatic metalens for near-IR biological imaging window," *Nature Communications*, 12 (1) 1-7 (September 2021)
391. B. T. Diroll, S. Saha, V. M. ShalaeV, A. Boltasseva, R. D. Schaller, "Broadband Ultrafast Dynamics of Refractory Metals: TiN and ZrN," *Advanced Optical Materials* 8 (19), 2000652 (October 2020) (acknowledgement correction 9 (15), 2101250 (August 2021))
390. S. Saha, A. Dutta, C. DeVault, B. T. Diroll, R. D. Schaller, Z. Kudyshev, X. Xu, A. Kildishev, V. M. ShalaeV, A. Boltasseva, "Extraordinarily Large Permittivity Modulation in Zinc Oxide for Dynamic Nanophotonics," *Materials Today* 43, 27-36 (published online 11/24/2020) (March 1, 2021)

389. A. Senichev, Z. O. Martin, S. Peana, D. Sychev, X. Xu, A. S. Lagutchev, A. Boltasseva, V. M. Shalaev, Room-temperature single-photon emitters in silicon nitride, *Science Advances*, v. 7, Issue 50 (2021); DOI: 10.1126/sciadv.abj0627
388. E. G. Carnemolla, W. Jaffray, M. Clerici, L. Caspani, D. Faccio, F. Biancalana, C. Devault, V. M. Shalaev, A. Boltasseva, and M. Ferrera, Visible photon generation via four-wave mixing in near-infrared near-zero-index thin films, *Optics Letters*, v. 46, pp. 5433-5436 (2021)
387. H. Reddy and V. M. Shalaev, Plasmonic hot-carriers and their applications: opinion, *Opt. Mat. Expr.*, v. 11, pp. 3827-3832 (2021)
386. X. Xu, Z. O. Martin, D. Sychev, A. S. Lagutchev, Y. P. Chen, T. Taniguchi, K. Watanabe, V. M. Shalaev, and A. Boltasseva, Creating Quantum Emitters in Hexagonal Boron Nitride Deterministically on Chip-Compatible Substrates, *Nano Lett.*, 21 (19), 8182-8189 (October 2021)
385. O. Yesilyurt, Zh. A. Kudyshev, A. Boltasseva, V. M. Shalaev, and A. V. Kildishev, Efficient Topology-Optimized Couplers for On-Chip Single-Photon Sources, *ACS Photonics*, 8, 10, 3061–3068 (October 2021)
384. A. Korobenko, S. Saha, A. T. K. Godfrey, M. Gertsvolf, A. Yu. Naumov, D. M. Villeneuve, A. Boltasseva, V. M. Shalaev, & P. B. Corkum, High-harmonic generation in metallic titanium nitride, *Nature Communications*, v. 12, Article number: 4981 (2021)
383. S. Saha, D. Shah, V. M. Shalaev and A. Boltasseva, Tunable Metasurfaces: Controlling Light in Space and Time, *Optics & Photonics News*, 32 (7), 34-41, July 1, July/August 2021
382. J. B. Khurgin, M. Noginov, and V. M. Shalaev, Reflections on Mark Stockman and his contributions to nanooptics: guest editorial, *Optical Materials Express*, v. 11, pp. 1575-82 (2021)
381. J. Aizpurua, H. A. Atwater, J. J. Baumberg, S. I. Bozhevolnyi, M. L. Brongersma, J. A. Dionne, H. Giessen, N. Halas, Y. Kivshar, M. F. Kling, F. Krausz, S. Maier, S. V. Makarov, M. Mikkelsen, M. Moskovits, P. Norlander, T. Odom, A. Polman, C. W. Qiu, M. Segev, V. M. Shalaev, P. Törmä, D. Ping Tsai, E. Verhagen, A. Zayats, X. Zhang, N. I. Zheludev, Mark Stockman: Evangelist for Plasmonics, *ACS Photonics*, v.8, pp.683–698 (2021); <https://doi.org/10.1021/acsp Photonics.1c00299>
380. S. I. Azzam, K. Chaudhuri, A. Lagutchev, Z. Jacob, Y. L. Kim, V. M. Shalaev, A. Boltasseva, A. V. Kildishev Single and Multi-Mode Directional

Lasing from Arrays of Dielectric Nanoresonators, *Laser Photonics Reviews*, 15 (3), 2000411 (March 2021)

379. M. Song, D. Wang, Z. A. Kudyshev, Y. Xuan, Z. Wang, A. Boltasseva, V. M. Shalaev, A. V. Kildishev, “Enabling optical steganography, data storage, and encryption with plasmonic colors,” *Laser Photonics Reviews*, 15 (3), 2000343 (March 2021)

378. Z. A. Kudyshev, V. M. Shalaev, A. Boltasseva, “Machine learning for integrated quantum photonics,” *ASC Photonics*
<https://doi.org/10.1021/acsp Photonics.0c00960> (published online 12/24/2020)

377. A. H. Chu, B. Beauchamp, D. Shah, A. Boltasseva, V. M. Shalaev, E. E. Marinero, “Hybrid magneto photonic material structure for plasmon assisted magnetic switching,” *Optical Materials Express* 10 (12), 3107-3118, (December 1, 2020)

376. Z. A. Kudyshev, A. V. Kildishev, V. M. Shalaev, and A. Boltasseva, “Machine learning–assisted global optimization of photonic devices,” *Nanophotonics* (2020) (published online October 28, 2020)

375. C.-C. Chiang, S. I. Bogdanov, O. A. Makarova, X. Xu, S. Saha, D. Shah, D. Wang, A. S. Lagutchev, A. V. Kildishev, A. Boltasseva, V. M. Shalaev, “Chip-compatible quantum plasmonic launcher,” *Advanced Optical Materials* 8 (20) 2000889 (October 2020)

374. K. C. Maurya, V. M. Shalaev, A. Boltasseva, B. Saha, "Reduced Optical Losses in Refractory Plasmonic Titanium Nitride Thin Films Deposited with Molecular Beam Epitaxy," *Optical Materials Express* 10 (10) 2679-2692 (October 1, 2020)

373. Z. A. Kudyshev, S. I. Bogdanov, T. Isacsson, A. V. Kildishev, A. Boltasseva, V. M. Shalaev, “Rapid Classification of Quantum Sources Enabled by Machine Learning,” *Advanced Quantum Technologies* 3 (10) 2000067 (October 2020)

372. S. N. Chowdhury, P. Nyga, Z. A. Kudyshev, E. G. Bravo, A. S. Lagutchev, A. V. Kildishev, V. M. Shalaev, A. Boltasseva, “Lithography-free plasmonic color printing with femtosecond laser on semicontinuous silver films,” *ACS Photonics* (published online September 8, 2020)

371. Z. Wang, S. I. Azzam, X. Meng, M. Alhabeab, K. Chaudhuri, K. Maleski, Y. L. Kim, A. V. Kildishev, V. M. Shalaev, Y. Gogotsi, A. Boltasseva, “Dynamically controlled random lasing with colloidal titanium carbide MXene,” *Optical Materials Express* 10 (9) 2304-2321 (September 1, 2020)

370. M. Y. Shalaginov, S. I. Bogdanov, A. S. Lagutchev, A. V. Kildishev, A. Boltasseva, V. M. Shalaev, "On-Chip Single-Layer Integration of Diamond Spins with Microwave and Plasmonic Channels," *ACS Photonics* 7 (8) 2018-2026 (July 20, 2020)
369. Z. A. Kudyshev, A. V. Kildishev, V. M. Shalaev, and A. Boltasseva, "Machine-Learning-Assisted Metasurface Design for High-Efficiency Thermal Emitter Optimization," *Applied Physics Reviews* 7(2) 021407 (2020) (**APR Featured Article**)
368. H. Reddy, K. Wang, Z. Kudyshev, L. Zhu, S. Yan, A. Vezzoli, S. J. Higgins, V. Gavini, A. Boltasseva, P. Reddy, V. M. Shalaev, E. Meyhofer, "Determining plasmonic hot-carrier energy distributions via single-molecule transport measurements," *Science* DOI: 10.1126/science.abb3457 (published online June 4, 2020)
367. M. Gioti, I. Arvanitidis, D. Christofilos, K. Chaudhuri, T. Zorba, G. Abadias, D. Gall, V. Shalaev, A. Boltasseva, P. Patsalas, "Plasmonic and Phononic Properties of Epitaxial Conductive Transition Metal Nitrides," *Journal of Optics* (published in "Accepted manuscripts" on May 29, 2020)
366. S.I. Bogdanov, O.A. Makarova, X. Xu, A.S. Lagutchev, D. Shah, A.S. Baburin, I.A. Ryzhikov, I.A. Rodionov, S.I. Bozhevolnyi, A.V. Kildishev, A. Boltasseva, V.M. Shalaev and J. B. Khurgin, "Ultrafast quantum photonics enabled by coupling plasmonic nanocavities to strongly radiative antennas," *Optica* 7(5) 463-469 (May 20, 2020)
365. X. Xu, A. Dutta, J. Khurgin, A. Wei, V. M. Shalaev, A. Boltasseva, "Plasmonic Photosensitizers: TiN@TiO₂ Core-Shell Nanoparticles as Plasmon-Enhanced Photosensitizers: The Role of Hot Electron Injection," *Laser & Photonics Reviews* 14(5) 1900376 (May 2020)
364. Al. Naldoni, Z. A. Kudyshev, L. Mascaretti, S. P. Sarmah, S. Rej, J. P. Froning, O. Tomanec, J. E. Yoo, D. Wang, S. Kment, T. Montini, P. Fornasiero, V. M. Shalaev, P. Schmuki, A. Boltasseva, R. Zbořil, "Solar thermoplasmonic nanofurnace for high temperature heterogeneous catalysis," *Nano Letters* 20(5) 3663-3672 (April 22, 2020)
363. D. Shah, Z. A. Kudyshev, S. Saha, V. M. Shalaev, A. Boltasseva, "Transdimensional material platforms for tunable metasurface design," *MRS Bulletin* 45(3) 188-195 (March 2020)
362. D. Wang, A. E. Llacsahuanga Allcca, T.-F. Chung, A.V. Kildishev, Y. P. Chen, A. Boltasseva, V. M. Shalaev, "Enhancing graphene photocurrent using surface plasmons and p-n junction," *Light: Science and Applications* 9(1) 1-10 (July 20, 2020)

361. J. B. Khurgin, M. Clerici, V. Bruno, L. Caspani, C. DeVault, J. Kim, A. Shaltout, A. Boltasseva, V. M. Shalaev, M. Ferrera, D. Faccio, N. Kinsey, “Adiabatic frequency shifting in epsilon-near-zero materials: the role of group velocity,” *Optica* 7 (2), 2334-2536 (2020)
360. V. Bruno, S. Vezzoli, C. DeVault, E. Carnemolla, M. Ferrera, A. Boltasseva, V. M. Shalaev, D. Faccio, M. Clerici, “Broad frequency shift of parametric processes in Epsilon-Near-Zero time-varying media,” *MDPI Applied Science* 10 (1318) (2020)
359. S. Saha, B. T. Diroll, J. Shank, Z. Kudyshev, A. Dutta, S. N. Chowdhury, T. S. Luk, S. Campione, R. D. Schaller, V. M. Shalaev, A. Boltasseva, M. G. Wood, “Broadband, High-Speed, and Large-Amplitude Dynamic Optical Switching with Yttrium-Doped Cadmium Oxide,” *Advanced Functional Materials* 30(7) 1908377 (February, 2020)
358. V. Bruno, C. DeVault, S. Vezzoli, D. Shah, S. Maier, A. Jacassi, S. Minguzzi, T. Huq, Z. Kudyshev, S. Saha, A. Boltasseva, M. Ferrera, M. Clerici, D. Faccio, R. Sapienza, V. Shalaev, “Negative refraction in time-varying, strongly coupled plasmonic antenna-ENZ systems,” *Physical Review Letters*, 124 (4), 043902 (January 30, 2020); (**PRL Editors' Suggestion**)
357. V. Bruno, S. Vezzoli, C. DeVault, T. Roger, M. Ferrera, A. Boltasseva, V.M. Shalaev, D. Faccio, Dynamical Control of Broadband Coherent Absorption in ENZ Films, *MDPI Micromachines*, v. 11, p. 110 (2020)
356. I. V. Bondarev, H. Mousavi, V. M. Shalaev, Transdimensional epsilon-near-zero modes in planar plasmonic nanostructures, *PHYSICAL REVIEW RESEARCH* v. 2, p. 013070 (2020)
354. Krishnakali Chaudhuri, Urcan Guler, Shaimaa Azzam, Harsha Reddy, Soham Saha, Ernesto Marinero, Alexander V Kildishev, Vladimir M Shalaev, Alexandra Boltasseva, “Remote Sensing of High Temperatures with Refractory, Direct-Contact Optical Metacavity”, *ACS Photonics* (2020).
353. Zhiguang Zhou, Hao Tian, Thomas M Hymel, Harsha Reddy, Vladimir M Shalaev, Yi Cui, Peter Bermel, “High-temperature, spectrally-selective, scalable, and flexible thin-film Si absorber and emitter”, *Optical Materials Express* 10, no. 1, pp. 208-221 (2020).
352. A.M. Shaltout, V.M. Shalaev, M.L. Brongersma, Spatiotemporal light control with active metasurfaces, *Science* 364, eaat3100 (2019). DOI: 10.1126/science.aat3100

352. Maowen Song, Di Wang, Samuel Peana, Sajid Choudhury, Piotr Nyga, Zhaxylyk A Kudyshev, Honglin Yu, Alexandra Boltasseva, Vladimir M Shalaev, Alexander V Kildishev, “Colors with plasmonic nanostructures: A full-spectrum review”, *Applied Physics Reviews* 6, no. 4, (2019).
351. A. Dutta, A. Naldoni, F. Malara, A.O. Govorov, V.M. Shalaev and A. Boltasseva, Gap-plasmon enhanced water splitting with ultrathin hematite films: the role of plasmonic-based light trapping and hot electrons, *Faraday Discussions*, v. 214, pp. 283-295 (2019)
350. A. Dutta, D. Wan, B. Yan, V. M. Shalaev, T. Venkatesan, A. Boltasseva, Strontium Niobate for Near-Infrared Plasmonics, *Advanced Optical Materials*, published: 01 July 2019; <https://doi.org/10.1002/adom.201900401>
349. Soham Saha, Benjamin T Diroll, Joshua Shank, Zhaxylyk Kudyshev, Aveek Dutta, Sarah Nahar Chowdhury, Ting Shan Luk, Salvatore Campione, Richard D Schaller, Vladimir M Shalaev, Alexandra Boltasseva, Michael G Wood, “Broadband, High-Speed, and Large-Amplitude Dynamic Optical Switching with Yttrium-Doped Cadmium Oxide”, *Advanced Functional Materials* (2019).
348. N.A. Saveskul, N.A. Titova, E.M. Baeva, A.V. Semenov, A.V. Lubenchenko, S. Saha, H. Reddy, S.I. Bogdanov, E.E. Marinero, V.M. Shalaev, A. Boltasseva, V.S. Khrapai, A.I. Kardakova, and G.N. Goltsman, Superconductivity Behavior in Epitaxial TiN Films Points to Surface Magnetic Disorder, *Phys. Rev. Applied* 12, 054001 (2019).
347. Heather George, Jennifer Reed, Manuel Ferdinandus, Clayton DeVault, Alexei Lagutchev, Augustine Urbas, Theodore B Norris, Vladimir M Shalaev, Alexandra Boltasseva, Nathaniel Kinsey, “Nonlinearities and carrier dynamics in refractory plasmonic TiN thin films”, *Optical Materials Express* v. 9, pp. 3911-3924 (2019).
346. Nathaniel Kinsey, Clayton DeVault, Alexandra Boltasseva, Vladimir M Shalaev, “Near-zero-index materials for photonics”, *Nature Reviews Materials*, v. 4, pp. 742–760 (2019).
345. Zhaxylyk A. Kudyshev, Alexander V Kildishev, Alexandra Boltasseva, Vladimir M. Shalaev, “Tuning Topology of Photonic Systems with Transparent Conducting Oxides”, *ACS Photonics* 6, no. 8 (2019).
344. Amr M Shaltout, Konstantinos G Lagoudakis, Jorik van de Groep, Soo Jin Kim, Jelena Vučković, Vladimir M Shalaev, Mark L Brongersma, “Spatiotemporal light control with frequency-gradient metasurfaces”, *Science* 365, no. 6451, pp. 374-377 (2019).

343. Oscar Quevedo-Teruel, Hongsheng Chen, Ana Díaz-Rubio, Gurkan Gok, Anthony Grbic, Gabriele Minatti, Enrica Martini, Stefano Maci, George V Eleftheriades, Michael Chen, Nikolay I Zheludev, Nikitas Papasimakis, Sajid Choudhury, Zhaxylyk A Kudyshev, Soham Saha, Harsha Reddy, Alexandra Boltasseva, Vladimir M Shalaev, Alexander V Kildishev, Daniel Sievenpiper, Christophe Caloz, Andrea Alù, Qiong He, Lei Zhou, Guido Valerio, Eva Rajo-Iglesias, Zvonimir Sipus, Francisco Mesa, Raul Rodríguez-Berral, Francisco Medina, Victor Asadchy, Sergei Tretyakov, Christophe Craeye, “Roadmap on Metasurfaces”, *Journal of Optics* 21, no. 7 (2019).
342. Di Wang, Yee Rui Koh, Zhaxylyk A Kudyshev, Kerry Maize, Alexander V Kildishev, Alexandra Boltasseva, Vladimir M Shalaev, Ali Shakouri, “Spatial and Temporal Nanoscale Plasmonic Heating Quantified by Thermoreflectance”, *Nano Letters* 19, no. 6 (2019).
341. Simeon I. Bogdanov, Alexandra Boltasseva, Vladimir M. Shalaev, “Overcoming quantum decoherence with plasmonics”, *Science*, v. 364, no. 6440 (2019).
340. Stavroula Foteinopoulou, Nicolae C. Panoiu, Vladimir M. Shalaev, Ganapathi S. Subramania, Feature issue introduction: Beyond Thin Films: Photonics with Ultrathin and Atomically Thin Materials, *Optical Materials Express* 9, no. 5 (2019).
339. Zhaxylyk A. Kudyshev, Alexander V. Kildishev, Alexandra Boltasseva, Vladimir M. Shalaev, “Photonic topological phase transition on demand”, *Nanophotonics* 8, (2019).
338. Piotr Nyga, Sarah N Chowdhury, Zhaxylyk Kudyshev, Mark D Thoreson, Alexander V Kildishev, Vladimir M Shalaev, Alexandra Boltasseva, “Laser-induced color printing on semicontinuous silver films: red, green and blue”, *Optical Materials Express* 9, 1528-1538 (2019).
337. Luca Mascaretti, Aveek Dutta, Štěpán Kment, Vladimir M Shalaev, Alexandra Boltasseva, Radek Zbořil, Alberto Naldoni, “Plasmon-Enhanced Photoelectrochemical Water Splitting for Efficient Renewable Energy Storage”, *Advanced Materials* 31, no. 31 (2019).
336. Maowen Song, Zhaxylyk A Kudyshev, Honglin Yu, Alexandra Boltasseva, Vladimir M Shalaev, Alexander V Kildishev, “Achieving full-color generation with polarization-tunable perfect light absorption”, *Optical Materials Express* 9, no. 2 (2019).
335. Alexandra Boltasseva, Vladimir M. Shalaev, “Transdimensional Photonics”, *ACS Photonics* 6, no. 1 (2019).
334. Shaimaa I Azzam, Jieran Fang, Jingjing Liu, Zhuoxian Wang, Nikita Arnold, Thomas A Klar, Ludmila J Prokopenva, Xiangeng Meng, Vladimir M

ShalaeV, Alexander V Kildishev, "Exploring Time-Resolved Multiphysics of Active Plasmonic Systems with Experiment-Based Gain Models", *Laser & Photonics Reviews* 13, no. 1 (2019).

333. Simeon I. Bogdanov, Alexei S. Lagutchev, Chin-Cheng Chiang, Deesha Shah, Alexander V. Kildishev, Alexandra Boltasseva, Mikhail Y. Shalaginov, Aleksandr S. Baburin, Ilya A. Rodionov, Ilya A. Ryzhikov, Vladimir M. ShalaeV, 30 Million Single Photons Per Second — At Room Temperature, *Optics & Photonics News*, December 2018, p. 46

332. Alberto Naldoni, Francesca Riboni, Urcan Guler, Alexandra Boltasseva, Vladimir M. ShalaeV and Alexander V. Kildishev, "Solar-Powered Plasmon-Enhanced Heterogeneous Catalysis", *ENERGYO* (De Gruyter, 2018), doi:10.1515/energyo.0065.00005.

331. Krishnakali Chaudhuri, Mohamed AlhabeB, Zhuoxian Wang, Vladimir M. ShalaeV, Yury Gogotsi and Alexandra Boltasseva, "Highly Broadband Absorber Using Plasmonic Titanium Carbide (MXene)", *ACS Photonics* 5, no.3 (2018): 1115-1122, ISSN 2330-4022, doi:10.1021/acsp Photonics.7b01439.

330. Amr M. Shaltout, Jongbum Kim, Alexandra Boltasseva, Vladimir M. ShalaeV and Alexander V. Kildishev, "Ultrathin and multicolour optical cavities with embedded metasurfaces", *Nature Communications* 9, no.1 (2018), ISSN 2041-1723, doi:10.1038/s41467-018-05034-6.

329. Jongbum Kim, Enrico G. Carnemolla, Clayton DeVault, Amr M. Shaltout, Daniele Faccio, Vladimir M. ShalaeV, Alexander V. Kildishev, Marcello Ferrera and Alexandra Boltasseva, "Dynamic Control of Nanocavities with Tunable Metal Oxides", *Nano Letters* 18, no.2 (2018): 740-746, ISSN 1530-6984, doi:10.1021/acs.nanolett.7b03919.

328. Sebastian K. H. Andersen, Simeon Bogdanov, Oksana Makarova, Yi Xuan, Mikhail Y. Shalaginov, Alexandra Boltasseva, Sergey I. Bozhevolnyi and Vladimir M. ShalaeV, "Hybrid Plasmonic Bullseye Antennas for Efficient Photon Collection", *ACS Photonics* 5, no.3 (2018): 692-698, ISSN 2330-4022, doi:10.1021/acsp Photonics.7b01194.

327. Mark I Stockman, Katrin Kneipp, Sergey I Bozhevolnyi, Soham Saha, Aveek Dutta, Justus Ndukaife, Nathaniel Kinsey, Harsha Reddy, Urcan Guler, Vladimir M ShalaeV, Alexandra Boltasseva, Behrad Gholipour, Harish N S Krishnamoorthy, Kevin F MacDonald, Cesare Soci, Nikolay I Zheludev, Vassili Savinov, Ranjan Singh, Petra GroB, Christoph Lienau, Michal Vadai, Michelle L Solomon, David R Barton, Mark Lawrence, Jennifer A Dionne, Svetlana V Boriskina, Ruben Esteban, Javier Aizpurua, Xiang Zhang, Sui Yang, Danqing Wang, Weijia Wang, Teri W Odom, Nicolò Accanto, Pablo M de Roque, Ion M Hancu, Lukasz Piatkowski, Niek F van Hulst and Matthias F Kling, "Roadmap

on plasmonics", *Journal of Optics* 20, no.4 (2018): 43001, ISSN 2040-8978, doi:10.1088/2040-8986/aaa114.

326. Meredith Henstridge, Carl Pfeiffer, Di Wang, Alexandra Boltasseva, Vladimir M. Shalaev, Anthony Grbic and Roberto Merlin, "Accelerating light with metasurfaces", *Optica* 5, no.6 (2018): 678, ISSN 2334-2536, doi:10.1364/optica.5.000678.

325. Deesha Shah, Alessandra Catellani, Harsha Reddy, Nathaniel Kinsey, Vladimir Shalaev, Alexandra Boltasseva and Arrigo Calzolari, "Controlling the Plasmonic Properties of Ultrathin TiN Films at the Atomic Level", *ACS Photonics* 5, no.7 (2018): 2816-2824, ISSN 2330-4022, doi:10.1021/acsp Photonics.7b01553.

324. Justus C. Ndukaike, Yi Xuan, Agbai George Agwu Nnanna, Alexander V. Kildishev, Vladimir M. Shalaev, Steven T. Wereley and Alexandra Boltasseva, "High-Resolution Large-Ensemble Nanoparticle Trapping with Multifunctional Thermoplasmonic Nanohole Metasurface", *ACS Nano* 12, no.6 (2018): 5376-5384, ISSN 1936-0851, doi:10.1021/acsnano.8b00318.

323. Simeon I. Bogdanov, Mikhail Y. Shalaginov, Alexei S. Lagutchev, Chin-Cheng Chiang, Deesha Shah, Alexandr S. Baburin, Ilya A. Ryzhikov, Ilya A. Rodionov, Alexander V. Kildishev, Alexandra Boltasseva and Vladimir M. Shalaev, "Ultrabright Room-Temperature Sub-Nanosecond Emission from Single Nitrogen-Vacancy Centers Coupled to Nanopatch Antennas", *Nano Letters* 18, no.8 (2018): 4837-4844, ISSN 1530-6984, doi:10.1021/acs.nanolett.8b01415.

322. Igor V. Bondarev, Hamze Mousavi and Vladimir M. Shalaev, "Optical response of finite-thickness ultrathin plasmonic films", *MRS Communications* 8, no.3 (2018): 1092-1097, ISSN 2159-6859, doi:10.1557/mrc.2018.153.

321. Jaewon Lee, Sung Duk Jo, Haejun Chung, Wooram Um, Rohith Chandrasekar, Yun Hwa Choi, Vladimir M. Shalaev and You-Yeon Won, "Laser-Induced CO₂ Generation from Gold Nanorod-Containing Poly(propylene carbonate)-Based Block Polymer Micelles for Ultrasound Contrast Enhancement", *ACS Applied Materials & Interfaces* 10, no.31 (2018): 26084-26098, ISSN 1944-8244, doi:10.1021/acsaami.8b09630.

320. Sajid M. Choudhury, Di Wang, Krishnakali Chaudhuri, Clayton DeVault, Alexander V. Kildishev, Alexandra Boltasseva and Vladimir M. Shalaev, "Material platforms for optical metasurfaces", *Nanophotonics* 7, no.6 (2018): 959-987, ISSN 2192-8614, doi:10.1515/nanoph-2017-0130.

319. Soham Saha, Aveek Dutta, Nathaniel Kinsey, Alexander V. Kildishev, Vladimir M. Shalaev and Alexandra Boltasseva, "On-Chip Hybrid Photonic-Plasmonic Waveguides with Ultrathin Titanium Nitride Films", *ACS Photonics*

5, no.11 (2018): 4423-4431, ISSN 2330-4022, doi:10.1021/acsp Photonics.8b00885.

318. Shaimaa I. Azzam, Vladimir M. Shalaev, Alexandra Boltasseva and Alexander V. Kildishev, "Formation of Bound States in the Continuum in Hybrid Plasmonic-Photonic Systems", *Physical Review Letters* 121, no.25 (2018), ISSN 0031-9007, doi:10.1103/physrevlett.121.253901.

317. Krishnakali Chaudhuri, Amr Shaltout, Deesha Shah, Urcan Guler, Aveek Dutta, Vladimir M. Shalaev and Alexandra Boltasseva, "Photonic Spin Hall Effect in Robust Phase Gradient Metasurfaces Utilizing Transition Metal Nitrides", *ACS Photonics* (2018), ISSN 2330-4022, doi:10.1021/acsp Photonics.8b00943.

316. M. Henstridge, C. Pfeiffer, D. Wang, A. Boltasseva, V. M. Shalaev, A. Grbic and R. Merlin, "Synchrotron radiation from an accelerating light pulse", *Science* 362, no.6413 (2018): 439-442, ISSN 0036-8075, doi:10.1126/science.aat5915.

315. Clayton T. DeVault, Vladimir A. Zenin, Anders Pors, Krishnakali Chaudhuri, Jongbum Kim, Alexandra Boltasseva, Vladimir M. Shalaev and Sergey I. Bozhevolnyi, "Suppression of near-field coupling in plasmonic antennas on epsilon-near-zero substrates", *Optica* 5, no.12 (2018): 1557, ISSN 2334-2536, doi:10.1364/optica.5.001557.

314. Mingzhu Li, Urcan Guler, Yanan Li, Anthony Rea, Ekembu K. Tanyi, Yoonseob Kim, Mikhail A. Noginov, Yanlin Song, Alexandra Boltasseva, Vladimir M. Shalaev and Nicholas A. Kotov, "Plasmonic Biomimetic Nanocomposite with Spontaneous Subwavelength Structuring as Broadband Absorbers", *ACS Energy Letters* 3, no.7 (2018): 1578-1583, ISSN 2380-8195, doi:10.1021/acsenergylett.8b00583.

313. Shaimaa I. Azzam, Jieran Fang, Jingjing Liu, Zhuoxian Wang, Nikita Arnold, Thomas A. Klar, Ludmila J. Prokopenko, Xiangeng Meng, Vladimir M. Shalaev and Alexander V. Kildishev, "Exploring Time-Resolved Multiphysics of Active Plasmonic Systems with Experiment-Based Gain Models", *Laser & Photonics Reviews* (2018): 1800071, ISSN 1863-8880, doi:10.1002/lpor.201800071.

312. Enrico Giuseppe Carnemolla, Lucia Caspani, Clayton DeVault, Matteo Clerici, Stefano Vezzoli, Vincenzo Bruno, Vladimir M. Shalaev, Daniele Faccio, Alexandra Boltasseva and Marcello Ferrera, "Degenerate optical nonlinear enhancement in epsilon-near-zero transparent conducting oxides", *Optical Materials Express* 8, no.11 (2018): 3392, ISSN 2159-3930, doi:10.1364/ome.8.003392.

311. C. Haffner, D. Chelladurai, Y. Fedoryshyn, A. Josten, B. Baeuerle, W. Heni, T. Watanabe, T. Cui, B. Cheng, S. Saha, D. L. Elder, L. R. Dalton, A.

Boltasseva, V. M. Shalaev, N. Kinsey, and J. Leuthold, Low loss plasmonic ring modulator, *Nature* v. 556, pp. 483–486 (2018)

310. S. Vezzoli, V. Bruno, C. DeVault, T. Roger, V. M. Shalaev, A. Boltasseva, M. Ferrera, M. Clerici, A. Dubietis, and D. Faccio, Optical Time Reversal from Time-Dependent Epsilon-Near-Zero Media, *Phys. Rev. Lett* 120, no.4 (2018), ISSN 0031-9007, doi:10.1103/physrevlett.120.043902

309. Alberto Naldoni, Vladimir M. Shalaev, Mark L. Brongersma, Applying plasmonics to a sustainable future, *Science*, Vol. 356, Issue 6341, pp. 908-909 (2017); DOI: 10.1126/science.aan5802

308. M. Clerici, N. Kinsey, C. DeVault, J. Kim, E. G. Carnemolla, L. Caspani, A. Shaltout, D. Faccio, V. Shalaev, A. Boltasseva & M. Ferrera, Controlling hybrid nonlinearities in transparent conducting oxides via two-colour excitation, *Nature Communications*, published online: 09 June 2017; doi:10.1038/ncomms15829

307. Harsha Reddy, Urcan Guler, Zhaxylyk Kudyshev, Alexander V. Kildishev, Vladimir M. Shalaev, and Alexandra Boltasseva, Temperature-Dependent Optical Properties of Plasmonic Titanium Nitride Thin Films, *ACS Photonics*, published online on April 28, 2017; DOI: 10.1021/acsp Photonics.7b00127

306. Vladimir A. Zenin, Sajid Choudhury, Soham Saha, Vladimir M. Shalaev, Alexandra Boltasseva, and Sergey I. Bozhevolnyi, Hybrid plasmonic waveguides formed by metal coating of dielectric ridges, *Optics Express*, Vol. 25, Issue 11, pp. 12295-12302 (2017); <https://doi.org/10.1364/OE.25.012295>

305. Deesha Shah, Harsha Reddy, Nathaniel Kinsey, Vladimir M. Shalaev, Alexandra Boltasseva, Optical Properties of Plasmonic Ultrathin TiN Films, *Advanced Optical Materials*, published online 26 May 2017; DOI: 10.1002/adom.201700065

304. 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)

303. O. A. Makarova, M. Y. Shalaginov, S. Bogdanov, A. V. Kildishev, A. Boltasseva, and V. M. Shalaev, Patterned multilayer metamaterial for fast and efficient photon collection from dipolar emitters, *Optics Letters*, Vol. 42, Issue 19, pp. 3968-3971 (2017), <https://doi.org/10.1364/OL.42.003968>

302. Aavek Dutta, Alexander V. Kildishev, Vladimir M. Shalaev, Alexandra Boltasseva, and Ernesto E. Marinero, Surface-plasmon opto-magnetic field enhancement for all-optical magnetization switching, *Opt. Mater. Express* 7(12), 4316-4327 (2017)

301. Vladimir P. Drachev, Alexander V. Kildishev, Joshua D. Borneman, Kuo-Ping Chen, Vladimir M. Shalaev, Konstantin Yamnitskiy, Robert A. Norwood, Nasser Peyghambarian, Seth R. Marder, Lazaro A. Padilha, Scott Webster, Trenton R. Ensley, David J. Hagan and Eric W. Van Stryland, "Engineered nonlinear materials using gold nanoantenna array", *Scientific Reports* 8, no.1 (Springer Nature, 2018), ISSN 2045-2322, doi:10.1038/s41598-017-19066-3.

300. Zhuoxian Wang, Xiangeng Meng, Alexander V. Kildishev, Alexandra Boltasseva, and Vladimir M. Shalaev, Nanolasers Enabled by Metallic Nanoparticles: From Spasers to Random Lasers, *Laser Photonics Rev.* 2017, 1700212; DOI: 10.1002/lpor.201700212

299. I. V Bondarev, VM Shalaev, Universal features of the optical properties of ultrathin plasmonic films, *Optical Materials Express* 7 (10), 3731-3740 (2017)

298. Rohith Chandrasekar, Zhuoxian Wang, Xiangeng Meng, Shaimaa I. Azzam, Mikhail Y. Shalaginov, Alexei Lagutchev, Young L. Kim, Alexander Wei, Alexander V. Kildishev, Alexandra Boltasseva, and Vladimir M. Shalaev, Lasing Action with Gold Nanorod Hyperbolic Metamaterials, *ACS Photonics*, Article ASAP, DOI: 10.1021/acsp Photonics.7b00010, Publication Date (Web): February 16, 2017

297. H Reddy, U Guler, K Chaudhuri, A Dutta, AV Kildishev, VM Shalaev, Temperature-dependent optical properties of single crystalline and polycrystalline silver thin films, *ACS Photonics* (2017) *ACS Photonics*, published online on April 10, 2017; DOI: 10.1021/acsp Photonics.6b00886

296. H Tian, Z Zhou, T Liu, C Karina, U Guler, V Shalaev, P Bermel, High temperature efficient, stable Si wafer-based selective solar absorbers, *Applied Physics Letters* 110 (14), 141101 (2017); doi: <http://dx.doi.org/10.1063/1.4979510>

295. S. Choudhury, U. Guler, A. Shaltout, V. M. Shalaev, A. V. Kildishev, A. Boltasseva, Pancharatnam–Berry Phase Manipulating Metasurface for Visible Color Hologram Based on Low Loss Silver Thin Film, *Advanced Optical Materials*, 1700196 (2017); 24 Apr 2017; DOI: 10.1002/adom.201700196

294. U. Guler, D. Zemlyanov, J. Kim, Z. Wang, R. Chandrasekar, X. Meng, E. Stach, A. V Kildishev, V. M Shalaev, A. Boltasseva, Plasmonic Titanium Nitride Nanostructures via Nitridation of Nanopatterned Titanium Dioxide, *Advanced Optical Materials*, 5, 1600717 (2017); published online 30 January 2017, DOI: 10.1002/adom.201600717; (highlighted on the back cover of issue 7; featured in *Advance Science News*, April 16, 2017)

293. Z. Zhang, F. Zuo, C. Wan, A. Dutta, J. Kim, J. Rensberg, R. Nawrodt, H. Park, T.J Larrabee, X. Guan, Y. Zhou, SM Prokes, C. Ronning, V.M. Shalaev, A. Boltasseva, M. A Kats, S. Ramanathan, Evolution of Metallicity in Vanadium

Dioxide by Creation of Oxygen Vacancies, *Phys. Rev. Applied* 7, 034008, (2017); DOI: <https://doi.org/10.1103/PhysRevApplied.7.034008>

292. C. Zhang, N. Kinsey, L. Chen, C. Ji, M. Xu, M. Ferrera, X. Pan, V. M. Shalaev, A. Boltasseva, and L. Jay Guo, High-Performance Doped Silver Films: Overcoming Fundamental Material Limits for Nanophotonic Applications, *Adv. Mater.*, 1605177 (2017); published online: 20 March 2017; DOI: 10.1002/adma.201605177

291. A. Naldoni, U. Guler, Z. Wang, M. Marelli, F. Malara, X. Meng, L.V. Besteiro, A.O. Govorov, A.V. Kildishev, A. Boltasseva, V.M. Shalaev, Broadband Hot Electron Collection for Solar Water Splitting with Plasmonic Titanium Nitride, *Advanced Optical Materials*, 1601031 (2017); published: February 2017, DOI: 10.1002/adom.201601031; (among *Advanced Optical Materials* TOP 5 most downloaded articles, April 2017)

290. M. Ferrera, N. Kinsey, A. Shaltout, C. DeVault, V. Shalaev, and A. Boltasseva, Dynamic nanophotonics, *J. Opt. Soc. Am. B - Centennial Anniversary* 34 (1), 95-103 (January 1, 2017) (Invited)

289. V. V. Vorobyov, A.Y. Kazakov, V.V. Soshenko, A.A. Korneev, M.Y. Shalaginov, S.V. Bolshedvorskii, V.N. Sorokin, A.V. Divochiy, Y.B. Vakhtomin, K.V. Smirnov, B.M. Voronov, V.M. Shalaev, A.V. Akimov, and G.N. Goltsman, Superconducting detector for visible and near-infrared quantum emitters [Invited], *Optical Materials Express* Vol. 7, Issue 2, pp. 513-526 (2017)

288. S. Bogdanov, M. Y. Shalaginov, A. Boltasseva, and V. M. Shalaev, Material platforms for integrated quantum photonics, *Opt. Mater. Express*, Vol. 7, Issue 1, pp. 111-132 (2017)

287. A.M. Shaltout, N. Kinsey, J. Kim, R. Chandrasekar, J.C. Ndukaife, A. Boltasseva, V. M. Shalaev, Development of Optical Metasurfaces: Emerging Concepts and New Materials, *Proceedings of the IEEE*, Vol. 104, No. 12, pp. 2870-87 (2016)

286. Jieran Fang, Di Wang, Clayton T. DeVault, Ting-Fung Chung, Yong P. Chen, Alexandra Boltasseva, Vladimir M. Shalaev, and Alexander V. Kildishev, Enhanced Graphene Photodetector with Fractal Metasurface, *Nano Lett.*, Article ASAP, Publication Date (Web): December 14, 2016; DOI: 10.1021/acs.nanolett.6b03202

285. J. Kim, S. Choudhury, C. DeVault, Y. Zhao, A.Kildishev, V.M.Shalaev, A. Alu, A. Boltasseva, Controlling the Polarization State of Light with Plasmonic Metal Oxide Metasurface, *ACS Nano*,10 (10), pp 9326–9333 2016

284. Z. Wang, X. Meng, S.H. Choi, S. Knitter, Y.Kim, H. Cao, V.M.Shalaev, A. Boltasseva, Controlling Random Lasing with Three-Dimensional Plasmonic Nanorod Metamaterials, *Nano Lett.*, 2016, 16 (4), pp 2471–2477

283. A. Shaltout, A Kildishev, V Shalaev, Evolution of photonic metasurfaces: from static to dynamic, *JOSA B* 33(3), 2016
282. A.Herzing, U. Guler, X. Zhou, A. Boltasseva, V.M.Shalaev, T. Norris, Electron energy loss spectroscopy of plasmon resonances in titanium nitride thin films, *Applied Physics Letters* 108 (17), 171107 (April 25, 2016)
281. A. Urbas, Z. Jacob, L.Negro, N.Engheta, A D Boardman, P Egan, A.B Khanikaev, V. Menon, M. Ferrera, N. Kinsey, C. DeVault, J. Kim, V. Shalaev, A. Boltasseva, J. Valentine, C. Pfeiffer, A. Grbic, Evgenii Narimanov, L Zhu , Shanhui Fan, Andrea Alù, Ekaterina Poutrina, Natalia M Litchinitser, Mikhail A Noginov, Kevin F MacDonald, Eric Plum, Xiaoying Liu, Paul F Nealey, Cherie R Kagan, Christopher B Murray, Dorota A Pawlak,, Igor I Smolyaninov, Vera N Smolyaninova and Debashis Chanda, Roadmap on optical metamaterials, *Journal of Optics*, 18(9), 2016
280. L. Caspani, R. P. M. Kaipurath, M. Clerici, M. Ferrera, T. Roger, J. Kim, N. Kinsey, M. Pietrzyk, A. Di Falco, V. M. Shalaev, A. Boltasseva, and D. Faccio, Enhanced Nonlinear Refractive Index in ϵ -Near-Zero Materials, *Phys. Rev. Lett.* 116, 233901 – 2016
279. A. Naldoni, F. Riboni, U. Guler, A. Boltasseva, V. M. Shalaev, A. V. Kildishev, “Solar-powered plasmon-enhanced heterogeneous catalysis,” *Nanophotonics* (2016); DOI: <https://doi.org/10.1515/nanoph-2016-0018>
278. M. Ferrera, N. Kinsey, C. DeVault, J. Kim, V. Shalaev, A. Boltasseva, “Functionally Doped Metal Oxides for Future Ultra-Fast Active Metamaterials,” chapter in “Roadmap on optical metamaterials” by A. M. Urbas, Z. Jacob, L. Dal Negro, N. Engheta, A.D. Boardman, P. Egan, A.B. Khanikaev, V. Menon, M. Ferrera, N. Kinsey, C. DeVault, J. Kim, V. Shalaev, A. Boltasseva, J. Valentine, C. Pfeiffer, A. Grbic, E. Narimanov, L. Zhu, S. Fan, A. Alù, E. Poutrina, N. M. Litchinitser, M.A. Noginov, K.F. MacDonald, E. Plum, X. L. B. Murray, D. A. Pawlak, I. I. Smolyaninov, V. N. Smolyaninova, D. Chanda, *Journal of Optics* 18, 1-53 (March 11, 2016)
277. J. C. Ndukaife, V. M. Shalaev, A. Boltasseva, Plasmonics: Turning Loss to Gain, *Science*, Vol. 351, Issue 6271, pp. 334-335 2016
276. J. Liu, U. Guler, A. Lagutchev, A. Kildishev, O. Malis, A. Boltasseva, V. M. Shalaev, “Quasi-coherent thermal emitter based on refractory plasmonic materials,” *Optical Materials Express* 5 (12), 2721-2728 (December 1, 2015)
275. U. Guler, S. Suslov, A. V. Kildishev A. Boltasseva, V. M. Shalaev, Colloidal Plasmonic Titanium Nitride Nanoparticles: Properties and Applications, *Nanophotonics*, 4 (1), 269–276, (2015)
274. N. Kinsey, A. Ali Syed, D. Courtwright, C. DeVault, C. E. Bonner, V. I. Gavrilenko, V. M. Shalaev, D. J. Hagan, E. W. Van Stryland, and A. Boltasseva,

Effective third-order nonlinearities in metallic refractory titanium nitride thin films
Opt. Mater. Express 5 (11), 2587-2587 (2015)

273. S. Prayakarao, S. Robbins, N. Kinsey, A. Boltasseva, V. M Shalaev, U. B Wiesner, C. E Bonner, R. Hussain, N. Noginova, M. A Noginov, Gyroidal titanium nitride as nonmetallic metamaterial, *Opt. Materials Express* 5 (6), 1316-1322 (2015)

272. Emani, N. K., Wang, D., Chung, T.-F., Prokopeva, L. J., Kildishev, A. V., Shalaev, V. M., Chen, Y. P. and Boltasseva, A., Plasmon resonance in multilayer graphene nanoribbons. *Laser & Photon. Rev.*, 9: 650–655 (2015). doi: 10.1002/lpor.201500058. Picture from this paper was used for the inside front cover of the *Laser & Photonics Reviews* issue where it appeared.

271. N. K. Emani, A. V. Kildishev, V. M. Shalaev, A. Boltasseva, Review of Graphene as a Dynamic Platform for Electrical Control of Plasmonic Resonance, *Nanophotonics*, Vol 4, Issue 1, 2192-8614 (2015), DOI: 10.1515/nanoph-2015-0014

270. Jingjing Liu, Urcan Guler, Alexei Lagutchev, Alexander Kildishev, Oana Malis, Alexandra Boltasseva, and Vladimir M. Shalaev, Quasi-coherent thermal emitter based on refractory plasmonic materials, *Opt. Mater. Express* 5, 2721-2728 (2015)

269. Justus C. Ndukaife, Alexander V. Kildishev, Agbai George Agwu Nnanna, Vladimir M. Shalaev, Steven T. Wereley & Alexandra Boltasseva, Long-range and rapid transport of individual nano-objects by a hybrid electrothermoplasmonic nanotweezer, *Nature Nanotechnology* (2015), doi:10.1038/nnano.2015.248, published online November, 2, 2015

268. Rohith Chandrasekar, Naresh K. Emani, Alexei Lagutchev, Vladimir M. Shalaev, Cristian Ciraci, David R. Smith, and Alexander V. Kildishev, Second harmonic generation with plasmonic metasurfaces: direct comparison of electric and magnetic resonances, *Opt. Mater. Express* 5, 2682-2691 (2015)

267. Amr Shaltout, Alexander Kildishev, and Vladimir Shalaev, Time-varying metasurfaces and Lorentz non-reciprocity, *Opt. Mater. Express* 5, 2459-2467 (2015)

266. Amr Shaltout, Jingjing Liu, Alexander Kildishev, and Vladimir Shalaev, Photonic spin Hall effect in gap-plasmon metasurfaces for on-chip chiroptical spectroscopy, *Optica* 2, 860-863 (2015)

265. N. Kinsey, C. Devault, J. Kim, M. Ferrera, V. M. Shalaev, And A. Boltasseva, Epsilon-near-zero Al-doped ZnO for ultrafast switching at telecom wavelengths, *Optica*, Vol. 2, 616 (2015)

264. F. Ding, Zh. Wang, S. He, V.M. Shalaev, and A.V. Kildishev, Broadband High-Efficiency Half-Wave Plate: A Supercell-Based Plasmonic Metasurface Approach, *ACS Nano* (2015).
263. A. Boltasseva and V.M. Shalaev, All that glitters need not be gold, *Science* 347, 1308 (2015).
262. U. Guler, A. Kildishev, A. Boltasseva, and V. Shalaev, Plasmonics on the slope of enlightenment: the role of transition metal nitrides, *Faraday Discussions*, 178, 71-86 (2015).
261. Paul R. West, Nathaniel Kinsey, Marcello Ferrera, Alexander V. Kildishev, Vladimir M. Shalaev, and Alexandra Boltasseva, Adiabatically Tapered Hyperbolic Metamaterials for Dispersion Control of High-k Waves, *Nano Lett.*, 15(1), pp 498-505 (2015).
260. N. Kinsey, M. Ferrera, V. M. Shalaev, and A. Boltasseva, Examining nanophotonics for integrated hybrid systems: a review of plasmonic interconnects and modulators using traditional and alternative materials [Invited], *JOSA B*, 32, 121-142 (2015).
259. 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.*, 1-8 (2014).
258. U. Guler, V. M. Shalaev, A. Boltasseva, Nanoparticle Plasmonics: Going Practical with Transition Metal Nitrides, *Materials Today* 18 (4), 227-237 (2014).
257. A. Shaltout, J. Liu, V. M. Shalaev, and A. V. Kildishev, Optically Active Metasurface with Non-Chiral Plasmonic Nanoantennas, *Nano Lett.* 14, 4426-4431 (2014).
256. P. R. West, J. L. Stewart, A. V. Kildishev, V. M. Shalaev, V. V. Shkunov, F. Strohkendl, Y. A. Zakharenkov, R. K. Dodds, and R. Byren, All-dielectric subwavelength metasurface focusing lens, *Optics Express*, 22, 26212-26221 (2014).
255. U. Guler, A. Kildishev, A. Boltasseva, and V. Shalaev, Plasmonics on the slope of enlightenment: the role of transition metal nitrides, *Faraday Discussions*, (2014).
254. W. Li, U. Guler, N. Kinsey, G. V. Naik, A. Boltasseva, J. Guan, V. M. Shalaev and A. V. Kildishev, Refractory Plasmonics with Titanium Nitride: Broadband Metamaterial Absorber, a cover paper, *Advanced Materials*, 26, 7959-7965 (2014).

- 253 C. Pfeiffer, N. K. Emani, A. M. Shaltout, A. Boltasseva, V. M. Shalaev, A. Grbic, Efficient Light Bending with Isotropic Metamaterial Huygens' Surfaces, *Nano Lett.*, 14, 2491-2497 (2014).
- 252 X. Meng, J.Liu, A.V. Kildishev, and V.M. Shalaev, Highly directional spaser array for the red wavelength region, *Laser Photonics Rev.* 8, 896–903, (2014).
- 251 G.V. Naik, B. Saha, J. Liu, S.M. Saber, E.A. Stach, J.M.K. Irudayaraj, T.D. Sands, V.M. Shalaev, and A. Boltasseva, Epitaxial superlattices with titanium nitride as a plasmonic component for optical hyperbolic metamaterials, *PNAS* early on-line publication (2014).
- 250 N. Kinsey, M. Ferrera, G. V. Naik, V. E. Babicheva V. M. Shalaev, and A. Boltasseva, Experimental demonstration of titanium nitride plasmonic interconnects, *Optics Express*, 22, 12238-47 (2014).
- 249 U. Guler, A. Boltasseva, V. M. Shalaev, Refractory Plasmonics, *Science*, 344, 263-4 (2014).
- 248 J. Liu, G.V. Naik, S. Ishii, C. DeVault, A. Boltasseva, V.M. Shalaev, E. Narimanov, Optical absorption of hyperbolic metamaterial with stochastic surfaces, *Optics Express*, 22, 8893 (2014).
- 247 V.E. Babicheva, N. Kinsey, G.V Naik, M. Ferrera, A.V. Lavrinenko, V.M. Shalaev, and A. Boltasseva, Towards CMOS-compatible nanophotonics: Ultra-compact modulators using alternative plasmonic materials, *Optics Express*, 21, 27326 (2013).
- 246 N.K. Emani, T.-F. Chung, A.V. Kildishev, V.M. Shalaev, Y.P. Chen, A. Boltasseva, Electrical Modulation of Fano Resonance in Plasmonic Nanostructures Using Graphene, *Nano Letters* 14, 78-82, (2013).
- 245 U. Guler, J.C. Ndukaife, G.V. Naik, A.G. A. Nnanna, A.V. Kildishev, V.M. Shalaev, A. Boltasseva, Local Heating with Lithographically Fabricated Plasmonic Titanium Nitride Nanoparticles, *Nano Letters* 13 , 6078-6083, (2013).
- 244 J. Kim, G. V. Naik, A. V. Gavrilenko, K. Dondapati, V. I. Gavrilenko, S. M. Prokes, O. J. Glembocki, V. M. Shalaev, and A. Boltasseva, Optical Properties of Gallium-Doped Zinc Oxide - A Low-Loss Plasmonic Material: First-Principles Theory and Experiment, *Phys. Rev. X* 3, 041037 (2013).
- 243 X. Ni, A.V. Kildishev & V.M. Shalaev, Metasurface holograms for visible light, *Nature Communications* 4, Article number: 2807 (2013).
- 242 A. Shaltout, V. Shalaev, and A. Kildishev, Homogenization of bi-anisotropic metasurfaces, *Optics Express*, 21, 21941-21950 (2013)

- 241 X. Meng, A. V. Kildishev, K. Fujita, K. Tanaka, and V. M. Shalaev, Wavelength-Tunable Spasing in the Visible, *Nano Lett.* 13, 4106-4112 (2013).
- 240 J. Grzelak, B. Krajnik, M.D. Thoreson, P. Nyga, V.M. Shalaev, and S. Mackowski, A plasmonic hybrid nanostructure with controlled interaction strength, *Photonics Letters of Poland.* 5, 39-41 (2013).
- 239 G.V. Naik, V.M. Shalaev, and A. Boltasseva, Alternative Plasmonic Materials: Beyond Gold and Silver, *Advanced Materials* (2013).
- 238 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)
- 237 X. Ni, S. Ishii, A. V Kildishev, and V. M Shalaev, Ultra-thin, planar, Babinet-inverted plasmonic metalenses, *Light: Science & Applications* 2, e72 (2013).
- 236 A.V. Kildishev, A. Boltasseva, V.M. Shalaev, Planar Photonics with Metasurfaces, *Science*, 339, 6125, (2013).
- 235 X. Meng, U. Guler, A. V. Kildishev, K. Fujita, K. Tanaka & V. M. Shalaev, Unidirectional Spaser in Symmetry-Broken Plasmonic Core-Shell Nanocavity, *Scientific Reports*, 3, 1241 (2013)
- 234 S. Ishii, V. M. Shalaev, and A. V. Kildishev, Holey-Metal Lenses: Sieving Single Modes with Proper Phases, *Nano Lett.*, 13, 159-163 (2013).
- 233 S. Ishii, A. V. Kildishev, E. Narimanov, V. M. Shalaev, and V. P. Drachev, Sub-wavelength interference pattern from volume plasmon polaritons in a hyperbolic medium, *Laser Photonics Rev.*, 7 (2013).
- 232 X. Ni, N.K. Emani, A.V. Kildishev, A. Boltasseva, V.M. Shalaev, Broadband Light Bending with Plasmonic Nanoantennas, *Science*, 335, 427, (2012).
- 231 Z. Liu, E. Li, V. M. Shalaev, and A. V. Kildishev, Near field enhancement in silver nanoantenna-superlens systems, *Applied Physics Letters*, 101, 021109 (2012).
- 230 G. V. Naik, J. Liu, A. V. Kildishev, V. M. Shalaev, and A. Boltasseva, Demonstration of Al:ZnO as a plasmonic component for near-infrared metamaterials, *Proceeding of the National Academy of Science*, PNAS (2012).
- 229 U. Guler, G.V. Naik, A. Boltasseva, V.M. Shalaev, A.V. Kildishev, Performance analysis of nitride alternative plasmonic materials for localized surface plasmon applications, *Applied Physics B: Lasers and Optics* (2012).

- 228 J. Kim, V.P. Drachev, Z. Jacob, G.V. Naik, A. Boltasseva, E.E. Narimanov, and V.M. Shalaev, Improving the radiative decay rate for dye molecules with hyperbolic metamaterials, *Optics Express*, 20, 7, 8100-8116 (2012).
- 227 Z. Liu, V. M. Shalaev, A. V. Kildishev, Coupling effect in a near-field object-superlens system, *Appl.Phys.A* (2012). Invited paper.
- 226 V. N. Smolyaninova, I. I. Smolyaninov, A. V. Kildishev, V. M. Shalaev, Trapped rainbow techniques for spectroscopy on a chip and fluorescence enhancement, *Applied Physics B-Lasers and Optics*, 106, 577-581,(2012).
- 225 V. M. Shalaev and J. Pendry, Transformation optics, *Journal of Optics*, 13, 2 (2011).
- 224 X. Ni, S. Ishii, M. D. Thoreson, V. M. Shalaev, S. Han, S. Lee, and A. V. Kildishev, Loss-compensated and active hyperbolic metamaterials, *Optics Express* 19, 25242-25254 (2011).
- 223 Z. Jacob, V.M. Shalaev, Plasmonics Goes Quantum, *Science*, Vol. 334, no. 6055, pp. 463-464 (2011).
- 222 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, *Applied Physics B-Lasers and Optics*, 105, 191-195 (2011).
- 221 A.V. Kildishev, J.D. Borneman, X. Ni, V.M. Shalaev, V.P. Drachev, Bianisotropic Effective Parameters of Optical Metamagnetics and Negative-Index Materials, *Proceedings of the IEEE*, 99, 1691-1700 (2011).
- 220 S. Ishii, A.V. Kildishev, V.M. Shalaev, and V.P. Drachev, Controlling the wave focal structure of metallic nanoslit lenses with liquid crystals, *Laser Phys. Lett.* 8, No. 11, 828-832 (2011).
- 219 W. Cai and V. M. Shalaev, Into the visible, *Physics World* 24 (7), 30-34 (2011).
- 218 X. Ni, G. V. Naik, A. V. Kildishev, Y. Barnakov, A. Boltasseva, and V. M. Shalaev, Effect of metallic and hyperbolic metamaterial surfaces on electric and magnetic dipole emission transitions, *Applied Physics B-Lasers and Optics*, 103, 553-558 (2011).
- 217 M. D. Thoreson, J. Fang, A. V. Kildishev, L. J. Prokopeva, P. Nyga, U. K. Chettiar, V. M. Shalaev, and V. P. Drachev, Fabrication and realistic modeling of three-dimensional metal-dielectric composites, *Journal of Nanophotonics* 5, 051513 (2011).

- 216 A. V. Kildishev and V. M. Shalaev, Transformation Optics and Metamaterials, *Advances in Physical Sciences (Успехи Физических Наук: in Russian)* 181, 59-70 (2011).
- 215 S. Ishii, A. V. Kildishev, V. M. Shalaev, K-P Chen, and V. P. Drachev, Metal nanoslit lenses with polarization-selective design, *Optics Letters* 36, 451-453 (2011).
- 214 V. N. Smolyaninova, I. I. Smolyaninov, A. V. Kildishev, and V. M. Shalaev, Broadband Transformation Optics Devices, *Materials* 3 (10), 4793-4810 (2010).
- 213 A.D. Boardman, V.V. Grimalsky, Yu.S. Kivshar, S.V. Koshevaya, M. Lapine, N.M. Litchinitser, V.N. Malnev, M. Noginov, Yu.G. Rapoport, and V. M. Shalaev, Active and tunable metamaterials, *Laser Photonics Rev.*, 1-21 (2010).
- 212 Z. Liu, K-P Chen, X. Ni, V. P. Drachev, V. M. Shalaev, and Alexander V. Kildishev, Experimental verification of two-dimensional spatial harmonic analysis at oblique light incidence, *Journal of the Optical Society of America B-Optical Physics* 27, 2465-2470 (2010).
- 211 W. Chen, K.P. Chen, M.D. Thoreson, A.V. Kildishev, and V. M. Shalaev, Ultrathin, ultrasmooth, and low-loss silver films via wetting and annealing, *Applied Physics Letters* 97, 211107 (2010).
- 210 V.N. Smolyaninova, I.I. Smolyaninov, A.V. Kildishev, and V.M. Shalaev, Maxwell fish-eye and Eaton lenses emulated by microdroplets, *Optics Letters*, 35, 3396-3398 (2010).
- 209 Q. Song, S. Xiao, Z. Xu, V. M. Shalaev, and Y. L. Kim, Random laser spectroscopy for nanoscale perturbation sensing, *Optics Letters*, 35, 2624-2626, (2010).
- 208 S. Xiao, V. P. Drachev, A. V. Kildishev, X. Ni, U. K. Chettiar, H-K Yuan, and V. M. Shalaev, Loss-free and active optical negative-index metamaterials, *Nature* 466, 735-738 (2010).
- 207 V. M. Shalaev, N. M. Litchinitser, N. Engheta, R. McPhedran, E. Shamonina, T. Klar, Introduction to the Special Issue on Metamaterials, *IEEE Journal of Selected Topics in Quantum Electronics*, 16, 363-366 (2010).
- 206 Z. Jacob, J.-Y. Kim, G. V. Naik, A. Boltasseva, E. E. Narimanov and V. M. Shalaev, Engineering photonic density of states using metamaterials, *Special Issue: "Celebrating Volume 100 of Applied Physics B - Lasers and Optics"*, 215-218 (2010).

- 205 R. B. Nielsen, M. D. Thoreson, W. Chen, A. Kristensen, J. M. Hvam, V. M. Shalaev and A. Boltasseva, Toward superlensing with metal-dielectric composites and multilayers, *Applied Physics B - Lasers and Optics*, 100, 93-100, (2010).
- 204 U. K. Chettiar, P. Nyga, M. D. Thoreson, A. V. Kildishev, V. P. Drachev and V. M. Shalaev, FDTD modeling of realistic semicontinuous metal films, *Applied Physics B - Lasers and Optics*, 100, 159-168, (2010).
- 203 W. Chen, M.D. Thoreson, A.V. Kildishev, and V.M. Shalaev, Fabrication and optical characterizations of smooth silver-silica nanocomposite films, *Laser Phys. Lett.* 7, No. 9, 677-684 (2010).
- 202 V. N. Smolyaninova, I. I. Smolyaninov, A. V. Kildishev, and V. M. Shalaev, Experimental observation of the trapped rainbow, *Applied Physics Letters* 96, 211121 (2010).
- 201 Q. Song, S. Xiao, Z. Xu, J. Liu, X. Sun, V. Drachev, V. M. Shalaev, O. Akkus, and Y. L. Kim, Random lasing in bone tissue, *Optics Letters*, 35, 1425-1427, (2010).
- 200 M. L. Brongersma and V. M. Shalaev, The Case for Plasmonics, *Science*, 328, 440-441, (2010).
- 199 P. R. West, S. Ishii, G. V. Naik, N. K. Emani, V. M. Shalaev, and A. Boltasseva, Searching for better plasmonic materials, *Laser & Photon. Rev.*, 1, 13 (2010).
- 198 W. Chen, M. D. Thoreson, S. Ishii, A. V. Kildishev, and V. M. Shalaev, Ultra-thin ultra-smooth and low-loss silver films on a germanium wetting layer, *Optics Express*, 18, 5124-5134, (2010).
- 197 K-P Chen, V. P. Drachev, J. D. Borneman, A. V. Kildishev, and V. M. Shalaev, Drude Relaxation Rate in Grained Gold Nanoantennas, *Nano Lett.*, 10, 916-922, (2010).
- 196 A. K. Popov, S. A. Myslivets, and V. M. Shalaev, Coherent nonlinear-optical energy transfer and backward-wave optical parametric generation in negative-index metamaterials, *Physica B*, 405, 2999-3002, (2010).
- 195 Y. Sivan, S. Xiao, U. K. Chettiar, A. V. Kildishev, and V. M. Shalaev, Frequency-domain simulations of a negative-index material with embedded gain, *Optics Express*, 17, 24060-24074, (2009).
- 194 N. M. Litchinitser, and V. M. Shalaev, Metamaterials: transforming theory into reality, *J. Opt. Soc. Am. B*, 26, 161-9, (2009).
- 193 S. Xiao, U. K. Chettiar, A. V. Kildishev, V. P. Drachev, and V. M. Shalaev, Yellow-light negative-index metamaterials, *Optics Letters*, 34, 3478-80 (2009).

- 192 A. V. Kildishev, Y. Sivan, N. M. Litchinitser, and V. M. Shalaev, Frequency-domain modeling of TM wave propagation in optical nanostructures with a third-order nonlinear response, *Optics Letters*, 34, 3364-6, (2009).
- 191 A. K. Popov, S. A. Myslivets, and V. M. Shalaev, Coherent nonlinear optics and quantum control in negative-index metamaterials, *J. Opt. A: Pure Appl. Opt.*, 11, 114028, (2009).
- 190 M. A. Noginov, G. Zhu, A. M. Belgrave, R. Bakker, V. M. Shalaev, E. E. Narimanov, S. Stout, E. Herz, T. Suteewong and U. Wiesner, Demonstration of a spaser-based nanolaser, *Nature*, 460, 1110, (2009).
- 189 J. Borneman, K-P Chen, A. Kildishev, and V. Shalaev, Simplified model for periodic nanoantennae: linear model and inverse design, *Optics Express*, 17, 11607-17 (2009).
- 188 S. Xiao, U. K. Chettiar, A. V. Kildishev, V. Drachev, I. C. Khoo, and V. M. Shalaev, Tunable magnetic response of metamaterials, *Appl. Phys. Lett.* 95, 033114 (2009).
- 187 Z. Liu, M. D. Thoreson, A. V. Kildishev, and V. M. Shalaev, Translation of nanoantenna hot spots by a metal-dielectric composite superlens, *Appl. Phys. Lett.* 95, 033114 (2009).
- 186 I. I. Smolyaninov, V. N. Smolyaninova, A. V. Kildishev, and V. M. Shalaev, Anisotropic Metamaterials Emulated by Tapered Waveguides: Application to Optical Cloaking, *Physical Review Letters*, 102, 213901-4 (2009).
- 185 A. K. Popov, S. A. Myslivets, and V. M. Shalaev, Microscopic mirrorless negative-index optical parametric oscillator, *Optics Letters*, Vol. 34, No. 8, pp. 1165-67 (2009).
- 184 A. K. Popov, S. A. Myslivets and V. M. Shalaev, Resonant nonlinear optics of backward waves in negative-index metamaterials, *Appl. Phys. B*, 96, 315-323 (2009).
- 183 A. V. Kildishev, U. K. Chettiar, Z. Jacob, V. M. Shalaev, and E. E. Narimanov, Materializing a binary hyperlens design, *Appl. Phys. Lett.*, 94, 071102 (2009).
- 182 N. M. Litchinitser and V. M. shalaev, Loss as a route to transparency, *Nature Photonics*, 3, 75-6, (2009).
- 181 U. K. Chettiar, S. Xiao, A. V. Kildishev, W. Cai, H-K Yuan, V. P. Drachev, and V. M. Shalaev, Optical Metamagnetism and Negative-Index Metamaterials, *MRS Bulletin*, 33, 921-26, (2008).

- 180 R. M Bakker, V. P Drachev, Z. Liu, H-K Yuan, R. H Pedersen, A. Boltasseva, J. Chen, J. Irudayaraj, A. V Kildishev and V. M Shalaev, Nanoantenna array-induced fluorescence enhancement and reduced lifetimes, *New Journal of Physics* 10, 125022, (2008).
- 179 D. P. Lyvers, J-M Moon, A. V. Kildishev, V. M. Shalaev and A. Wei, Gold Nanorod Arrays as Plasmonic Cavity Resonators, *ASC NANO*,2, 2569-2576, (2008).
- 178 A. V. Kildishev, W. Cai, U. K. Chettiar and V. M. Shalaev, Transformation optics: approaching broadband electromagnetic cloaking, *New Journal of Physics*, 10, 115029 (2008).
- 177 V. M. Shalaev, Transforming Light, *Science*, 322, 384-86, (2008).
- 176 N. M. Litchinitser, A. I. Maimistov, I. R. Gabitov, R. Z. Sagdeev, and V. M. Shalaev, Metamaterials: electromagnetic enhancement at zero-index transition, *Optics Letters*, 33, 2350-2352, (2008)
- 175 J-Y Kim, V. P. Drachev, H-K Yuan, R. M. Bakker and V. M. Shalaev, Imaging contrast under aperture tip-nanoantenna array interaction, *Applied Physics B: Lasers and Optics*,93, 189-198, (2008).
- 174 P. Nyga, V.P. Drachev, M.D. Thoreson and V.M. Shalaev, Mid-IR plasmonics and photomodification with Ag films, *Applied Physics B: Lasers and Optics* 93, 59-68, (2008).
- 173 D-H Kwon, D. H. Werner, A. V. Kildishev, and V. M. Shalaev, Material parameter retrieval procedure for general bi-isotropic metamaterials and its application to optical chiral negative-index metamaterial design, *Optics Express*, 16, 11822-29, (2008).
- 172 A. Boltasseva, V. M. Shalaev, Fabrication of optical negative-index metamaterials: Recent advances and outlook, *Metamaterials*, 2, 1-17, (2008).
- 171 Z. Liu, A. Boltasseva, R. H. Pedersen, R. Bakker, A. V. Kildishev, V. P. Drachev, V. M. Shalaev, Plasmonic nanoantenna arrays for the visible, *Metamaterials*, 2, 45-51, (2008).
- 170 N.M. Litchinitser and V.M. Shalaev, Metamaterials move beyond nature's limits (follow "Metamaterials" link), *Optics & Laser Europe*, 161, 14-15 (2008).
- 169 N.M. Litchinitser and V.M. Shalaev, Photonic metamaterials, *Laser Phys. Lett.* 5, 411-420, (2008).
- 168 W. Cai, U. K. Chettiar, A. V. Kildishev, and V. M. Shalaev, Designs for optical cloaking with high-order transformations, *Optics Express*, 16, 5444-52 (2008).

- 167 R. M. Bakker, H-K Yuan, Z. Liu, V. P. Drachev, A. V. Kildishev, V. M. Shalaev, R. H. Pedersen, S. Gresillon, A. Boltasseva, Enhanced localized fluorescence in plasmonic nanoantennae, *Appl. Phys. Lett.* 92, 043101 (2008).
- 166 A. V. Kildishev and V. M. Shalaev, Engineering space for light via transformation optics, *Opt. Lett.* 33, 43 (2008).
- 165 V. P. Drachev, U. K. Chettiar, A. V. Kildishev, H-K Yuan, W. Cai, and V. M. Shalaev, The Ag dielectric function in plasmonic metamaterials, *Optics Express*, Vol.16, No.2, pp.1186-95 (2008).
- 164 E. E. Narimanov, V. M. Shalaev, and A. Z. Genack, Photonic Metamaterials: Introduction, *JOSA A*, 24, PM1-PM2 (2007).
- 163 A. K. Popov, S. A. Myslivets, T. F. George, and V. M. Shalaev, Four-wave mixing, quantum control and compensating losses in doped negative-index photonic metamaterials, *Optics Letters*, 32, 3044-3046, (2007).
- 162 X. Wang, D-H Kwon, D. H. Werner, and I-C Khoo, A. V. Kildishev and V. M. Shalaev, Tunable optical negative-index metamaterials employing anisotropic liquid crystals, *Appl. Phys. Lett.*, 91, 143122 (2007).
- 161 R. M. Bakker, A. Boltasseva, Z. Liu, R. H. Pedersen, S. Gresillon, A. V. Kildishev, V. P. Drachev, and V. M. Shalaev, Near-field excitation of nanoantenna resonance, *Optics Express*, 15, 13682-13688 (2007).
- 160 W. Cai, U. K. Chettiar, A. V. Kildishev, G. W. Milton, and V. M. Shalaev, Nonmagnetic cloak with minimized scattering, *Appl. Phys. Lett.*, 91, 111105 (2007).
- 159 U. K. Chettiar, A. V. Kildishev, H-K Yuan, W. Cai, S. Xiao, V. P. Drachev, and V. M. Shalaev, Dual-band negative index metamaterial: double negative at 813nm and single negative at 772nm, *Optics Letters*, 32, 1671-73, (2007).
- 158 E.E. Narimanov and V.M. Shalaev, Beyond diffraction, *Nature*, 447, 266-7, (2007).
- 157 A. V. Kildishev, U. K. Chettiar, Z. Liu, V. M. Shalaev, D-H Kwon, Z. Bayraktar, and D. H. Werner, Stochastic optimization of low-loss optical negative-index metamaterial, *JOSA B*, 24, A34-A39, (2007).
- 156 N.M. Litchinitser, I.R. Gabitov, A. I. Maimistov, and V.M. Shalaev, Negative Refractive Index Metamaterials in Optics (review paper), *Progress in Optics*, Elsevier, 51, 1-67, (2008).
- 155 D. A. Genov, K. Seal, X. Zhang, V. M. Shalaev, A. K. Sarychev, Z. Charles Ying, and H. Cao, Collective electronic states in inhomogeneous media at critical and subcritical metal concentrations, *Phys. Rev. B* 75, 201403(R) (2007).

- 154 D. H. Werner, D-H. Kwon, I-C Khoo, A. V. Kildishev and V. M. Shalaev, Liquid crystal clad near-infrared metamaterials with tunable negative-zero-positive refractive indices, *Optics Express*, Vol.15, No.6, pp.3342-47 (2007).
- 153 W. Cai, U. K. Chettiar, A. V. Kildishev & V. M. Shalaev, Optical cloaking with metamaterials, *Nature Photonics*, 1, 224-27 (2007).
- 152 W. Cai, U. K. Chettiar, Hsiao-Kuan Yuan, Vashista C. de Silva, Alexander V. Kildishev, Vladimir P. Drachev, and Vladimir M. Shalaev, Metamagnetics with rainbow colors, *Optics Express*, 15, 3333-41, (2007).
- 151 D-H Kwon, D. H. Werner, A. V. Kildishev and V. M. Shalaev, Near-infrared metamaterials with dual-band negative-index characteristics, *Optics Express*, 15, 1647-52, (2007).
- 150 V. M. Shalaev, F. Traeger, Editorial "Special Issue: Optics on the Nanoscale: Principles, Instrumentation and Applications", *Applied Physics B*, 84, 1 (2006).
- 149 H-K Yuan, U. K. Chettiar, W. Cai, A. V. Kildishev, A. Boltasseva, V. P. Drachev, and V. M. Shalaev, A negative permeability material at red light, *Optics Express*, 15, 1076-1083, (2007).
- 148 A. Kildishev, V. Drachev, U. Chettiar, D. Werner, D-H Kwon, and V. Shalaev, Comment on "Negative Refractive Index in Artificial Metmaterials" [A.N. Grigorenko, *Opt. Lett* 31, 2483 (2006)], *Optics Letters*, 32, 1510-11 (2007).
- 147 N. M. Litchinitser, I. R. Gabitov, A. I. Maimistov, V. M. Shalaev, Effect of an optical negative index thin film on optical bistability, *Optics Letters*, 32, 151-3 (2007).
- 146 D.A. Genov, K. Seal, A.K. Sarychev, H. Noh, V.M. Shalaev, Z.C. Ying, X. Zhang, H. Cao, Surface Plasmon delocalization by short-range correlations in percolating systems, *Applied Physics B* 84, 205-210, (2006).
- 145 V. M. Shalaev, Optical negative-index metamaterials, *Nature Photonics*, 1, 41-48 (2007).
- 144 T. A. Klar, A. V. Kildishev, V. P. Drachev, V. M. Shalaev, Negative-Index Metamaterials: Going Optical, *IEEE Journal of Selected Topics in Quantum Electronics*, 12, 1106-1115, (2006).
- 143 K. Seal, D. A. Genov, A. K. Sarychev, H. Noh, V. M. Shalaev, Z. C. Ying, X. Zhang, and H. Cao, Coexistence of Localized and Delocalized Surface Plasmon Modes in Percolating Metal Films, *Phys. Rev. Lett.* 97, 206103, (2006).
- 142 V. M. Shalaev, A. Genack, Meta 2006 highlights random, periodic metamaterials, *Laser Focus World*, 42, 30, (2006).

- 141 M. A. Noginov, G. Zhu, M. Bahoura, C. E. Small, C. Davison, J. Adegoke, V. P. Drachev, P. Nyga, and V. M. Shalaev, Enhancement of spontaneous and stimulated emission of a rhodamine 6G dye by an Ag aggregate, *Phys. Rev. B* 74, 184-203 (2006).
- 140 M. A. Noginov, G. Zhu, M. Bahoura, J. Adegoke, C. E. Small, B. A. Ritzo, V. P. Drachev and V. M. Shalaev, Enhancement of surface plasmons in an Ag aggregate by optical gain in a dielectric medium, *Optics Express*, 31, 3022-24, (2006).
- 139 U.K. Chettiar, A.V. Kildishev, T.A. Klar, and V.M. Shalaev, Negative index metamaterial combining magnetic resonators with metal films, *Optics Express*, 14, 7872-77, (2006).
- 138 M.A. Noginov, G. Zhu, M. Bahoura, J. Adegoke, C. Small, B.A. Ritzo, V.P. Drachev and V.M. Shalaev, The effect of gain and absorption on surface plasmons in metal nanoparticles, *Applied Physics B: Lasers and Optics* 86, 455-460, (2006).
- 137 A.K. Popov, and V.M. Shalaev, Compensating losses in negative-index metamaterials by optical parametric amplification, *Optics Letters*, 31, 2169-2171, (2006).
- 136 A.K. Popov, and V.M. Shalaev, Negative-index metamaterials: second-harmonic generation, Manley-Rowe relations and parametric amplification, *Applied Physics B: Lasers and Optics*, 84, 131-37 (2006).
- 135 A.K. Popov, V.V. Slabko, and V.M. Shalaev, Second harmonic generation in left-handed metamaterials, *Laser Phys. Lett.* 3, 293-297 (2006).
- 134 V. M. Shalaev, Focus Issue on Metamaterials, *J. Opt. Soc. Am. B* 23, 386-387 (2006)
- 133 I.R. Gabitov, R.A. Indik, N.M. Litchinitser, A.I. Maimistov, V.M. Shalaev, J.E. Soneson, Double-resonant optical materials with embedded metal nanostructures, *J. Opt. Soc. Am. B*, 23, 535-542 (2006).
- 132 A.V. Kildishev, W. Cai, U. K. Chettiar, H-K. Yuan, A.K. Sarychev, V.P. Drachev, and V.M. Shalaev, Negative refractive index in optics of metal-dielectric composites, *J. Opt. Soc. Am. B*, 23, 423-433 (2006).
- 131 S.I. Bozhevolnyi and V.M. Shalaev, Nanophotonics with Surface Plasmons - Part II, *Photonics Spectra*, 66-72, (2006).
- 130 A.K. Buin, P.F. de Châtel, H. Nakotte, V.P. Drachev, and V.M. Shalaev, Saturation effect in the optical response of Ag-nanoparticle fractal aggregates, *Phys. Rev. B* 73, 035438 (2006).

129 A.K. Sarychev, G. Shvets, and V.M. Shalaev, Magnetic plasmon resonance, *Phys Rev E* 73, 036609 (2006).

128 S.I. Bozhevolnyi and V.M. Shalaev, Nanophotonics with Surface Plasmons - Part I, *Photonics Spectra*, 58-66, (2006).

127 V.P. Drachev, M.D. Thoreson, V. Nashine, E.N. Khaliullin, D. Ben-Amotz, V. Jo Davison, and V.M. Shalaev, Adaptive silver films for surface-enhanced Raman spectroscopy of biomolecules, *J. Raman Spectrosc*, 36, 648-656 (2005)

126 V.P. Drachev, W. Cai, U. Chettiar, H.-K. Yuan, A.K. Sarychev, A.V. Kildishev, G. Klimeck, and V.M. Shalaev, Experimental verification of an optical negative-index material, *Laser Phys. Lett.* 3, 49-55, (2006)

125 V.M. Shalaev, W. Cai, U.K. Chettiar, H.-K. Yuan, A.K. Sarychev, V.P. Drachev, and A.V. Kildishev, Negative index of refraction in optical metamaterials, *Optics Letters*, 30, 3356 (2005).

124 M. A. Noginov, G. Zhu , C. Davison , A. K. Pradhan , K. Zhang , M. Bahoura M. Codrington, V. P. Drachev, V. M. Shalaev, V. F. Zolin , Effect of Ag aggregate on spectroscopic properties of Eu: Y2O3 nanoparticles", *Journal of Modern Optics*, v.52, no.16, pp. 2331 - 2341 (2005)

123 Wenshan Cai Dentcho A. Genov and Vladimir M. Shalaev, Superlens based on metal-dielectric composites, *Phys. Rev. B* 72, 193101 (2005)

122 V. P. Drachev, V. Nashine, M. D. Thoreson, D. Ben-Amotz, V. J. Davison, and V. M. Shalaev, Adaptive Silver Films for Detection of Antibody-Antigen Binding, *Langmuir*, 21, 8368-8373 (2005).

121 K. Seal, A.K. Sarychev, H. Noh, D.A. Genov, A. Yamilov, V.M. Shalaev, Z.C. Ying, and H. Cao, Near-Field Intensity Correlations in Semicontinuous Metal-Dielectric Films, *Phys.Rev.Lett.*, v.94, 226101 (2005).

120 Dentcho A. Genov, Vladimir M. Shalaev, and Andrey K. Sarychev, Surface plasmon excitation and correlation-induced localization-delocalization transition in semicontinuous metal films, *Phys. Rev. B*, 72, 113102, (2005).

119 Che-Wei Chang, A.K. Sarychev, and V.M. Shalaev, Light diffraction by a subwavelength circular aperture, *Laser Phys. Lett.*, 2, 351, (2005).

118 V. P. Drachev, V. C. Nashine, M. D. Thoreson, D. Ben-Amotz, V. J. Davison, and V. M. Shalaev, Adaptive Films for Detection of Antibody-Antigen Binding, *J. of Raman Spectroscopy*, special issue on SERS, 36, 648-656, (2005).

117 V.A. Podolskiy, A. K. Sarychev, E. E. Narimanov, and V. M. Shalaev, Resonant light interactions with plasmonic nanowire system, *Journal of Optics A: Pure and Applied Optics*, v. 7, special issue on "Metamaterials", S32-S37 (2005).

- 116 M.A. Noginov, M. Vondrova, S. M. Williams, M. Bahoura, V. I. Gavrilenko, S. M. Black, V. P. Drachev, V. M. Shalaev, A. Sykes, Spectroscopic studies of liquid solutions of R6G laser dye and Ag nanoparticle aggregates, *Journal of Optics A: Pure and Applied Optics*, v. 7, special issue on "Metamaterials", S219-S229 (2005).
- 115 V.P. Drachev, M.D. Thoreson, E.N. Khaliullin, V.J. Davison, and V.M. Shalaev, Surface-Enhanced Raman Difference Spectroscopy with Adaptive Nanostructures: Human Insulin and Insulin Lispro, *Journal of Physical Chemistry*, 108(46), 18046-18052, (2004).
- 114 V.P. Drachev, A.K. Buin, H. Nakotte, and V.I. M. Shalaev, Size Dependent χ^3 for Conduction Electrons in Ag Nanoparticles, *NanoLetters*, 4, 1535-1539, (2004).
- 113 R.M. Bakker, V.P. Drachev, H.-K. Yuan, and V.M. Shalaev, Enhanced transmission in near-field imaging of layered plasmonic structures, *Optics Express*, 12, 3701-3706, (2004).
- 112 D.A. Genov, A.K. Sarychev, V.M. Shalaev, and A. Wei, Resonant Field Enhancement from Metal Nanoparticle Arrays, *Nano Letters*, 4, 153-158, (2004).
- 111 D.A. Genov, A.K. Sarychev, and V.M. Shalaev, Metal-Dielectric Composite Filters with Controlled Spectral Windows of Transparency, *J. of Nonlinear Optical Physics & Materials*, 12, 1-22, (2003)
- 110 V.P. Drachev, E. N. Khaliullin, W. Kim, F. Alzoubi, S. G. Rautian, V. P. Safonov, R. L. Atmstrong, and V. M. Shalaev, Quantum size effect in two-photon excited luminescence from silver nanoparticles, *Phys. Rev. B* 69, 035318-1-5 (2004).
- 109 V.A. Podolskiy, A. K. Sarychev, and V. M. Shalaev, Plasmon modes and negative refraction in metal nanowire composites, *Optics Express* 11, #7, 735-745 (2003).
- 108 A. M. Dykhne, A. K. Sarychev, and V. M. Shalaev, Resonance Transmittance through Metal Films with Fabricated and Light-Induced Modulation, *Physical Review B* 67, 195402-1-13 (2003).
- 107 K. Seal, M. A. Nelson, Z. C. Ying, D. A. Genov, A. K. Sarychev, and V. M. Shalaev, Growth, morphology, and optical and electrical properties of semicontinuous metal films, *Physical Review B* 67, 035318 -1 - 035318-13 (2003)
- 106 D. Genov, A. K. Sarychev, and V. M. Shalev, Plasmon Localization and Local Field Distribution in Metal-Dielectric Films, *Physical Review E* 67, 056611 1-10 (2003).

- 105 D.A. Genov, K. Seal, M.A. Nelson, A.K. Sarychev, Z.C. Ying, V.M. Shalaev, Local Field Distribution in Random Metal-Dielectric Films; Theory and Experiment, *Physica B* 338, 228-231 (2003)
- 104 K. Seal, M. A. Nelson, Z. C. Ying, D. A. Genov, A. K. Sarychev, and V. M. Shalaev, Metal coverage dependence of local optical properties of semicontinuous metal films, *J. of Modern Optics* 49, 2423-2435, (2002).
- 103 A. K. Sarychev, V. A. Podolskiy, A. M. Dykhne, and V. M. Shalaev, Resonance Transmittance Through a Metal Film with Subwavelength Holes, *IEEE J. of Quantum Electronics* 38, 956-963 (2002).
- 102 V.P. Drachev, W. Kim, V. P. Safonov, V. A. Podolskiy, N. S. Zakovryazhin, V. M. Shalaev, and R. A. Armstrong, Low-threshold lasing and broad-band multiphoton-excited light emission from Ag aggregate-adsorbate complexes in microcavity, *J. of Modern Optics* 49, 645 (2002).
- 101 V.A. Podolskiy, A. K. Sarychev, V. M. Shalaev, Plasmon modes in metal nanowires and left-handed materials *J. of Nonlinear Optical Physics and Materials* 11, 65-74, (2002).
- 100 V.A. Podolskiy, A. K. Sarychev, V. M. Shalaev, Temporal Dynamics of Local Optical Responses and Sub-fs Pulse Generation in Semicontinuous Metal Films, *Laser Physics* 12, 292, (2001).
- 99 S. Ducourtieux, V. A. Podolskiy, S. Gresillon, S. Buil, P. Gadenne, A. C. Boccaro, J. C. Rivoal, W. A. Bragg, K. Banerjee, V. P. Safonov, V. P. Drachev, Z. C. Ying, A. K. Sarychev, and V. M. Shalaev, Near-Field Optical Studies of Semicontinuous Metal Films, *Phys. Rev. B* 64, 165403, (2001).
- 98 A.K. Sarychev, V. M. Shalaev, and J.-P. Clerc, Giant Magnetic Fluctuations in Semicontinuous Metal Films, *J. Magnetism*, 1 (2001).
- 97 M. Breit, V. A. Podolskiy, S. Gresillon, G. von Plessen, J. Feldmann, J. C. Rivoal, P. Gadenne, A. K. Sarychev, and Vladimir M. Shalaev, Experimental observation of percolation-enhanced non-linear light scattering from semicontinuous metal films, *Phys. Rev. B* 64, 125106, (2001).
- 96 V.A. Podolskiy, A. K. Sarychev, and V. M. Shalaev, Percolation Composites: Localization of Surface Plasmons and Enhanced Optical Nonlinearities, in *Photonic Crystals and Light Localization in the 21st Century*, 567, ed. by C. M. Soukoulis (Kluwer Academic Publishers, 2001).
- 95 V.P. Drachev, W. D. Bragg, V. A. Podolskiy, V. P. Safonov, W. T. Kim, Z. C. Ying, R. L. Armstrong, and V. M. Shalaev, Large Local Optical Activity in Fractal Aggregates of Nanoparticles, *J. Opt. Soc. Am. B* 19, 1896-1903, (2001).

- 94 V.A. Podolskiy and V. M. Shalaev, Giant Optical Responses in Microcavity-Fractal Composites, *Laser Physics*, 11, 26, (2001).
- 93 W.D. Bragg, V. A. Markel, W. Kim, K. Banerjee, M. R. Young, J. G. Zhu, R. L. Armstrong, V. M. Shalaev, and Z. C. Ying, Yu. E. Danilova and V. P. Safonov, Near-field optical study of selective photomodification of fractal aggregates, *J. Opt. Soc. Am. B* 18, 698, (2001).
- 92 V.A. Markel and V. M. Shalaev, Geometrical renormalization approach to calculating optical properties of fractal carbonaceous soot, *J. Opt. Soc. Am. A* 18, 1112-1121, (2001).
- 91 M. Gadenne, V. Podolskiy, P. Gadenne, P. Sheng and V. M. Shalaev, Plasmon-enhanced absorption by optical phonons in metal-dielectric composites, *Europhys. Lett.* 53, 364, (2001).
- 90 A.K. Sarychev and V. M. Shalaev, Electromagnetic Field fluctuations and optical nonlinearities in metal-dielectric composites, *Physics Reports*, 335, 275, (2000).
- 89 V.M. Shalaev and Z. C. Ying, Nonlinear Optics of Surfaces, *Encyclopedia of Materials: Science and Technology*, ed. by D. D. Nolte, article 6.8.13 (Pergamon, Amsterdam 2000).
- 88 V.A. Shubin, A.K.Sarychev, J. P. Clerc, and V.M.Shalaev, Local Electric and Magnetic Fields In Semicontinuous Metal Films, *Phys. Rev. B.* 62, 11230 (2000).
- 87 A.K. Sarychev, V. A. Shubin, V. M. Shalaev, Anderson localization of surface plasmons and Kerr nonlinearity in semicontinuous metal Films, *Physica B* 279, 87 (2000).
- 86 A.K. Sarychev, P. C. McPhedran, and V. M. Shalaev, Electrodynamics of metal-dielectric composites and electromagnetic crystals, *Phys. Rev. B* 62, 8531 (2000).
- 85 A.K. Popov, A. S. Bayev, T. F. George, and V. M. Shalaev, Four-wave mixing at maximum coherence and eliminated Doppler broadening controlled with the driving fields, *EP Jdirect*, 2, 1-12 (2000).
- 84 P.Gadenne, X. Quelin, S. Ducourtieux, S. Gresillon, L. Aigouy, J. C. Rivoal, V. Shalaev, A. Sarychev, Direct observation of locally enhanced electromagnetic field, *Physica B*, 279, 52 (2000).
- 83 S. Ducourtieux, S. Gresillon, A. C. Boccara, J. C. Rivoal, X. Quelin, P. Gadenne, V. P. Drachev, W. D. Bragg, V. P. Safonov, V. A. Podolskiy, Z. C. Ying, R. L. Armstrong, and Vladimir M. Shalaev, Percolation and Fractal Composites: Optical Studies, *J. of Nonlinear Optical Physics and Materials* 9, 105, (2000).

- 82 V.A. Markel, V. M. Shalaev, Absorption of light by soot particles in microdroplets of water, *J. Quantitative Spectroscopy & Radiative Transfer*, 63, 321, (1999).
- 81 S. Gresillon, L. Aigouy, A. C. Boccara, J. C. Rivoal, X. Quelin, C. Desmarest, P. Gadenne, V. A. Shubin, A. K. Sarychev, and V. M. Shalaev, Experimental Observation of Localized Optical Excitations in Random Metal-Dielectric Films, *Phys. Rev. Lett.* 82, 4520, (1999).
- 80 W. Kim, V. P. Safonov, V. M. Shalaev, R. L. Armstrong, Fractals in Microcavities: Giant Coupled Multiplicative Enhancement of Optical Responses, *Phys. Rev. Lett.*, 82, 4811, (1999).
- 79 A.K. Sarychev, V. A. Shubin, and V. M. Shalaev, Anderson localization of surface plasmons and nonlinear optics of metal-dielectric composites, *Phys. Rev. B*, 60, 16389, (1999).
- 78 A.K. Popov and V. M. Shalaev, Elimination of Doppler broadening at coherently driven quantum transitions, *Phys. Rev. A*, 59, R946 (1999).
- 77 V.A. Shubin, W. Kim, V. P. Safonov, A. K. Sarychev, R. L. Armstrong, and Vladimir M. Shalaev, Surface-Plasmon-Enhanced Radiation Effects in Confined Photonic Systems, *J. of Lightwave Technology*, 17, 2183 (1999).
- 76 S. Gresillon, J.C. Rivoal, P. Gadenne, X. Quelin, V. Shalaev, and A. Sarychev, Nanoscale Observation of Enhanced Electromagnetic Field, *Phys. Stat. Sol.* 175, 337, (1999).
- 75 E. Poliakov, V. M. Shalaev, V. Shubin, V. A. Markel, Enhancement of nonlinear processes near rough nanometer-structured surfaces obtained by deposition of fractal colloidal aggregates on a plain substrate, *Phys. Rev. B*, 60, 10739, (1999).
- 74 A. K. Sarychev and V. M. Shalaev, Giant high-order field moments in metal-dielectric films, *Physica A* 266, 115, (1999).
- 73 N. N. Lepeshkin, W. Kim, V. P. Safonov, J. G. Zhu, R. L. Armstrong, C. W. White, R. A. Zuhr, and V. M. Shalaev, Optical Nonlinearities of Metal-Dielectric Composites, *J. of Nonlinear Optical Physics and Materials* 8, 191, (1999).
- 72 B. Vlckova, C. Douketis, M. Moskovits, V. M. Shalaev, V. A. Markel, *J. Chem. Phys.* 110, 8080, (1999).
- 71 W.D. Bragg, V. P. Safonov, W. Kim, K. Banerjee, M.R. Young, J.G. Zhu, Z.C. Ying, R. L. Armstrong, and V. M. Shalaev, Near-field optical studies of local photomodification in nanostructured materials, *Jnl. of Microscopy*, 194, 574, (1999).

- 70 V. A. Markel, V. M. Shalaev, P. Zhang, W. Huynh, L. Tay, T. L. Haslett, and M. Moskovits, Near-field spectroscopy of individual surface-plasmon modes in colloid clusters, *Phys. Rev. B* 59, 10903, (1999).
- 69 A. K. Sarychev, V. A. Shubin, and V. M. Shalaev, Percolation-enhanced nonlinear scattering from metal-dielectric composites, *Phys. Rev. E* 59, 7239, (1999).
- 68 V. M. Shalaev and A. K. Sarychev, Nonlinear optics of random metal-dielectric films, *Phys. Rev. B* 57, 13265, (1998).
- 67 E. Y. Poliakov, V. A. Markel, V. M. Shalaev, R. Botet, Nonlinear optical phenomena on rough surfaces of metal thin films, *Phys. Rev. B* 57, 14901 (1998).
- 66 S. I. Bozhevolnyi, V. A. Markel, V. Coello, W. Kim, and V. M. Shalaev, Direct Observation of Localized Excitations on Rough Nanostructured Surfaces, *Phys. Rev. B* 58, 11441, (1998).
- 65 P. Gadenne, F. Brouers, Vladimir M. Shalaev, Andrey K. Sarychev, Giant Stokes fields on semicontinuous metal films, *J. Opt. Soc. Am. B*, 15, 68, (1998).
- 64 V. P. Safonov, V. M. Shalaev, V. A. Markel, Yu. E. Danilova, N. N. Lepeshkin, W. Kim, S. G. Rautian, and R. L. Armstrong, Spectral Dependence of Selective Photomodification in Fractal Aggregates of Colloidal Particles, *Phys. Rev. Lett.* 80, 1102, (1998).
- 63 V. M. Shalaev, V. A. Markel, E. Y. Poliakov, R. L. Armstrong, V. P. Safonov, A. K. Sarychev, Nonlinear Optical Phenomena in Nanostructured Fractal Materials, *J. Nonlinear Optic. Phys. and Materials*, 7, 131 (1998).
- 62 V. M. Shalaev, E. Y. Poliakov, V. A. Markel, R. Botet, Nonlinear optics of fractal nanomaterials: Small-particle composites and self-ane thin films, *Physica A* 241, 249, (1997).
- 61 V. A. Markel, V. M. Shalaev, E. Y. Poliakov, T. F. George, Multiscaling in random cluster-cluster aggregates, in: *Fractal Frontiers*, Eds: M. M. Novak and T. G. Dewey, p. 291, (World Scientific, Singapore, 1997).
- 60 V. A. Markel, V. M. Shalaev, E. Y. Poliakov, T. F. George, Numerical studies of second- and fourth-order correlation functions in cluster-cluster aggregates in application to optical scattering, *Phys. Rev. E* 55, 7313, (1997).
- 59 R. Botet, E. Y. Poliakov, V. M. Shalaev, and V. A. Markel, Fractal-Surface-Enhanced Optical Responses, in: *Fractals in Engineering*, Eds: J. Levy Vehel, E. Lutton and Claude Tricot, p. 237, (Springer-Verlag, London, 1997).

- 58 V. M. Shalaev, E. Y. Poliakov, V. A. Markel, R. Botet, E. B. Stechel, Optical properties of self-affine surfaces, in: *Fractal Frontiers*, Eds: M. M. Novak and T. G. Dewey, p. 421, (World Scientific, Singapore, 1997).
- 57 V. M. Shalaev, E. Y. Poliakov, V. A. Markel, V. P. Safonov, A. K. Sarychev, Surface-Enhanced Optical Nonlinearities of Nanostructured Fractal Materials, *Fractals*, 5 (suppl.), 63, (1997).
- 56 F. Brouers, S. Blacher, A. N. Lagarkov, A. K. Sarychev, P. Gadenne, V. M. Shalaev, Theory of giant Raman scattering from semicontinuous films, *Phys. Rev. B* 55, 13234, (1997).
- 55 V. M. Shalaev, E. Y. Poliakov, V. A. Markel, and R. Botet, Nonlinear Optics of Fractal Nanocomposites and Self-Affine Thin Films, *Physica A*, 241, 249, (1997).
- 54 V. A. Markel, V. M. Shalaev, E. Y. Poliakov, T. F. George, Fluctuations of light scattered by fractal clusters, *J. Opt. Soc. Amer. A*, 14, 60 (1997).
- 53 V. M. Shalaev, Electromagnetic Properties of Small-Particle Composites, *Phys. Reports*, 272, 61, (1996).
- 52 E. Y. Poliakov, V. M. Shalaev, V. A. Markel, R. Botet, Enhanced Raman scattering from self-affine thin films, *Opt. Lett.*, 21, 1628, (1996).
- 51 V. M. Shalaev, R. Botet, J. Mercer, and E. B. Stechel, Optical properties of self-affine thin films, *Phys. Rev. B* 54, 8235, (1996).
- 50 V. M. Shalaev, E. Y. Poliakov, and V. A. Markel, Small-particle composites. II. Nonlinear optical properties, *Phys. Rev. B* 53, 2437, (1996).
- 49 V. A. Markel, V. M. Shalaev, E. B. Stechel, W. Kim, and R. L. Armstrong, Small-particle composites. I. Linear optical properties, *Phys. Rev. B* 53, 2425, (1996).
- 48 V. M. Shalaev, C. Douketis, J. Todd Stuckless, and M. Moskovits, Light-induced kinetic effects in solids, *Phys. Rev. B* 53, 11388, (1996).
- 47 V. M. Shalaev, C. Douketis, T. Haslett, T. Stuckless, and M. Moskovits, Two-photon electron emission from smooth and rough metal films in the threshold region, *Phys. Rev. B* 53, 11193, (1996).
- 46 V. Shalaev and M. Moskovits, Reply to Comment on: Photon Scanning Tunneling Microscopy Images of Optical Excitations of Fractal Metal Colloid Clusters, *Phys. Rev. Lett.* 72, 2451, (1995).
- 45 V. M. Shalaev, R. Botet, Optical free-induction decay in fractal clusters, *Phys. Rev. B* 50, 12987, (1994).

- 44 V. Shalaev, V.A. Markel, V.P. Safonov, R. Botet, Resonant optics of fractals, *Fractals*, 2, 201, (1994).
- 43 D.P. Tsai, J. Kovacs, Z. Wang, M. Moskovits, V. M. Shalaev, J.S. Suh, and R. Botet, Photon Scanning Tunneling Microscopy Images of Optical Excitations of Fractal Metal Colloid Clusters, *Phys. Rev. Lett.* 72, 4149, (1994).
- 42 V. M. Shalaev, Electron escape and photoemission in the threshold region, *Phys. Rev. B* 48, 1437, (1994).
- 41 C. Douketis, T. L. Haslett, V. Shalaev, Z. Wang, M. Moskovits, Fractal character and direct and indirect transitions in photoemission from silver films, *Physica A* 207, 352, (1994).
- 40 V. M. Shalaev, R. Botet, D.P. Tsai, J. Kovacs, M. Moskovits, Fractals: Localization of dipole excitations and giant optical polarizabilities, *Physica A* 207, 197, (1994).
- 39 C. Douketis, V. M. Shalaev, T. L. Haslett, Z. Wang, and M. Moskovits, The Role of Localized Plasmons in Photoemission from Silver Films: Direct and Indirect Channels, *Journal of Electronic Spectroscopy and Related Phenomena* 64/65, 167, (1993).
- 38 V. M. Shalaev, R. Botet, A. V. Butenko, Localization of collective dipole excitations on fractals, *Phys. Rev. B* 48, 6662, (1993).
- 37 C. Douketis, T. L. Haslett, J. Todd Stuckless, M. Moskovits, and V. M. Shalaev, Direct and roughness-induced indirect transitions in photoemission from silver films, *Surface Science Lett.* 297, 84, (1993).
- 36 V. M. Shalaev, M. I. Stockman, and R. Botet, Resonant excitations and nonlinear optics of fractals, *Physica A*, 185, 181, (1992).
- 35 M. I. Stockman, V. M. Shalaev, M. Moskovits, R. Botet, T. F. George, Enhanced Raman scattering by fractal clusters: Scale-invariant theory, *Phys. Rev. B* 46, 2821, (1992).
- 34 V. M. Shalaev, R. Botet, and R. Jullien, Erratum: Resonant light scattering by fractal clusters, *Phys. Rev. B* 45, 7592, (1992).
- 33 V. M. Shalaev, C. Douketis, and M. Moskovits, Light-induced drift of electrons in metals, *Phys. Lett. A*, 169, 205, (1992).
- 32 V. M. Shalaev, M. Moskovits, A. Golubentsev, and S. John, Scattering and Localization of Light on Fractals, *Physica A*, 191, 352, (1992).
- 31 V. M. Shalaev, R. Botet, and R. Jullien, Resonant light scattering by fractal clusters, *Phys. Rev. B* 44, 12216, (1991).

- 30 M. I. Stockman, T. F. George, V. M. Shalaev, Field work and dispersion relations of excitations on fractals, *Phys. Rev. B* 44, 115, (1991).
- 29 K.N. Alekseev, G.P. Berman, A.V. Butenko, A.K. Popov, V.M. Shalaev, and V.Z.Yakhnin, Dynamical chaos in the case of parametric interactions of light waves, *Sov. J. Quantum Electron.* 20, 359 (1990) [transl. from *Kvantovaya Elektron.* 17, 425 (1990)].
- 28 A.V. Butenko, P.A. Chubakov, Yu.E. Danilova, S.V. Karpov, A.K. Popov, S.G. Rautian, V.P. Safonov, V.V. Slabko, V.M. Shalaev, and M.I. Stockman, Nonlinear optics of metal fractal clusters, *Z.Phys.D - Atoms, Molecules, and Clusters* 17, 283, (1990).
- 27 K.N. Alekseev, G.P. Berman, A.V. Butenko, A.K. Popov, V.M. Shalaev, and V.Z.Yakhnin, Deterministic chaos in nonlinear optical wave mixing, *Journal of modern optics* 37, 41, (1990).
- 26 A.V. Butenko, Yu.E. Danilova, S.M. Ishikhaev, S.V. Karpov, A.K. Popov, S.G. Rautian, V.P. Safonov, V.V. Slabko, P.A. Chubakov, V.M. Shalaev, and M.I. Stockman, Nonlinear optics of metallic fractal clusters, *Bull. Acad. Sci. USSR Phys. Ser.* 53, 166, (1989) [transl. from *Izvestiya Akademii Nauk SSSR, Seriya Fizicheskaya* 53, 1195 (1989)].
- 25 A.K. Popov, V.M. Shalaev, V.Z. Yakhnin, On two-photon excited gas drift under a train of ultrashort laser pulses, *Z.Phys. D-Atoms, Molecules and Clusters* 8, 367, (1988).
- 24 V.M. Shalaev, A.V. Butenko, M.I. Stockman, Fractals: Giant impurity nonlinearities in optics of fractal clusters, *Z.Phys. D - Atoms, Molecules and Clusters* 10, 81, (1988).
- 23 V.M. Shalaev, M.I. Stockman, Fractals: optical susceptibility and giant Raman scattering, *Z.Phys.D-Atoms, Molecules and Clusters* 10, 71, (1988).
- 22 S.G. Rautian, V.P. Safonov, P.A. Chubakov, V.M. Shalaev, M.I. Shtockman, Surface-enhanced parametric scattering of light by silver clusters, *JETP Lett.* 47, 243, (1988) [transl. from *Zh.Eksp.Teor.Fiz.* 47, 200 (1988)].
- 21 S.V. Karpov, A.K. Popov, S.G. Rautian, V.P. Safonov, V.V. Slabko, V.M. Shalaev, M.I. Shtockman, Observation of wavelength- and polarization-selective photomodification of silver clusters, *JETP Lett.* 48, 571, (1988) [transl. from *Pis'ma Zh.Eksp.Teor.Fiz.* 48, 528 (1988)].
- 20 A.V. Butenko, V.M. Shalaev, M.I. Shtockman, Giant optical nonlinearities of impurities of fractal clusters, *Sov.Phys.JETP* 67, 60 (1988) [transl. from *Zh.Eksp.Teor.Fiz.* 94, 107 (1988)].

- 19 V.M. Shalaev, V.Z. Yakhnin, LID sound generated by pulsed excitation in gases, *J.Phys. B* 20, 2733 (1987).
- 18 L.T. Bolotskikh, A.V. Butenko, V.G. Popkov, A.K. Popov, V.M. Shalaev, Phase-conjugation of CO₂-laser radiation by a three-beam interaction, *Opt. & Quant. Electr.* 19, 259, (1987).
- 17 V.M. Shalaev, M.I. Shtockman, Optical properties of fractal clusters (susceptibility, surface enhanced Raman scattering by impurities), *Sov.Phys.JETP* 65, 287, (1987) [transl. from *Zh.Eksp.Teor.Fiz.* 92, 509 (1987)].
- 16 L.T. Bolotskikh, V.G. Popkov, A.K. Popov, V.M. Shalaev, Self-direction of CO₂-laser radiation in SF₆, *Opt. & Quant. Electr.* 18, 115, (1986).
- 15 V.M. Shalaev, V.Z. Yakhnin, Parametric resonance in molecules with electrooptical anharmonism, *Opt.Spectrosc.* 60, 582, (1986) [transl. from *Opt.Spektrosk.* 60, 943 (1986)].
- 14 L.T. Bolotskikh, V.G. Popkov, A.K. Popov and V.M. Shalaev, Degenerate multiphoton parametric scattering of infrared radiation by vibrational-rotational molecular transitions, *Sov.J.Quantum Electron.* 16, 616, (1986) [transl. from *Kvantovaya Elektron.* 13, 942 (1986)].
- 13 L.T. Bolotskikh, A.V. Butenko, V.G. Popkov, A.K. Popov, and V.M. Shalaev, Reversal of CO₂-laser radiation wave-front in a system of three interacting beams, *Sov.J.Quantum Electron.* 16, 695 (1986) [transl. from *Kvantovaya Elektron.* 13, 1058 (1986)].
- 12 V.M. Shalaev, V.Z. Yakhnin, Radiative-collision generation of sound in gases by single-pulse optical excitation, *Sov.Phys.JETP* 60, 693 (1984) [transl. from *Zh.Eksp.Teor.Fiz.* 87,1211 (1984)].
- 11 A.K. Popov, V.M. Shalaev, Unidirectional Doppler-free gain and generation in optically pumped lasers, *Appl. Phys.* 27, 63 (1982).
- 10 A.K. Popov, V.M. Shalaev, V.Z. Yakhnin, Light-induced drift under conditions of pulsed periodic excitation, *Sov.Phys.JETP* 55, 431 (1982) [transl. from *Zh.Eksp.Teor.Fiz.* 82, 725 (1982)].
- 9 A.K. Popov, V.M. Shalaev, Stimulated emission due to Doppler-free transitions in optically pumped lasers, *Sov. J. Quant. Electr.* 12, 289 (1982) [transl. from *Kvant. Electr.* 9, 488 (1982)].
- 8 A.K. Popov, A.M. Shalagin, V.M. Shalaev, V.Z. Yakhnin, Drift of gases induced by nonmonochromatic light, *Appl. Phys.* 25, 347, (1981).

- 7 A.K. Popov, A.M. Shalagin, V.M. Shalaev, V.Z. Yakhnin, Light-induced diffusion of gases in the field of nonmonochromatic wave, *Opt.Spectrosc.* 50, 327 (1981) [transl. from *Opt.Spektrosk.* 50, 598 (1981)].
- 6 A.K. Popov, V.M. Shalaev, Doppler-free nonlinear processes in strong optical fields, *Opt. Spectrosc.*, 49, 336, (1981) [transl. from *Opt.Spektrosk.* 49, 617 (1980)].
- 5 A.K. Popov, A.M. Shalagin, V.M. Shalaev, V.Z. Yakhnin, Drift of gases induced by nonmonochromatic light, *Sov. Phys.JETP* 53, 1134 (1981) [transl. from *Zh.Eksp.Teor.Fiz.* 80, 2175 (1981)].
- 4 A.K. Popov, V.M. Shalaev, Doppler-free spectroscopy and wave-front conjugation by four-wave mixing of nonmonochromatic waves, *Appl. Phys.* 21, 93 (1980).
- 3 A.K. Popov, V.M. Shalaev, Doppler-free transitions induced by strong double-frequency optical excitations, *Optics Commun.* 35, 189 (1980).
- 2 A.K. Popov, V.M. Shalaev, Doppler-free transitions in four-photon resonant parametric processes, *Soviet Journal of Quantum Electronics* 10, 785 (1980) [transl. from *Kvantovaya Electron.* 7, 1362 (1980)].
- 1 A.K. Popov, V.M. Shalaev, Doppler-free spectroscopy and wave front rotation in the parametric interaction of nonmonochromatic waves, *JETP Letters* 30, 161 (1979) [translated from *Pis'ma Zh.Eksp.Teor.Fiz.* 30, 175 (1979)].

Selected Conference Proceedings and Other Publications:

- [403] S Peana, O Yesilyurt, Z Martin, A Senichev, V. Mkhitarian, A. Lagutchev, A. Kildishev, A. Boltasseva, V. Shalaev, Large-Scale Integration of Silicon Nitride Single Photon Emitters with Nanophotonic Elements, *Bulletin of the American Physical Society*, 2023, Las Vegas, NV, USA (March 5-10, 2023)
- [402] Z Martin, A Senichev, S Peana, B Lawrie, A Lagutchev, A. Boltasseva, V. Shalaev, Low-to Room-Temperature Studies of Silicon Nitride Single Photon Emitters, *Bulletin of the American Physical Society*, 2023, Las Vegas, NV, USA (March 5-10, 2023)
- [401] AB Solanki, X Xu, D Sychev, X Gao, S Peana, A Baburin, K Pagadala, Z. Martin, S. N. Chowdhury, Y. Chen, T.Taniguchi, K. Watanabe, I. Rodionov, A. Kildishev, T. Li, Pramey Upadhyaya, A. Boltasseva, V. Shalaev, Greatly Enhanced Emission from Spin Defects in Hexagonal Boron Nitride Enabled by a Low-Loss Plasmonic Nano-Cavity, *APS March Meeting 2023*, Las Vegas, NV, USA (March 5-10, 2023)

[400] MM Rahman, A Solanki, A Rustagi, W Tong, YP Chen, V. M. Shalaev, P. Upadhyaya, Electric-field sensing using Quantum spin defect/multiferroic hybrids, [Abstract: Q39.00007](#), Bulletin of the American Physical Society, APS March Meeting 2022, Chicago, IL, USA (March 14–18, 2022)

[399] V. Shalaev, [SPIE Photonics Europe Proc. SPIE PC12130](#), [Metamaterials XIII, PC121300X](#) (24 May 2022)

[398] V. Shalaev, Quantum emitters in hexagonal boron nitride and plasmonic enhancement, SPIE Optics and Photonics, Plasmonics: Design, Materials, Fabrication, Characterization and Applications, 2022, Proceedings PC121970Q, doi.org/10.1117/12.2632854, San Diego, California, USA, (August 25-28, 2022)

[397] S. Saha, M. Özlü, V. M. Shalaev, A. Boltasseva, “Temporal modulation of dielectric permittivity in transparent conducting oxides: from tunable photonics to new phenomena,” SPIE Optics and Photonics, Plasmonics: Design, Materials, Fabrication, Characterization, and Applications XX 2022; Proceedings v. PC12197, p. PC121970F, San Diego, California, USA (August 25-28, 2022)

[396] A. Boltasseva, V. M. Shalaev, B. Wilson, “Machine learning for photonics,” SPIE Optics and Photonics, Active Photonic Platforms 2022, Proceedings v. PC12196, p. PC121960T, Proceedings Volume PC12197, p. PC121970F, San Diego, California, USA, (August 25-28, 2022)

[395] C. Fruhling, K. Wang, S. N. Chowdhury, A. V. Kildishev, X. Meng, L. Dou, V. M. Shalaev, A. Boltasseva, “Random lasing in quasi-2D lead-halide perovskite,” SPIE Optics and Photonics, Metamaterials, Metadevices, and Metasystems 2022, Proceedings v. PC12195, p. PC121950O, San Diego, California, USA (August 25-28, 2022)

[394] A. Senichev, Z. O. Martin, S. Peana, O. Yesilyurt, D. Sychev, X. Xu, A. S. Lagutchev, A. Boltasseva, V. M. Shalaev, “Hybrid quantum photonics: plasmonic speedup and single-photon emitters in SiN,” SPIE Optics and Photonics, Active Photonic Platforms 2022, Proceedings v. PC12196, p. PC121960Z, San Diego, California, USA (August 25-28, 2022)

[393] S. Saha, B. Diroll, R. Shaller, A. Boltasseva, V. Shalaev, “Engineering the Temporal Dynamics with Fast and Slow Materials for All-Optical Switching,” arXiv preprint [arXiv:2208.12927](https://arxiv.org/abs/2208.12927) (August 22, 2022)

[392] X. Xu, A. Solanki, D. Sychev, X. Gao, S. Peana, A. S. Baburin, K. Pagadala, Z. O. Martin, S. N. Chowdhury, Y. P. Chen, I. A. Rodionov, A. V. Kildishev, T. Li, P. Upadhyaya, A. Boltasseva, V. M. Shalaev, “Greatly Enhanced Emission from Spin Defects in Hexagonal Boron Nitride Enabled by a Low-Loss Plasmonic Nano-Cavity,” arXiv preprint [arXiv:2207.08357](https://arxiv.org/abs/2207.08357) (July 18, 2022)

[391] A. Senichev, S. Peana, Z. O. Martin, O. Yesilyurt, D. Sychev, A. S. Lagutchev, A. Boltasseva, V. M. Shalaev, “Single-Photon Emitters in SiN Integrated Quantum Photonics,” Optica publishing group, Quantum 2.0 2022 conference, p. QW4B. 5, Boston, MA, USA (June 13-16, 2022)

- [390] B. Wilson, Y. Chen, S. Kais, A. Kildishev, V. Shalaev, A. Boltasseva, “Empowering Quantum 2.0 Devices and Approaches with Machine Learning,” Optica publishing group, Quantum 2.0 2022 conference, p. QTu2A. 13, Boston, MA, USA (June 13-16, 2022)
- [389] A. Senichev, S. Peana, Z. O. Martin, O. Yesilyurt, D. Sychev, A. S. Lagutchev, A. Boltasseva, V. M. Shalaev, “Single-Photon Emitters in SiN Integrated Quantum Photonics,” arXiv preprint arXiv:2205.08481 (May 17, 2022)
- [388] X. Xu, A. Solanki, D. Sychev, X. Gao, S. Peana, A. S. Baburin, K. Pagadala, Z. O. Martin, S. N. Chowdhury, Y. P. Chen, I. A. Rodionov, A. V. Kildishev, T. Li, P. Upadhyaya, A. Boltasseva, V. M. Shalaev, “Plasmon-enhanced Quantum Emission from Spin Defects in Two-dimensional Hexagonal Boron Nitride, 2022 Conference on Lasers and Electro-Optics (CLEO), Optica Publishing Group, p. FF3C.3 (May 15-20, 2022)
- [387] C. Fruhling, K. Wang, S. N. Chowdhury, A. V. Kildishev, X. Meng, L. Dou, V. M. Shalaev, A. Boltasseva, “Demonstration of Coherent Random Lasing in Optically Thin Quasi-2D Lead-halide Perovskite,” 2022 Conference on Lasers and Electro-Optics (CLEO), QELS_Fundamental Science, Optica Publishing Group, p. FTh5D. 1 (May 15-20, 2022)
- [386] D. Shah, M. Yang, X. Xu, Z. A. Kudyshev, V. M. Shalaev, I. V. Bondarev, A. Boltasseva, “Thickness-Dependent Drude Plasma Frequency in Transdimensional Plasmonic TiN,” 2022 Conference on Lasers and Electro-Optics (CLEO), QELS_Fundamental Science, Optica Publishing Group, p. FF4C. 2 (May 15-20, 2022)
- [385] A. Senichev, S. Peana, Z. O. Martin, O. Yesilyurt, D. Sychev, A. S. Lagutchev, A. Boltasseva, V. M. Shalaev, “Monolithic Integration of Quantum Emitters with Silicon Nitride Photonic Platform,” 2022 Conference on Lasers and Electro-Optics (CLEO), Optica Publishing Group, p. FW5F.6 (May 15-20, 2022)
- [384] S. Peana, O. Yesilyurt, V. Mkhitarian, A. Senichev, Z. O. Martin, S. Lagutchev, A. Boltasseva, V. M. Shalaev, “Large Scale Deterministic Creation of Single Photon Emitters in Silicon Nitride Nanopillars,” 2022 Conference on Lasers and Electro-Optics (CLEO), QELS_Fundamental Science, Optica Publishing Group, p. FS4B.5 (May 15-20, 2022)
- [383] M. Yang, D. Sychev, X. Xu, Z. Martin, D. Mandurus, H. Suriya, A. Lagoutchev, V. M. Shalaev, A. Boltasseva, “Plasmonically Enhanced Second Harmonic Generation of Weyl Semimetal TaAs through field confinement,” 2022 Conference on Lasers and Electro-Optics (CLEO), CLEO: Science and Innovations, Optica Publishing Group, p. SF4K. 1 (May 15-20, 2022)
- [382] S. Saha, B. T. Diroll, M. G. Ozlu, Z. Kudyshev, R. D. Schaller, A. Kildishev, V. M. Shalaev, A. Boltasseva, “Optically Tunable Third Harmonic Generation in a Conducting Oxide Film,” 2022 Conference on Lasers and Electro-Optics (CLEO), QELS_Fundamental Science, Optica Publishing Group, p. JTU3A. 37 (May 15-20, 2022)
- [381] S. Saha, M. Goksu Ozlu, S. N. Chowdhury, B. T. Diroll, R. D. Schaller, A. Kildishev, A. Boltasseva, V. M. Shalaev, “Tailoring the Thickness-Dependent Optical

- Properties of Conducting Nitrides and Oxides for Epsilon-Near-Zero-Enhanced Photonic Applications,” arXiv preprint arXiv:2203.14170 (March 26, 2022)
- [380] C. Fruhling, M. Ozlu, S. Saha, A. Boltasseva, V. Shalaev, “A guide to all-optical switching with epsilon-near-zero materials,” abstract: Y33.00002, Bulletin of the American Physical Society, APS March Meeting 2022, Chicago, IL, USA (March 14–18, 2022)
- [379] D. Shah, M. Yang, Z. Kudyshev, V. Shalaev, I. Bondarev, A. Boltasseva, “Effect of electron confinement on the optical properties in transdimensional plasmonic TiN,” abstract: S66.00012, Bulletin of the American Physical Society, APS March Meeting 2022, Chicago, IL, USA (March 14–18, 2022)
- [378] M. Ozlu, S. Saha, S.N. Chowdhury, A. Kildishev, A. Boltasseva, R. Schaller, V. Shalaev, “Tailorable Near-Perfect Absorption in Ferrel Berreman Metasurfaces Utilizing The Thickness Dependent ENZ Characteristics Of Aluminum Doped Zinc Oxide and Titanium Nitride,” abstract: S66.00003, Bulletin of the American Physical Society, APS March Meeting 2022, Chicago, IL, USA (March 14–18, 2022)
- [377] S. Saha, B. Diroll, R. Shaller, A. Boltasseva, V. Shalaev, “Controlling the Speed of an All Optical Switch by Combining Fast and Slow Materials,” abstract: T00. 00365, Bulletin of the American Physical Society, APS March Meeting 2022, Chicago, IL, USA (March 14–18, 2022)
- [376] S.N. Chowdhury, L. Prokopeva, S. Peana, P. Nyga, E. Bravo, A. Kildishev, V. Shalaev, A. Boltasseva, “Plasmonic Color Printing with Semicontinuous Silver Films and Modeling of Inhomogeneous Broadening,” abstract: W12. 00007, Bulletin of the American Physical Society, APS March Meeting 2022, Chicago, IL, USA (March 14–18, 2022)
- [375] A. Senichev, Z. Martin, S. Peana, D. Sychev, X. Xu, O. Yesilyurt, A. Lagutchev, A. Boltasseva, V. Shalaev, “Single-Photon Emitters in Silicon Nitride for Scalable Quantum Photonics,” abstract: K67.00001, Bulletin of the American Physical Society, APS March Meeting 2022, Chicago, IL, USA (March 14–18, 2022)
- [374] X. Xu, Z. Martin, D. Sychev, A. Lagutchev, Y. Chen, T. Taniguchi, K. Watanabe, A. Boltasseva, V. Shalaev, “Deterministically Creating Single-Photon Emitters in Hexagonal Boron Nitrides on Chip-Compatible Substrates,” abstract: B55.00010, Bulletin of the American Physical Society, APS March Meeting 2022, Chicago, IL, USA (March 14–18, 2022)
- [373] S. Bogdanov, S. Sahoo, H. Azzouz, Z. Kudyshev, A. Boltasseva, A. V. Kildishev, V. M. Shalaev, “Optical metrology and preselection of nanoparticles for quantum photonic device assembly,” SPIE OPTO 2022, Optical and Quantum Sensing and Precision Metrology II, San Francisco, California, USA, Proceedings v. PC12016, p. PC120162V (February 22-27, 2022)
- [372] S. Bogdanov, O. Makarova, I. A. Rodionov, A. Boltasseva, V. M. Shalaev, “Nanoassembled quantum photonic devices with nanodiamond-based color centers,” SPIE OPTO 2022, Quantum Sensing and Nano Electronics and Photonics XVIII, San Francisco, California, USA, Proceedings v. PC12009, p. PC1200904 (February 22-27, 2022)

- [371] E.M. Baeva, A.I. Kolbatova, N.A. Titova, S. Saha, A. Boltasseva, S. Bogdanov, V. Shalaev, A.V. Semenov, A. Levchenko, G.N. Goltsman, V.S. Khrapai, “T-fluctuations and dynamics of the resistive transition in thin superconducting films,” arXiv:2202.06309 (February 13, 2022)
- [370] E.M. Baeva, A.I. Kolbatova, N.A. Titova, S. Saha, A. Boltasseva, S. Bogdanov, V. Shalaev, A.V. Semenov, A. Levchenko, G.N. Goltsman, V.S. Khrapai, “Resistance fluctuation spectroscopy of the superconducting transition in epitaxial TiN films,” arXiv:2202.06310 (February 13, 2022)
369. X. Xu, Z. Martin, D. Sychev, A. S. Lagutchev, Y. Chen, V. M. Shalaev, A. Boltasseva, “Deterministic Creation of Quantum Emitters in Hexagonal Boron Nitride on Non-patterned Substrates,” 2021 IEEE Photonics Conference (IPC) proceedings, pages 1-2 (October 2021)
368. V. M. Shalaev, J. Dionne, A. Boltasseva, “A tribute to Mark Stockman,” Editorial, Nanophotonics 10 (14), 3569-3585 (October 2021)
367. Z. A. Kudyshev, S. Bogdanov, Z. Olson, X. Xu, D. Sychev, A. Kildishev, V. Shalaev, A. Boltasseva, “Advancing photonic design and measurements with artificial intelligence,” International Society for Optics and Photonics, SPIE Nanoscience + Engineering 2020 conference, Metamaterials, Metadevices, and Metasystems 2021, Pages 1179506 (August 2, 2021)
366. S. Saha, Z. A. Kudyshev, V. M. Shalaev, A. Boltasseva, “Dynamic nanophotonics and nonlinear optics with oxides and nitrides,” International Society for Optics and Photonics, SPIE Nanoscience + Engineering 2020 conference, Metamaterials, Metadevices, and Metasystems 2021, Pages 117970S (August 2, 2021)
365. O. Yesilyurt, Z. A. Kudyshev, A. Boltasseva, V. M. Shalaev, A. V. Kildishev, “Topology optimization of high-efficiency on-chip single photon sources,” International Society for Optics and Photonics, SPIE Nanoscience + Engineering 2020 conference, Metamaterials, Metadevices, and Metasystems 2021, Pages 117950I (August 2, 2021)
364. Z. A. Kudyshev, A. V. Kildishev, V. M. Shalaev, A. Boltasseva, “Optimizing Startshot lightsail design: a generative network-based approach,” arXiv:2108.12999 (August 2021)
363. S. Saha, D. Shah, V. M. Shalaev, A. Boltasseva, “Tunable Metasurfaces: Controlling Light in Space and Time,” Optics and Photonics News 32 (7), 34-41 (July 2021)
362. O. Yesilyurt, Z. A. Kudyshev, A. Boltasseva, V. M. Shalaev, A. V. Kildishev, “Efficient Topology Optimized Couplers for On-Chip Single-photon Sources,” arXiv:2107.07019 (July 14, 2021)

361. X. Xu, Z. Martin, D. Sychev, A. Lagutchev, Y. Chen, T. Taniguchi, K. Watanabe, V. M. Shalaev, A. Boltasseva, "Creating Quantum Emitters in Hexagonal Boron Nitride Deterministically on Chip-Compatible Substrates," arXiv arXiv:2106.14983 (June 28, 2021)
360. A. Senichev, Z. Martin, S. Peana, D. Sychev, X. Xu, A. Lagutchev, A. Boltasseva, V. M. Shalaev, "Room temperature single-photon emitters in silicon nitride," arXiv:2104.08128 (April 16, 2021)
359. B. Wilson, Z. Kudyshev, A. Kildishev, S. Kais, V. Shalaev, A. Boltasseva, "Metasurface design optimization via D-Wave based sampling," Optical Society of America, CLEO: Applications and Technology proceedings, pages FTh2M.2, online conference (May 5-10, 2021)
358. S. Saha, B. Diroll, S. Chowdhury, A. Kildishev, R. Schaller, V. Shalaev, Z. Jacob, A. Boltasseva, "Controlling All-optical Switching Speeds in an Epsilon-Near-Zero Enhanced Metasurface," Optical Society of America, CLEO: Applications and Technology proceedings, pages FW2N. 5, online conference (May 5-10, 2021)
357. E. Lustig, S. Saha, E. Bordo, C. DeVault, S. Chowdhury, Y. Sharabi, A. Boltasseva, O. Cohen, V. Shalaev, M. Segev, "Towards photonic time-crystals: observation of a femtosecond time-boundary in the refractive index," Optical Society of America, CLEO: QELS_Fundamental Science, pages FF2H. 1, online conference (May 5-10, 2021)
356. Z. Kudyshev, D. Sychev, Z. Martin, S. Bogdanov, X. Xu, A. Kildishev, A. Boltasseva, V. Shalaev, "Machine learning assisted quantum super-resolution microscopy," Optical Society of America, CLEO: Applications and Technology proceedings, pages JTh4C. 5, online conference (May 5-10, 2021)
355. A. Senichev, Z. Martin, S. Peana, D. Sychev, X. Xu, A. Lagutchev, A. Boltasseva, V. M. Shalaev, "Room temperature single-photon emitters in silicon nitride," Optical Society of America, CLEO: Applications and Technology proceedings, pages 1-2, online conference (May 5-10, 2021)
354. B. A. Wilson, Z. A. Kudyshev, A. V. Kildishev, S. Kais, V. M. Shalaev, A. Boltasseva, "Machine Learning Framework for Quantum Sampling of Highly-Constrained, Continuous Optimization Problems," arXiv:2105.02396 (May 5-10, 2021)
353. A. Boltasseva, D. Hagan, "Celebrating ten years," Editorial, Optical Materials Express 11 (5), 1566-1567 (May 2021)
352. A. Boltasseva, V. M. Shalaev, N. I. Zheludev, "Mark Stockman, the knight of plasmonics," Nature Photonics 15 (5), 321-322 (May 2021)

351. S. Bogdanov, M. Y. Shalaginov, A. Solanki, O. Makarova, X. Xu, Z. O. Martin, P. Upadhyaya, A. Boltasseva, V. M. Shalaev, “Optical readout of electron spin states in diamond NV centers for quantum and nanoscale photonics,” International Society for Optics and Photonics, Optical and Quantum Sensing and Precision Metrology conference, Pages 117003B, SPIE OPTO (May 3, 2021)
350. S. Saha, M. G. Wood, B. T. Diroll, A. Dutta, C. T. DeVault, J. Shank, S. Campione, T. S. S. Luk, R. D. Schaller, Z. A. Kudyshev, S. N. Chowdhury, X. Xu, A. V. Kildishev, V. M. Shalaev, A. Boltasseva, “Tuning and tailoring of the optical properties of transparent conducting oxides for dynamic nanophotonic applications,” International Society for Optics and Photonics, Ultrafast Phenomena and Nanophotonics XXV, Pages 116840U, SPIE OPTO (May 3, 2021)
349. S. Bogdanov, O. A. Makarova, I. A. Rodionov, A. Boltasseva, V. M. Shalaev, “Plasmon-enhanced single-photon sources for ultrafast quantum photonics,” International Society for Optics and Photonics, Photonic and Phononic Properties of Engineered Nanostructures XI, Pages 116941O, SPIE OPTO (May 3, 2021)
348. D. Shah, V. M. Shalaev, A. Boltasseva, “Evolution of the optical properties in atomically thin plasmonic titanium nitride,” International Society for Optics and Photonics, Optical Components and Materials XVIII, Pages 1168212, SPIE OPTO (May 3, 2021)
347. A. Boltasseva, “Advancing photonics with machine learning,” International Society for Optics and Photonics, Photonic and Phononic Properties of Engineered Nanostructures XI, Pages 116940L, SPIE OPTO (May 3, 2021)
346. S. Saha, A. Dutta, C. T. DeVault, B. T. Diroll, R. D. Schaller, Z. A. Kudyshev, A. V. Kildishev, V. M. Shalaev, A. Boltasseva, “Extraordinary permittivity modulation in zinc oxide for dynamic nanophotonics,” International Society for Optics and Photonics, P Oxide-based Materials and Devices XII, Pages 1168719 SPIE OPTO (May 3, 2021)
345. Z. Kudyshev, S. Bogdanov, T. Isacson, A. V. Kildishev, A. Boltasseva, V. M. Shalaev, “Machine Learning Assisted Quantum Photonics,” Optical Society of America, Quantum 2.0 conference, pages QM6B. 3, virtual conference (September 14, 2020)
344. S.I. Bogdanov, O.A. Makarova, X. Xu, A.S. Lagutchev, D. Shah, A.S. Baburin, I.A. Ryzhikov, I.A. Rodionov, S.I. Bozhevolnyi, A.V. Kildishev, A. Boltasseva, V.M. Shalaev and J. B. Khurgin, “Optical modification of cavity-antenna plasmonic nanostructures for brighter and faster single-photon emission,” Optical Society of America, Quantum 2.0 conference, pages QM4B. 5, virtual conference (September 14, 2020)

343. S. N. Chowdhury, P. Nyga, Z. A. Kudyshev, E. G. Bravo, A. S. Lagutchev, A. V. Kildishev, V. M. Shalaev, A. Boltasseva, “Lithography-free plasmonic color printing with femtosecond laser on semicontinuous silver films,” arXiv preprint arXiv:2009.04022 (September 8, 2020)
342. P. D. Terekhov, M. Povolotskyi, Z. Kudyshev, S. Peana, S. Azzam, A. Shalin, A. Karabchevsky, A. Kildishev, V. Shalaev, A. Boltasseva, “Thermally controlled bound states in the continuum in Si₃N₄ photonic crystals,” International Society for Optics and Photonics, SPIE Nanoscience + Engineering 2020 Online conference, Metamaterials, Metadevices, and Metasystems 2020, Pages 1146015 (August 20, 2020)
341. S.I. Bogdanov, O. Makarova, M. Shalaginov, C.-C. Chiang, X. Xu, I.A. Rodionov, A. Boltasseva, V.M. Shalaev, “Assembly and integration of plasmon-enhanced single-photon sources,” International Society for Optics and Photonics, SPIE Nanoscience + Engineering 2020 Online conference, Active Photonic Platforms XII, Pages 114611P (August 20, 2020)
340. S. Saha, B. Diroll, A. Dutta, C. deVault, A. Kildishev, M. Wood, V. M. Shalaev, R. Schaller, A. Boltasseva, “Lithography-free all-optical switching from the telecom to the mid-infrared regime with transparent conducting oxides,” International Society for Optics and Photonics, SPIE Nanoscience + Engineering 2020 Online conference, Active Photonic Platforms XII, Pages 114611T (August 20, 2020)
339. Z. A. Kudyshev, S. Bogdanov, A. V. Kildishev, A. Boltasseva, V. Shalaev, “Machine learning assisted plasmonics and quantum optics,” International Society for Optics and Photonics, SPIE Nanoscience + Engineering 2020 Online conference, Metamaterials, Metadevices, and Metasystems 2020, Pages 1146018 (August 20, 2020)
338. S. Bogdanov, X. Xu, O. Makarova, Z. Martin, A. Gabidullin, I. Rodionov, A. V. Kildishev, A. Boltasseva, S. Bozhevolnyi, J. B. Khurgin, V. M. Shalaev, “Plasmonic nanostructures from crystalline silver for ultrafast quantum photonics,” International Society for Optics and Photonics, SPIE Nanoscience + Engineering 2020 Online conference, Plasmonics: Design, Materials, Fabrication, Characterization, and Applications XVIII, Pages 114620I (August 20, 2020)
337. S. Bogdanov, A. Solanki, Z. Martin, M. Shalaginov, X. Xu, P. Upadhyaya, A. V. Kildishev, A. Boltasseva, V. M. Shalaev, “Optical electron spin relaxometry in diamond nitrogen-vacancy centers for applications in quantum and nanoscale photonics,” International Society for Optics and Photonics, SPIE Nanoscience +

Engineering 2020 Online conference, Spintronics XIII, Pages 1147021 (August 20, 2020)

336. Z. A. Kudyshev, A. V. Kildishev, V. M. Shalaev, A. Boltasseva, “Deep learning assisted photonics,” International Society for Optics and Photonics, SPIE Nanoscience + Engineering 2020 Online conference, Active Photonic Platforms XII, Pages 114610C (August 20, 2020)

335. Z. A. Kudyshev, A. V. Kildishev, V. M. Shalaev, A. Boltasseva, “Adversarial Autoencoders for Metasurface Design Optimization,” IEEE, 2020 International Applied Computational Electromagnetics Society Symposium (ACES) conference, 10.23919/ACES49320.2020.9196045 (27-31 July 2020)

334. M. Song, D. Wang, Z. A. Kudyshev, Y. Xuan, Z. Wang, A. Boltasseva, V. M. Shalaev, A. V. Kildishev, “Enabling optical steganography, data storage, and encryption with plasmonic colors,” arXiv preprint arXiv:2009.03521 (September 8, 2020)

333. Z.A. Kudyshev, A.V. Kildishev, V.M. Shalaev, A. Boltasseva, “Machine learning assisted global optimization of photonic devices,” arXiv preprint arXiv:2007.02205 (July 4, 2020)

332. S.I. Azzam, K. Chaudhuri, A. Lagutchev, Z. Jacob, Y.L. Kim, V.M. Shalaev, A. Boltasseva, A.V. Kildishev, “Single and multi-mode directional lasing from arrays of dielectric nanoresonators,” arXiv preprint arXiv:2006.16473 (June 30, 2020)

331. A.H. Chu, B. Beauchamp, D. Shah, A. Dutta, A. Boltasseva, V.M. Shalaev, E.E. Marinero, “Hybrid Magneto Photonic Material Structure for Plasmon Assisted Magnetic Switching,” arXiv preprint arXiv:2006.09524 (June 16, 2020)

330. S. Saha, A. Dutta, B. T. Diroll, C. DeVault, Z. Kudyshev, R. D. Schaller, A. Kildishev, V. M. Shalaev, A. Boltasseva, “Metal-dielectric resonators for multimode, ultrafast all-optical switching in the NIR,” Optical Society of America, CLEO: Applications and Technology proceedings, pages JTU2D. 29, virtual conference(May 5-10, 2020)

329. S. Bogdanov, X. Xu, O. Makarova, Z. Martin, A. Gabidullin, I. Rodionov, A. V. Kildishev, A. Boltasseva, S. Bozhevolnyi, J. B. Khurgin, V. M. Shalaev, “Enhancing the performance of coupled cavity-antenna plasmonic nanostructures for ultrafast quantum photonics,” Optical Society of America, CLEO: QELS_Fundamental Science proceedings, pages FM4C. 3, virtual conference (May 5-10, 2020)

328. Z. Kudyshev, S. Bogdanov, T. Isacson, A. V. Kildishev, A. Boltasseva, V. M. Shalaev, “Merging Machine Learning with Quantum Photonics: Rapid classification of quantum sources,” Optical Society of America, CLEO: QELS_Fundamental Science proceedings, pages FM4C. 4, virtual conference (May 5-10, 2020)
327. S.I. Azzam, K. Chaudhuri, A. Lagutchev, Y.L. Kim, V.M. Shalaev, A. Boltasseva, A.V. Kildishev, “Room-Temperature Lasing Action from All-dielectric Metasurfaces Near Bound States in the Continuum,” Optical Society of America, 2020 Conference on Lasers and Electro-Optics (CLEO), pages FTh1C.4, virtual conference (May 5-10, 2020)
326. X. Xu, A. Dutta, B. P. Sivasubramaniam, K. Kholikov, V. M. Shalaev, A. Wei, A. Boltasseva, “Synthesis of TiN Nanoparticles by Pulsed Laser Ablation for Photothermal and Photodynamic Therapy,” Optical Society of America, CLEO: QELS_Fundamental Science proceedings, pages JTu2D. 17, virtual conference (May 5-10, 2020)
325. C.-C. Chiang, S. I. Bogdanov, O. A. Makarova, X. Xu, S. Saha, D. Shah, D. Wang, A. S. Lagutchev, A.V. Kildishev, A. Boltasseva, V. M. Shalaev, “A quantum plasmonic launcher for integrated ultrafast single-photon sources,” Optical Society of America, 2020 Conference on Lasers and Electro-Optics (CLEO), pages FTh4D.4, virtual conference (May 5-10, 2020)
324. D. Wang, A. E. Llacsahuanga Allica, T.-F. Chung, A. V. Kildishev, Y. P. Chen, A. Boltasseva, V. M. Shalaev, “Plasmon-enhanced graphene photothermoelectric detector,” Optical Society of America, CLEO: Science and Innovation proceedings, pages SM3R. 8, virtual conference (May 5-10, 2020)
323. X. Xu, A. Dutta, J. Khurgin, V. M. Shalaev, A. Wei, A. Boltasseva, “TiN@TiO₂ Core-Shell Nanoparticles as Plasmon-Enhanced Photosensitizers for Photocatalysis,” Optical Society of America, CLEO: QELS_Fundamental Science proceedings, pages FM1D. 2, virtual conference (May 5-10, 2020)
322. S. N. Chowdhury, P. Nyga, Z. Kudyshev, E. Garcia, A. V. Kildishev, V. M. Shalaev, A. Boltasseva, “Non-fading Plasmonic Color Printing on Semicontinuous Metal Films with Protective Atomic Layer Deposition,” Optical Society of America, CLEO: Science and Innovation proceedings, pages SF2R.2, virtual conference (May 5-10, 2020)
321. S. Saha, B. T. Diroll, J. Shank, Z. Kudyshev, A. Dutta, S. N. Chowdhury, T. S. Luk, S. Campione, R. D. Schaller, V. M. Shalaev, A. Boltasseva, M. G. Wood, “Broadband, high-speed, and extraordinarily large all-optical switching with

yttrium-doped cadmium oxide,” Optical Society of America, CLEO: QELS_Fundamental Science proceedings, pages JTu2D. 1, virtual conference (May 5-10, 2020)

320. B. T. Diroll, S. Saha, V. M. Shalaev, A. Boltasseva, R. D. Schaller, “Broadband Ultrafast Dynamics of Refractory Metals: TiN and ZrN,” arXiv preprint arXiv:2004.10822 (April 22, 2020)

319. S. Saha, B. T. Diroll, J. Shank, Z. A. Kudyshev, A. Dutta, S. N. Chowdhury, T. S. Luk, S. Campione, R. D. Shaller, V. M. Shalaev, M. G. Wood, A. Boltasseva, “Broadband high-speed and large-amplitude all-optical switching with cadmium oxide,” SPIE Photonics West, SPIE OPTO, conference on Integrated Optics: Devices, Materials, and Technologies XI, San Francisco, California, United States, February 1-6 2020; Proceedings Volume 11281, pages 1128123 (March 2020)

318. Z. A. Kudyshev, S. Bogdanov, T. Isacson, A. V. Kildishev, A. Boltasseva, V. M. Shalaev, “Machine learning-assisted classification of quantum emitters,” SPIE Photonics West, conference on Advanced Optical Techniques for Quantum Information, Sensing, and Metrology, San Francisco, California, United States, February 1-6 2020; Proceedings Volume 11295, pages 112950N (March 2020)

317. V. M. Shalaev, S. Bogdanov, A. Boltasseva, “Plasmonic Metamaterials Meet Quantum,” Bulletin of the American Physical Society, v. 65 (March 2020)

316. Vincenzo Bruno, Stefano Vezzoli, Clayton DeVault, Enrico Carnemolla, Marcello Ferrera, Alexandra Boltasseva, Vladimir M. Shalaev, Daniele Faccio, Matteo Clerici, “Broad frequency shift of parametric processes in Epsilon-Near-Zero time-varying media”, arXiv:1912.00052 (November 2019).

315. Zhaxylyk A. Kudyshev, Alexander V. Kildishev, Vladimir M. Shalaev, Alexandra Boltasseva, “Machine-Learning-Assisted Metasurface Design for High-Efficiency Thermal Emitter Optimization”, arXiv:1910.12741 (October 2019).

314. Chin-Cheng Chiang, Simeon I. Bogdanov, Oksana A. Makarova, Xiaohui Xu, Soham Saha, Deesha Shah, Di Wang, Alexei S. Lagutchev, Alexander V. Kildishev, Alexandra Boltasseva, Vladimir M. Shalaev, “Chip-compatible quantum plasmonic launcher”, arXiv:1910.03005 (October 2019).

313. Simeon Bogdanov, Mikhail Y. Shalaginov, Zhaxylyk Kudyshev, Alexei S. Lagutchev, Alexandra Boltasseva, Vladimir M. Shalaev, “A hybrid plasmonic-dielectric platform for high-speed, room-temperature quantum nanophotonics (Conference Presentation)”, Active Photonic Platforms XI (SPIE, 2019).

312. Di Wang, Andres E Llacsahuanga Allecca, Ting-Fung Chung, Alexander V Kildishev, Yong P Chen, Alexandra Boltasseva, Vladimir M Shalaev, “Graphene pn junction photo-responsivity enhanced with gap-plasmons (Conference Presentation)”, *Metamaterials, Metadevices, and Metasystems 2019* (SPIE 2019).
311. Alexandra Boltasseva, Vladimir M Shalaev, “Transdimensional plasmonic materials for tailorable nanophotonics (Conference Presentation)”, *Active Photonic Platforms XI* (SPIE 2019).
310. Zhaxylyk A Kudyshev, Simeon Bogdanov, Alexander V Kildishev, Alexandra Boltasseva, Vladimir M Shalaev, “Artificial-intelligence-assisted photonics (Conference Presentation)”, *Metamaterials, Metadevices, and Metasystems 2019* (SPIE 2019).
309. Zhaxylyk A Kudyshev, Simeon Bogdanov, Theodor Isacson, Alexander V Kildishev, Alexandra Boltasseva, Vladimir M Shalaev, Rapid classification of quantum sources enabled by machine learning, *arXiv:1908.08577* (August 2019).
308. Vincenzo Bruno, C DeVault, S Vezzoli, Z Kudyshev, T Huq, S Mignuzzi, A Jacassi, S Saha, Yash Diptesh Shah, SA Maier, DRS Cumming, A Boltasseva, M Ferrera, Matteo Clerici, Daniele Faccio, R. Sapienza, V. M. Shalaev, “Negative refraction in time-varying, strongly-coupled plasmonic antenna-ENZ system”, *arXiv:1908.03908* (August 2019).
307. Igor V. Bondarev, Hamze Mousavi, Vladimir M. Shalaev, “Transdimensional epsilon-near-zero modes in planar plasmonic nanostructures”, *arXiv:1908.00640* (August 2019).
306. Zhaxylyk Kudyshev, Alexander V. Kildishev, Vladimir M. Shalaev, and Alexandra Boltasseva, “Machine-Learning-Assisted Topology Optimization for Refractory Photonics” *Integrated Photonics Research, Silicon and Nanophotonics* (OSA 2019).
305. Vincenzo Bruno, Stefano Vezzoli, Clayton DeVault, Vladimir M Shalaev, Alexandra Boltasseva, Matteo Clerici, Marcello Ferrera, Daniele Faccio, “Highly efficient frequency shifting from temporally modulated Epsilon-Near-Zero surfaces”, *2019 Conference on Lasers and Electro-Optics Europe & European Quantum Electronics Conference* (OSA 2019).
304. Shaimaa I Azzam, Krishnakali Chaudhuri, Vladimir M Shalaev, Alexandra Boltasseva, Alexander V Kildishev, “High Q-Factor All-Dielectric Metasurface Based on Bound States in the Continuum”, *CLEO: QELS_Fundamental Science* (OSA 2019).

303. Soham Saha, Sarah Chowdhury, Aveek Dutta, AV Kildishev, VM Shalaev, A Boltasseva, “Hybrid Photonic-Plasmonic Waveguides with Ultrathin TiN”, CLEO: Applications and Technology (OSA 2019).
302. O. A. Makarova, S. Bogdanov, X. Xu, D. Shah, A. S. Baburin, I. A. Ryzhikov, S. Saha, IA Rodionov, A. V. Kildishev, A. Boltasseva, V. M. Shalaev, “Controlled Assembly of an Ultrafast Single-Photon Source”, CLEO: QELS_Fundamental Science (OSA 2019).
301. S. Bogdanov, O. A. Makarova, A. S. Lagutchev, D. Shah, C-C Chiang, A. S. Baburin, I. A. Ryzhikov, S. Saha, I. A. Rodionov, A. Boltasseva, V. M. Shalaev, “Spin Coherence in Single NV Centers Coupled to Controllably Assembled Nanopatch Antennas”, CLEO: QELS_Fundamental Science (OSA 2019).
300. Shaimaa I Azzam, Vladimir M Shalaev, Alexandra Boltasseva, Alexander V Kildishev, “Strong Coupling and Bound States in the Continuum in Hybrid Photonic-Plasmonic Structure”, CLEO: QELS_Fundamental Science (OSA 2019).
299. Zhaxylyk A Kudyshev, Alexander V Kildishev, Vladimir M Shalaev, Alexandra Boltasseva, “Machine-learning-assisted topology optimization for highly efficient thermal emitter design”, CLEO: QELS_Fundamental Science (OSA 2019).
298. A Dutta, A Naldoni, A Govorov, V. M. Shalaev, A Boltasseva, “Hot Carrier Induced Plasmon Enhanced Photocatalysis in Hematite Thin Films”, CLEO: QELS_Fundamental Science (OSA 2019).
297. Maowen Song, Di Wang, Zhaxylyk A Kudyshev, Alexandra Boltasseva, Honglin Yu, Vladimir M Shalaev, Alexander V Kildishev, “Using Dynamic Plasmonic Colors for Optical Cryptography”, CLEO: Science and Innovations (OSA 2019).
296. A Dutta, DY Wan, BX Yan, VM Shalaev, T Venkatesan, A Boltasseva, “Strontium Niobate for Near Infrared Plasmonics”, CLEO: Applications and Technology (OSA 2019).
295. Sarah N Chowdhury, Piotr Nyga, Zhaxylyk Kudyshev, Alexander V Kildishev, Vladimir M Shalaev, Alexandra Boltasseva, “Laser Color Printing on Semicontinuous Silver Films”, CLEO: Science and Innovations (OSA 2019).
294. Zhaxylyk A Kudyshev, Alexander V Kildishev, Vladimir M Shalaev, Alexandra Boltasseva, “High-Efficiency Emitter for Thermophotovoltaics: Topology Optimization”, 2019 International Applied Computational Electromagnetics Society Symposium (ACES), (IEEE 2019).

293. Maowen Song, Di Wang, Zhaxylyk Kudyshev, Yi Xuan, Honglin Yu, Alexandra Boltasseva, Vladimir M Shalaev, Alexander V Kildishev, “Plasmonic Colors and Memory with AI Metafilms”, 2019 International Applied Computational Electromagnetics Society Symposium (ACES) (IEEE 2019).
292. Alexandra Boltasseva, Clayton DeVault, Vincenzo Bruno, Soham Saha, Zhaxylyk Kudyshev, Aveek Dutta, Stefano Vezzoli, Marcello Ferrera, Daniele Faccio, Vladimir M Shalaev, “Through the (conducting) looking-glass: transparent conducting oxides for nanophotonic applications (Conference Presentation)”, Oxide-based Materials and Devices X (SPIE 2019).
291. Zhaxylyk Kudyshev, Alexandra Boltasseva, Alexander V Kildishev, Vladimir M Shalaev, “Topology optimization for refractory plasmonic applications (Conference Presentation)”, Photonic and Phononic Properties of Engineered Nanostructures IX (SPIE 2019).
290. Alexandra Boltasseva, Zhaxylyk Kudyshev, Alexander Kildishev, Vladimir Shalaev, “Tunable topology of photonic systems based on transparent conducting oxides (Conference Presentation)”, Complex Light and Optical Forces XIII (SPIE 2019).
289. Simeon Bogdanov, Oksana Makarova, Mikhail Shalaginov, Chin-Cheng Chiang, Alexei S Lagutchev, Alexandra Boltasseva, Alexander V Kildishev, Vladimir M Shalaev, “Assembling nanoscale quantum photonic devices (Conference Presentation)”, Quantum Sensing and Nano Electronics and Photonics XVI (SPIE 2019).
288. Deesha Shah, Krishnakali Chaudhuri, Zhuoxian Wang, Alessandra Catellani, Mohamed Alhabeab, Harsha Reddy, Xiangeng Meng, Shaimaa Azzam, Nathaniel Kinsey, Alexander Kildishev, Young Kim, Vladimir Shalaev, Arrigo Calzolari, Yuri Gogotsi, Alexandra Boltasseva, “New materials and approaches for tailorable nanophotonics (Conference Presentation)”, Smart Photonic and Optoelectronic Integrated Circuits XXI (SPIE 2019).
287. Simeon I Bogdanov, Oksana A Makarova, Alexei S Lagutchev, Deesha Shah, Chin-Cheng Chiang, Soham Saha, Alexandr S Baburin, Ilya A Ryzhikov, Ilya A Rodionov, Alexander V Kildishev, Alexandra Boltasseva, Vladimir M Shalaev, “Deterministic integration of single nitrogen-vacancy centers into nanopatch antennas”, arXiv:1902.05996 (February 2019).
286. Aveek Dutta, Alberto Naldoni, Francesco Malara, Alexander O. Govorov, Vladimir Shalaev and Alexandra Boltasseva, "Gap-plasmon enhanced water splitting with ultrathin hematite films: The role of plasmonic-based light trapping

and hot electrons", Faraday Discussions (Royal Society of Chemistry (RSC), 2018), ISSN 1359-6640, doi:10.1039/c8fd00148k.

285. Vladimir M. Shalaev, "Plasmonic metamaterials reimaged (Conference Presentation)", Smart Photonic and Optoelectronic Integrated Circuits XX (SPIE, 2018), doi:10.1117/12.2292987.

284. Vladimir M. Shalaev, "Catching light with metamaterials (Conference Presentation)", Active Photonic Platforms X (SPIE, 2018), doi:10.1117/12.2319948.

283. Soham Saha, Aveek Dutta, Clayton DeVault, Vladimir M. Shalaev and Alexandra Boltasseva, "Ultrafast Tunable Metasurface with Transparent Conducting Oxide Antenna Array", Conference on Lasers and Electro-Optics (OSA, 2018), doi:10.1364/cleo_qels.2018.fth4m.4.

282. Zhaxylyk A. Kudyshev, Alexander V. Kildishev, Alexandra Boltasseva and Vladimir M. Shalaev, "Tunable topology of photonic systems based on transparent conducting oxides", Conference on Lasers and Electro-Optics (OSA, 2018), doi:10.1364/cleo_qels.2018.fth4j.1.

281. Di Wang, Kerry Maize, Maowen Song, Alexandra Boltasseva, Vladimir M. Shalaev, Ali Shakouri and Alexander V. Kildishev, "Thermoreflectance Imaging of Optically Pumped Gap Plasmon Structures", Conference on Lasers and Electro-Optics (OSA, 2018), doi:10.1364/cleo_qels.2018.fth1k.8.

280. Aveek Dutta, Alexander V. Kildishev, Vladimir M. Shalaev, Alexandra Boltasseva and Ernesto E. Marinero, "Surface-plasmon optomagnetic field enhancement for all-optical magnetization switching (Conference Presentation)", Integrated Optics: Devices, Materials, and Technologies XXII (SPIE, 2018), doi:10.1117/12.2288895.

279. Igor V. Bondarev and Vladimir M. Shalaev, "Quantum electrodynamics of optical metasurfaces", 2018 International Applied Computational Electromagnetics Society Symposium (ACES) (IEEE, 2018), doi:10.23919/ropaces.2018.8364252.

278. Aveek Dutta, Clayton DeVault, Vladimir M. Shalaev, Alexandra Boltasseva and Soham Saha, "Ultrafast all-optical switching in a continuous layer gap plasmon metasurface (Conference Presentation)", Active Photonic Platforms X (SPIE, 2018), doi:10.1117/12.2320585.

277. Alexandra Boltasseva, Vladimir M. Shalaev, Deesha Shah, Arrigo Calzolari, Alessandra Catellani, Harsha Reddy and Nathaniel Kinsey, "Ultra-thin transition metal nitrides for tailorable plasmonic devices (Conference Presentation)",

Plasmonics: Design, Materials, Fabrication, Characterization, and Applications XVI (SPIE, 2018), doi:10.1117/12.2320664.

276. Alexandra Boltasseva, Vladimir M. Shalaev, Mikhail Y. Shalaginov, Simeon Bogdanov, Alexei S. Lagutchev and Alexander V. Kildishev, "Ultra-compact metallic interface for NV spin readout (Conference Presentation)", Quantum Nanophotonics 2018 (SPIE, 2018), doi:10.1117/12.2322020.

275. Zhiguang Zhou, Hao Tian, Urcan Guler, Vladimir Shalaev, Thomas Hymel, Yi Cui and Peter Bermel, "Design and Fabrication of Thin-Film Silicon-Based Selective Solar Absorbers", Light, Energy and the Environment 2018 (E2, FTS, HISE, SOLAR, SSL) (OSA, 2018), doi:10.1364/ose.2018.ow3d.7.

274. U. Guler, K. Chaudhuri, S. I. Azzam, H. Reddy, V. Shalaev, A. Boltasseva and A. Kildishev, "High Temperature Sensing with Refractory Plasmonic Metasurfaces", 2018 12th International Congress on Artificial Materials for Novel Wave Phenomena (Metamaterials) (IEEE, 2018), doi:10.1109/metamaterials.2018.8534048.

273. A. M. Shaltout, K. Lagoudakis, J. van de Groep, S. Kim, J. Vučković, V. M. Shalaev and M. L. Brongersma, "Continuous Angle Beam Steering Using Spatiotemporal Frequency-Comb Control in Dielectric Metasurfaces", Conference on Lasers and Electro-Optics (OSA, 2018), doi:10.1364/cleo_qels.2018.fw3h.2.

272. Maowen Song, Alexander V. Kildishev, Di Wang, Zhuoxian Wang, Yi Xuan, Alexandra Boltasseva, Honglin Yu and Vladimir M. Shalaev, "Wavelength-dependent Optical-rotation Manipulation for Active Color Display and Highly Secure Encryption", Conference on Lasers and Electro-Optics (OSA, 2018), doi:10.1364/cleo_qels.2018.fth4m.2.

271. Di Wang, Kerry Maize, Yee Rui Koh, Maowen Song, Alexandra Boltasseva, Vladimir M. Shalaev, Ali Shakouri and Alexander V. Kildishev, "Mapping temperature distribution of optically pumped gap plasmon structure using thermorefectance imaging (Conference Presentation)", Active Photonic Platforms X (SPIE, 2018), doi:10.1117/12.2321104.

270. Simeon Bogdanov, Oksana Makarova, Chin-Cheng Chiang, Alexei Lagutchev, Alexandra Boltasseva, Vladimir M. Shalaev and Mikhail Y. Shalaginov, "Spin readout of nitrogen-vacancy centers with plasmonic nanostructures (Conference Presentation)", Metamaterials, Metadevices, and Metasystems 2018 (SPIE, 2018), doi:10.1117/12.2319629.

269. Alexandra Boltasseva, Harsha V. Reddy, Urcan Guler, Krishnakali Chaudhuri, Zhaxylyk Kudyshev, Alexander V. Kildishev and Vladimir M. Shalaev, "Temperature evolution of optical properties in plasmonic metals (Conference Presentation)", *Metamaterials, Metadevices, and Metasystems 2018* (SPIE, 2018), doi:10.1117/12.2320142.
268. Simeon Bogdanov, Mikhail Y. Shalaginov, Oksana Makarova, Chin-Cheng Chiang, Alexei S. Lagutchev, Alexandra Boltasseva and Vladimir M. Shalaev, "Room-temperature high-speed control of quantum emitters with plasmonic nanostructures (Conference Presentation)", *Quantum Nanophotonics 2018* (SPIE, 2018), doi:10.1117/12.2322063.
267. E. G. Carnemolla, V. Bruno, L. Caspani, M. Clerici, S. Vezzoli, T. Roger, C. DeVault, J. Kim, A. Shaltout, V. Shalaev, A. Boltasseva, D. Faccio and M. Ferrera, "Giant nonlinear frequency shift in epsilon-near-zero aluminum zinc oxide thin films", *Conference on Lasers and Electro-Optics* (OSA, 2018), doi:10.1364/cleo_si.2018.sm4d.7.
266. S. Bogdanov, M. Y. Shalaginov, A. Lagutchev, C.-C. Chiang, D. Shah, A.S. Baburin, I. A. Ryzhikov, I. A. Rodionov, A. Boltasseva and V. M. Shalaev, "Ultrabright Room-Temperature Emission from Single Plasmon-Enhanced Nitrogen-Vacancy Centers in Diamond", *Conference on Lasers and Electro-Optics* (OSA, 2018), doi:10.1364/cleo_qels.2018.ftu4e.6.
265. Zhuoxian Wang, Krishnakali Chaudhuri, Mohamed Alhabeab, Xiangeng Meng, Shaimaa I Azzam, Alexander Kildishev, Young L. Kim, Vladimir M. Shalaev, Yury Gogotsi and Alexandra Boltasseva, "MXenes for Plasmonic and Metamaterial Devices", *Conference on Lasers and Electro-Optics* (OSA, 2018), doi:10.1364/cleo_qels.2018.fm2g.7.
264. Vincenzo Bruno, Stefano Vezzoli, Clayton DeVault, Thomas Roger, Vladimir M. Shalaev, Alexandra Boltasseva, Marcello Ferrera, Matteo Clerici, Audrius Dubietis and Daniele Faccio, "Optical time reversal from time-dependent Epsilon-Near-Zero media", *Conference on Lasers and Electro-Optics* (OSA, 2018), doi:10.1364/cleo_qels.2018.fm3e.5.
263. Jesse A. Frantz, Jason D. Myers, Robel Y. Bekele, Yun Xu, Jingbo Sun, Mikhail Shalaev, Wiktor Walasik, Natalia M. Litchinitser and Jasbinder S. Sanghera, "Chalcogenide Glass Films for Nonlinear Metasurface Applications", *Advanced Photonics 2018* (BGPP, IPR, NP, NOMA, Sensors, Networks, SPPCom, SOF) (OSA, 2018), doi:10.1364/noma.2018.noth4d.2.

262. Yury Gogotsi, Alexandra Boltasseva, Krishnakali Chaudhuri, Zhuoxian Wang, Mohamed Alhabeab, Xiangeng Meng, Shaimaa I. Azzam, Alexander V. Kildishev, Young L. Kim and Vladimir M. Shalaev, "MXenes for nanophotonic and metamaterial devices (Conference Presentation)", *Active Photonic Platforms X* (SPIE, 2018), doi:10.1117/12.2320696.
261. Yun Xu, Jingbo Sun, Jesse A. Frantz, Mikhail I. Shalaev, Jason D. Myers, Robel Y. Bekele, Alexander Tsukernik, Wiktor T. Walasik, Jasbinder S. Sanghera and Natalia M. Litchinitser, "All-dielectric, nonlinear, reconfigurable metasurface-enabled optical beam converter (Conference Presentation)", *Metamaterials, Metadevices, and Metasystems 2018* (SPIE, 2018), doi:10.1117/12.2322146.
260. C. DeVault, V. Bruno, S. Vezzoli, T. Roger, S. Saha, M. Ferrera, M. Clerici, A. Dubietis, A. Boltasseva, D. Faccio and V.M. Shalaev, "Low-Index Materials for Enhanced Optical Nonlinearities", *2018 12th International Congress on Artificial Materials for Novel Wave Phenomena (Metamaterials)* (IEEE, 2018), doi:10.1109/metamaterials.2018.8534086.
259. Christian Haffner, Daniel Chelladurai, Yuriy Fedoryshyn, Arne Josten, Benedikt Baeuerle, Wolfgang Heni, Tatsuhiko Watanabe, Tong Cui, Bojun Cheng, Soham Saha, Delwin L. Elder, Larry. R. Dalton, Alexandra Boltasseva, Vladimir Shalaev, Nathaniel Kinsey and Juerg Leuthold, "Bypassing Loss in Plasmonic Modulators", *Conference on Lasers and Electro-Optics* (OSA, 2018), doi:10.1364/cleo_qels.2018.fth4h.1.
258. Z. Wang, D. Shah, K. Chaudhuri, A. Catellani, M. Alhabeab, H. Reddy, X. Meng, S. I. Azzam, N. Kinsey, A. V. Kildishev, Y. L. Kim, V. M. Shalaev, A. Calzolari, Y. Gogotsi and A. Boltasseva, "Emerging materials for tailorable nanophotonic devices", *2018 12th International Congress on Artificial Materials for Novel Wave Phenomena (Metamaterials)* (IEEE, 2018), doi:10.1109/metamaterials.2018.8534052.
257. S Bogdanov, MY Shalaginov, JC Ndukaife, OA Makarova, AV Akimov, et al., *Towards integrated plasmonic quantum devices (Conference Presentation)*, *Quantum Nanophotonics* 10359, 103590M, (2017)
256. D. Shaa, A. Catellani, H. Reddy, V. Shalaev, A. Boltasseva, A. Calzolari, "Controlling the plasmonic properties of ultrathin TiN films at the atomic level," *ArXiv* (December 19, 2017)
255. A. M. Shaltout, J. Kim, A. Boltasseva, V. M. Shalaev, A. V. Kildishev, "Ultrathin and Multicolor Optical Cavities with Embedded Metasurfaces," *arXiv:1711.05798* (November 15, 2017)

254. S. Vezzoli, V. Bruno, C. DeVault, T. Roger, V. M. Shalaev, A. Boltasseva, M. Ferrera, M. Clerici, A. Dubietis, D. Faccio, “Optical time reversal from time-dependent Epsilon-Near-Zero media,” arXiv:1709.06972 (September 20, 2017)

253. H. Reddy, D. Shah, N. Kinsey, V. M. Shalaev, A. Boltasseva, “Ultra-thin transition plasmonic metal nitrides: tailoring optical response to photonic applications,” 11th International Congress on Engineered Material Platforms for Novel Wave Phenomena (METAMATERIALS’2017) Proceedings, 3 pages, Marseille, France

252. A. Naldoni, U. Guler, A. Kildishev, A. Boltasseva, V. M. Shalaev, “Plasmonic Titanium Nitride for Solar Energy Conversion,” META 2017 the 8th International Conference on Metamaterials, Photonic Crystals and Plasmonics Proceedings, 2 pages, Seoul, South Korea, July 25-28, 2017

251. M. Clerici, N. Kinsey, C. DeVault, J. Kim, E. Carnemolla, L. Caspani, A. Shaltout, R. Kaipurath, D. Faccio, V. Shalaev, A. Boltasseva, M. Ferrera, “Harnessing interband and intraband nonlinearities in transparent conducting oxides via two-colour excitation,” META 2017 the 8th International Conference on Metamaterials, Photonic Crystals and Plasmonics Proceedings, 2 pages, Seoul, South Korea, July 25-28,

250. K. Chaudhuri, Z. Wang, X. Meng, M. Alhabeab, V. Shalaev, Y. Gogotsi, A. Boltasseva, “MXenes for Plasmonic and Metamaterial Devices,” The 8th International Conference on Surface Plasmon Photonics (SPP8) Proceedings, 1 page, paper IN-18, Taipei, Taiwan (May 22-26, 2017)

249. H. Ferguson, U. Guler, N. Kinsey, V. M. Shalaev, T. Norris, A. Boltasseva, “Interband Effects on Hot Carrier Relaxation in Titanium Nitride Films,” Optical Society of America, CLEO: QELS_Fundamental Science proceedings, JTh2A. 22 (May 14, 2017)

248. V. Zenin, C. DeVault, A. Pors, J. Kim, K. Chaudhuri, S. Bozhevolnyi, V. M. Shalaev, A. Boltasseva, “Using epsilon-near-zero substrate for pinning of plasmonic antenna resonance and suppression of near-field coupling,” The 8th International Conference on Surface Plasmon Photonics (SPP8) Proceedings, 1 page, paper P-05-14, Taipei, Taiwan (May 22-26, 2017)

247. H. Reddy, U. Guler, Z. Kudyshev, A. V. Kildishev, V. M. Shalaev, A. Boltasseva, “Temperature-dependent optical properties of plasmonic titanium nitride thin films,” arXiv:1702.03053 (February 9, 2017)

246. A. Dutta, K. Chaudhuri, C. Devault, J. Kim, S. Saha, U. Guler, V. Shalaev, A. Boltasseva, "Tailorable materials for nanophotonic applications," NANOMETA 2017: 6th International Topical Meeting on Nanophotonics and Metamaterial Conference proceedings, paper THU2o.2, 1 page, Seefeld (Tirol), Austria (January 4-7, 2017)
245. CT DeVault, N Kinsey, L Caspani, M Clerici, KM Rishad, T Roger, Enhanced nonlinearities in transparent conducting oxides for ultrafast photonics (Conference Presentation), Active Photonic Platforms IX 10345, 103450Z (2017)
244. AM Shaltout, K Lagoudakis, SJ Kim, J Vuckovic, VM Shalaev, Laser scanning using spatiotemporal beam dynamics in metasurfaces (Conference Presentation), Metamaterials, Metadevices, and Metasystems 2017 10343, 1034309 (2017)
243. S Saha, A Dutta, CT DeVault, N Kinsey, VM Shalaev, A Boltasseva, On-chip and planar optics with alternative plasmonic materials (Conference Presentation), Active Photonic Platforms IX 10345, 1034503 (2017)
242. D Wang, J Fang, CT DeVault, TF Chung, YP Chen, A Boltasseva, et al., Fractal metasurface enhanced graphene photodetector on glass substrate (Conference Presentation), Metamaterials, Metadevices, and Metasystems 2017 10343, 1034328 (2017)
241. S Choudhury, V Zenin, S Saha, V Shalaev, SI Bozhevolnyi, A Boltasseva, Novel Hard Mask Fabrication Method for Hybrid Plasmonic Waveguide and Metasurfaces, Laser Science, JTu2A. 12, (2017)
240. H Reddy, D Shah, N Kinsey, VM Shalaev, A Boltasseva, Ultra-thin plasmonic metal nitrides: Tailoring optical properties to photonic applications, Optical MEMS and Nanophotonics (OMN), 2017 International Conference on, 1-2 (2017)
239. V Bruno, S Vezzoli, T Roger, C DeVault, M Ferrera, V Shalaev, et al., Deeply sub-wavelength coherent absorption in optically thick ENZ films, The European Conference on Lasers and Electro-Optics, CK_7_3 (2017)
238. H Ferguson, U Guler, N Kinsey, VM Shalaev, T Norris, A Boltasseva, Titanium nitride films, Lasers and Electro-Optics (CLEO), 2017 Conference on, 1-1 (2017)
237. H Reddy, U Guler, K Chaudhuri, A Dutta, AV Kildishev, VM Shalaev, et al., Temperature induced deviations to the optical responses of plasmonic materials, Lasers and Electro-Optics (CLEO), 2017 Conference on, 1-1, (2017)

236. JC Ndukaife, B Isaacoff, MY Shalaginov, S Bogdanov, AG Nnanna, et al., Massive Parallel Positioning of Nanodiamonds on Nanophotonic Structures, CLEO: QELS_Fundamental Science, FTu3H. 1 (2017)
235. A Dutta, C DeVault, K Chaudhuri, S Shah, D Shah, HR Eragamreddy, et al., Oxides and Nitrides for Nanophotonics and Energy Applications, CLEO: QELS_Fundamental Science, FTu4G. 3, (2017)
234. Z Wang, X Meng, K Chaudhuri, M Alhabeab, SI Azzam, AV Kildishev, et al., Active Metamaterials Based on Monolayer Titanium Carbide MXene for Random Lasing, CLEO: QELS_Fundamental Science, FTu4G. 7 (2017)
233. K Chaudhuri, M Alhabeab, Z Wang, VM Shalaev, Y Gogotsi, A Boltasseva, Plasmonic Resonances in Nanostructured MXene: Highly Broadband Absorber, CLEO: QELS_Fundamental Science, FTu4H. 1 (2017)
232. C DeVault, V Zenin, A Pors, J Kim, K Chaudhuri, S Bozhevolnyi, et. al. Plasmonic Antenna Resonance Pinning and Suppression of Near-Field Coupling from Epsilon-Near-Zero Substrate, CLEO: QELS_Fundamental Science, FTu4H. 5 (2017)
231. A Naldoni, U Guler, Z Wang, M Marelli, F Malara, X Meng, LV Besteiro, et al., Broadband hot electron generation for solar energy conversion with plasmonic titanium nitride, CLEO: QELS_Fundamental Science, FTu4H. 6 (2017)
230. HR Eragamreddy, U Guler, K Chaudhuri, A Dutta, AV Kildishev, et al., Temperature induced deviations to the optical responses of plasmonic materials, CLEO: QELS_Fundamental Science, FTu4H. 7, (2017)
229. S Bogdanov, MY Shalaginov, AV Akimov, A Lagutchev, J Liu, D Woods, et al., Spin Contrast of Purcell-Enhanced Nitrogen-Vacancy Centers in Diamond, CLEO: QELS_Fundamental Science, FW4H. 3 (2017)
228. D Shah, H Reddy, N Kinsey, VM Shalaev, A Boltasseva, Optical Properties of Ultrathin Plasmonic TiN Films, CLEO: Science and Innovations, SM4K. 3 (2017)
227. H Ferguson, U Guler, N Kinsey, VM Shalaev, T Norris, A Boltasseva, Interband Effects on Hot Carrier Relaxation in Titanium Nitride Films, CLEO: Science and Innovations, JTh2A. 22 (2017)
226. M Ferrera, M Clerici, N Kinsey, C DeVault, J Kim, E Carnemolla, et al. Engineered Nonlinearities in Transparent Conducting Oxides CLEO: QELS_Fundamental Science, FM2F. 1 (2017)

225. A Dutta, D Shah, B Beauchamp, K Roy, VM Shalaev, EE Marinero, et al., Surface-Plasmon Opto-Magnetic Field Enhancement for Magnetization Reversal of On-Chip Nanomagnets, CLEO: Science and Innovations, SM3N. 8 (2017)
224. OA Makarova, MY Shalaginov, S Bogdanov, U Guler, A Boltasseva, Patterning metamaterials for fast and efficient single-photon sources, Proc. of SPIE Vol 10112, 1011208-1 (2017)
223. A Dutta, S Saha, N Kinsey, U Guler, VM Shalaev, A Boltasseva, Titanium Nitride based hybrid plasmonic-photonic waveguides for on-chip plasmonic interconnects, Proc. of SPIE Vol 10106, 1010614-1
222. MY Shalaginov, R Chandrasekar, S Bogdanov, Z Wang, X Meng, ...et al., Hyperbolic Metamaterials for Single-Photon Sources and Nanolasers, Quantum Plasmonics, 97-120
221. Marcello Ferrera, Nathaniel Kinsey, Clayton DeVault, Matteo Clerici, Jongbum Kim, Enrico Carnemolla, Amr Shaltout, Daniele Faccio, Vladimir Shalaev, and Alexandra Boltasseva, Complex Nonlinear Dynamics in Doped Zinc Oxide, NANOMETA 2017: 6th International Topical Meeting on Nanophotonics and Metamaterial Conference proceedings, paper THU4f:46, 1 page, Seefeld (Tirol), Austria (January 4-7, 2017)
220. A. Dutta, K. Chaudhuri, C. Devault, J. Kim, S. Saha, U. Guler, V. Shalaev, A. Boltasseva, "Tailorable materials for nanophotonic applications," NANOMETA 2017: 6th International Topical Meeting on Nanophotonics and Metamaterial Conference proceedings, paper THU2o.2, 1 page, Seefeld (Tirol), Austria (January 4-7, 2017)
219. U. Guler, A. Naldoni, H. Reddy, Z. Kudyshev, A. Kildishev, A. Boltasseva, V. M. Shalaev, "Plasmonic Metal Nitrides for Local Heating and Energy Applications," NANOMETA 2017: 6th International Topical Meeting on Nanophotonics and Metamaterial Conference proceedings, paper THU2o.1, 1 page, Seefeld (Tirol), Austria (January 4-7, 2017)
218. Vladimir M. Shalaev, Mikhail Y. Shalaginov, Simeon Bogdanov, Vadim V. Vorobyov, Jing Liu, Alexey V. Akimov, Alexei S. Lagutchev, Joseph K. Irudayaraj, Alexander V. Kildishev, Alexandra Boltasseva, Towards sensors and quantum registers using color center in diamond and nanophotonic structures, Proc. SPIE 9918, Metamaterials, Metadevices, and Metasystems 2016, 991826 (November 9, 2016); doi:10.1117/12.2240294

217. Alexandra Boltasseva, Nathaniel Kinsey, Matteo Cleirci, Marcello Ferrera, Jongbum Kim, Clayton DeVault, Amr M. Shaltout, Daniele Faccio, Vladimir Shalaev, Oxides in plasmonics and nanophotonics: materials and dynamic devices, Proc. SPIE 9920, Active Photonic Materials VIII, 99200J (November 9, 2016); doi:10.1117/12.2235414
216. Justus C. Ndukaife, Agbai George Agwu Nnanna, Alexander V. Kildishev, Vladimir M. Shalaev, Steven T. Wereley, Alexandra Boltasseva, On-demand rapid transport and stable trapping of nanoparticles by a hybrid electrothermoplasmonic nanotweezer, Proc. SPIE 9922, Optical Trapping and Optical Micromanipulation XIII, 992224 (November 10, 2016); doi:10.1117/12.2238894
215. Di Wang, Jieran Fang, Clayton T. DeVault, Ting-Fung Chung, Yong P. Chen, Alexandra Boltasseva, Vladimir M. Shalaev, Alexander V. Kildishev, Broadband enhanced graphene photodetector with fractal metasurface, Proc. SPIE 9918, Metamaterials, Metadevices, and Metasystems 2016, 99181S (November 9, 2016); doi:10.1117/12.2237050
214. S. Bogdanov, M. Shalaginov, J. Liu, V. Vorobyev, P. Kapitanova, A. Laguchev, M. Ferrera, A. Akimov, P. Belov, A. Kildishev, J. Irudayaraj, A. Boltasseva, V. M. Shalaev, "Quantum photonics with color centers in diamond and nanophotonic structures," Quantum Sensing and Nano Electronics and Photonics XIII, SPIE OPTO, paper #: PW16O-OE114-110, SPIE Photonics West, San Francisco, CA, USA, February 13-18, 2016
213. U. Guler, A. Boltasseva, V. M. Shalaev, "Refractory plasmonics: new material platforms for nanophotonics, Photonic and Phononic Properties of Engineered Nanostructures VI conference, SPIE OPTO, paper #: 9756-46, SPIE Photonics West, San Francisco, CA, USA, February 13-18, 2016
212. A Shaltout, A Kildishev and VM Shalaev, "Active metasurfaces for space-time photonic control", SPIE Photonics Europe, 98841C-98841C 1, (2016).
211. N. Kinsey, M. Ferrera, C. DeVault, J. Kim, A. Dutta, K. Chaudhuri, S. Choudhury, V.M. Shalaev, A. Boltasseva, "Transparent conducting oxides and durable plasmonic ceramics for practical nanophotonic devices," Winter Colloquium on the Physics of Quantum Electronics (PQE), Snowbird, Utah, USA, January 3-8, 2016
210. V. M. Shalaev, U. Guler, A. V. Kildishev, A. Boltasseva, "Refractory Plasmonics," SPIE Photonics Europe, Paper 988303-988303-1, Brussels, Belgium, April 3-7, 2016

209. J. Kim, N. Kinsey, C. DeVault, A. Dutta, M. Ferrera, V. Shalaev, A. Boltasseva, "Near-infrared plasmonics with transparent conducting oxides," SPIE Photonics Europe, Paper 98830X-98830X-1, Brussels, Belgium, April 3-7, 2016
208. N. Kinsey, C. DeVault, J. Kim, M. Ferrera, V. M. Shalaev, A. Boltasseva, "Transition metal nitrides and transparent conducting oxides for practical on-chip photonic devices," SPIE Photonics Europe, Paper 98840E-98840E-1, Brussels, Belgium, April 3-7, 2016
207. A. Boltasseva, K. Chaudhuri, U. Guler, N. Kinsey, J. Kim, C. DeVault, S. Choudhuri, A. Dutta, V. Shalaev, "Enhancing Plasmonics and Flat Optics with Novel Material Platforms," 2016 MRS Fall Meeting, contribution # EM7.2.04, Boston, MA, USA, November 28-December 2, 2016
206. U. Guler, D. Zemlyanov, J. Kim, A. Naldoni, Z. Wang, R. Chandrasekar, X. Meng, A.V. Kildishev, E. Stach, A. Boltasseva, V. M. Shalaev, "Nanostructured Plasmonic Metal Nitrides for Use in Nanophotonic Systems," 2016 MRS Fall Meeting, contribution # XX, Boston, MA, USA, November 28-December 2, 2016
205. A Shaltout, J Fang, A Kildishev and VM Shalaev, "Photonic Time-Crystals and Momentum Band-Gaps", CLEO: QELS_Fundamental Science, FM1D. 4, (2016).
204. V. M. Shalaev, New Material Platforms & Metasurface Designs for Plasmonics and Quantum Electronics, Proceedings of The International Midwest Symposium on Nano-Optics and Plasmonics (2016) (IMSNP16' Hengyang); 24-26 June Hengyang, China, p. 6.
203. V. M. Shalaev and A. Boltasseva, New Material Platforms for Nanophotonics, Proceedings of the 9-th International Conference on Nanophotonics (ICNP 2016), p. 25, Academica Sinica, Taipei, Taiwan, March 21-25, 2016
202. S. Bogdanov, M. Shalaginov, A. Boltasseva, V. M. Shalaev, "Material platforms for integrated quantum photonics," arXiv preprint arXiv:1610.00729 (October 2016)
201. U. Guler, K. Chaudhuri, A. Dutta, H. Reddy, A. Shaltout, S. Saha, N. Kinsey, V.M. Shalaev, A. Boltasseva, "Zirconium Nitride as Emerging Material for Durable Photonic Devices and On-chip Plasmonics", 10th International Congress on Advanced Electromagnetic Materials in Microwaves and Optics, Metamaterials 2016 Proceedings, Publisher IEEE, page 826-828, Crete, Greece (September 17-22, 2016)

200. V.M. Shalaev, M.Y. Shalaginov, S. Bogdanov, R. Chandrasekar, Z. Wang, V.V. Vorobyov, J. Liu, X. Meng, A.S. Lagutchev, A.V. Kildishev, J. Irudayaraj, A. Boltasseva, A.V. Akimov, "New Material Platforms and Metasurface Designs for Quantum Nanophotonics", 10th International Congress on Advanced Electromagnetic Materials in Microwaves and Optics, Metamaterials 2016 Proceedings, Publisher IEEE, page 856-858, Crete, Greece (September 17-22, 2016)
199. A. Naldoni, U. Guler, Z. Wang, M. Marelli, F. Malara, X. Meng, A. V. Kildishev, A. Boltasseva, V. M. Shalaev, "Enhancing Hot Carrier Collection for Solar Water Splitting with Plasmonic Titanium Nitride," arXiv:1607.06595 [cond-mat.mtrl-sci] (July 22, 2016)
198. U. Guler, H. Reddy, K. Chaudhury, A. Dutta, M. Shalaginov, S. Bogdanov, V. Shalaev, A. Boltasseva, "New materials for plasmonics: Designs and applications from flat optics to quantum nanophotonics," Optical Society of America, Integrated Photonics Research conference proceedings, IM4A. 1, Vancouver, Canada (July 18, 2016)
197. N. Kinsey, C. DeVault, M. Clerici, J. Kim, E. Carnemolla, A. Shaltout, R. Kaipurath, D. Faccio, V. Shalaev, M. Ferrera, A. Boltasseva, "Linear addition algebra of optical nonlinearities in transparent conductive oxides," arXiv preprint arXiv:1606.05824 (June 19, 2016)
196. N. Kinsey, J. Kim, C. DeVault, A. Dutta, M. Ferrera, S. Choudhury, U. Guler, V. M. Shalaev, A. Boltasseva, "Transition metal nitrides and transparent conducting oxides for near-infrared photonics," NanoPlasm conference proceedings, p. 16-17, Cetraro, Italy (June 17, 2016)
195. N. Kinsey, A. A. Syed, D. Courtwright, C. DeVault, C. E. Bonner, V. I. Gavrilenko, V. M. Shalaev, D. J. Hagan, E. W. Van Stryland, A. Boltasseva, "Effective third-order nonlinearities in refractory plasmonic TiN thin films," Optical Society of America, CLEO: QELS_Fundamental Science proceedings, FW4A. 4 (June 5, 2016)
194. J. M. Reed, M. R. Ferdinandus, N. Kinsey, C. DeVault, U. Guler, V. M. Shalaev, A. Boltasseva, A. Urbas, "Transient nonlinear refraction measurements of titanium nitride thin films," Optical Society of America, CLEO: QELS_Fundamental Science proceedings, FTu1A. 6 (June 5, 2016)
193. C. DeVault, N. Kinsey, J. Kim, A. Dutta, M. Ferrera, V.M. Shalaev, A. Boltasseva, "Ultrafast optical tuning of epsilon-near-zero thin films," Optical

Society of America, CLEO: QELS_Fundamental Science proceedings, FW4A. 5 (June 5, 2016)

192. A. Shaltout, J. Kim, A. Kildishev, A. Boltasseva, V. M. Shalaev, "Implementation of metasurface based nano-cavities," Optical Society of America, CLEO: QELS_Fundamental Science proceedings, FTh1D. 5 (June 5, 2016)

191. J. Fang, D. Wang, C. DeVault, T.-F. Chung, Y. Chen, A. Boltasseva, V. M. Shalaev, A. Kildishev, "Enhanced graphene photodetector with fractal metasurfaces," Optical Society of America, CLEO: QELS_Fundamental Science proceedings, FF1B. 4 (June 5, 2016)

190. S. Choudhury, A. Shaltout, A. V. Kildishev, V. M. Shalaev, A. Boltasseva, "Experimental realization of color hologram using Pancharatnam-Berry phase manipulating metasurfaces," Optical Society of America, CLEO: QELS_Fundamental Science proceedings, FF1D. 8 (June 5, 2016)

189. K. Chaudhuri, A. Shaltout, U. Guler, V. M. Shalaev, A. Boltasseva, "High efficiency phase gradient metasurface using refractory plasmonic zirconium nitride," Optical Society of America, CLEO: QELS_Fundamental Science proceedings, FF1D FM3N. 2 (June 5, 2016)

188. R. Chandrasekar, Z. Wang, X. Meng, A. Lagutchev, Y. L. Kim, A. Wei, A. Boltasseva, V. M. Shalaev, "Lasing action in gold nanorod hyperbolic metamaterial," Optical Society of America, CLEO: QELS_Fundamental Science proceedings, JTh4A. 4 (June 5, 2016)

187. J. C. Ndukaife, A. George, A. Nnanna, A. V. Kildishev, V. M. Shalaev, S. T. Wereley, A. Boltasseva, "Controlled rapid delivery and on-chip trapping of nanoparticles by a hybrid electrothermoplasmonic nanotweezer," Optical Society of America, CLEO: QELS_Fundamental Science proceedings, STh3H. 3 (June 5, 2016)

186. A. Dutta, N. Kinsey, S. Saha, U. Guler, V. M. Shalaev, A. Boltasseva, "Plasmonic interconnects using zirconium nitride," Optical Society of America, CLEO: QELS_Fundamental Science proceedings, JW2A. 86 (June 5, 2016)

185. A. Shaltout, M. Clerici, N. Kinsey, R. Kaipurath, J. Kim, E. G. Carnemolla, D. Faccio, A. Boltasseva, V. M. Shalaev, M. Ferrera, "Doppler-shift emulation using highly time-refracting TCO layer," Optical Society of America, CLEO: QELS_Fundamental Science proceedings, FF2D. 6 (June 5, 2016)

184. H. Reddy Eragamreddy, U. Guler, A. Kildishev, A. Boltasseva, V. M. Shalaev, "Optical properties of gold thin films at elevated temperatures," Optical Society of America, CLEO: QELS_Fundamental Science proceedings, JW2A. 85 (June 5, 2016)
183. M. Y. Shalaginov, S. Bogdanov, P. V. Kapitanova, A. S. Lagutchev, A. V. Kildishev, P.A. Belov, A. Boltasseva, V. M. Shalaev, Merging metamaterials with quantum photonics, 2015 9th International Congress on Advanced Electromagnetic Materials in Microwaves and Optics (METAMATERIALS), pp 283-285, (2015)
182. N. Kinsey, M. Ferrera, C. DeVault, J. Kim, V. M. Shalaev, A. Boltasseva, A practical platform for integrated optics with nitrides and oxides, 2015 IEEE Summer Topicals Meeting Series (SUM), pp17-18, (2015)
181. N. Kinsey, M. Ferrera, J. Kim, V. M Shalaev, A. Boltasseva, Nanophotonics with Titanium Nitride and Transparent Conducting Oxides, Integrated Photonics Research, Silicon and Nanophotonics, paper IW1A.4, (2015)
180. F. Ding, Z. Wang, V. Shalaev, and A. Kildishev, "Broadband High-Efficiency Half-Wave Plate Using Plasmonic Metasurface," in CLEO: 2015, OSA Technical Digest (online) (Optical Society of America, 2015), paper FTu1C.6.
179. S. Choudhury, A. Shaltout, V. Shalaev, A. Boltasseva, and A. Kildishev, "Color Hologram Generation Using a Pancharatnam-Berry Phase Manipulating Metasurface," in CLEO: 2015, OSA Technical Digest (online) (Optical Society of America, 2015), paper JTU5A.89.
178. N. Kinsey, P. West, M. Ferrera, A. Kildishev, V. Shalaev, and A. Boltasseva, "Dispersion Control of High-k Waves in Tapered Hyperbolic Waveguides," in CLEO: 2015, OSA Technical Digest (online) (Optical Society of America, 2015), paper FM3C.6.
177. A. Shaltout, V. Shalaev, and A. Kildishev, "Dual-Band Metasurface Based Nano-Cavities," in CLEO: 2015, OSA Technical Digest (online) (Optical Society of America, 2015), paper JTU5A.100.
176. M. Shalaginov, A. Lagutchev, V. Shalaev, and A. Kildishev, "Effect of a hyperbolic metamaterial on radiation patterns of a single-photon source," in CLEO: 2015, OSA Technical Digest (online) (Optical Society of America, 2015), paper FM2C.8.
175. J. Liu, Y. Hu, P. Kumar, M. Shalaginov, A. Lagutchev, V. Shalaev, G. Cheng, and J. Irudayaraj, "Enhanced Multi-Photon Emission from Single NV

Center Coupled to Graphene by Laser-Shaping," in CLEO: 2015, OSA Technical Digest (online) (Optical Society of America, 2015), paper FW4B.1.

174. N. Kinsey, M. Ferrera, c. DeVault, J. Kim, V. Shalaev, and A. Boltasseva, "Nanophotonics with Titanium Nitride and Transparent Conducting Oxides," in Advanced Photonics 2015, OSA Technical Digest (online) (Optical Society of America, 2015), paper IW1A.4.

173. J. Ndukaiife, A. Kildishev, A. Nnanna, s. Wereley, V. Shalaev, and A. Boltasseva, "Plasmon-Assisted Optoelectrofluidics," in CLEO: 2015, OSA Technical Digest (online) (Optical Society of America, 2015), paper AW3K.5.

172. Z. Wang, X. Meng, S. Choi, Y. Kim, V. Shalaev, and A. Boltasseva, "Plasmonic Random Lasing in Strongly Scattering Regime with Slanted Silver Nanorod Array," in CLEO: 2015, OSA Technical Digest (online) (Optical Society of America, 2015), paper FW3E.7.

171. D. Wang, N. Emani, T. Chung, L. Prokopeva, A. Kildishev, V. Shalaev, Y. Chen, and A. Boltasseva, "Plasmon Resonance in Single- and Double-layer CVD Graphene Nanoribbons," in CLEO: 2015, OSA Technical Digest (online) (Optical Society of America, 2015), paper FTu1E.3.

170. R. Chandrasekar, N. Emani, A. Lagutchev, V. Shalaev, C. Ciraci, D. Smith, and A. Kildishev, "Studying the Interplay of Electric and Magnetic Resonance-Enhanced Second Harmonic Generation: Theory and Experiments," in CLEO: 2015, OSA Technical Digest (online) (Optical Society of America, 2015), paper FW3D.2.

169. J. Fang, J. Liu, Z. Wang, X. Meng, L. Prokopeva, V. Shalaev, and A. Kildishev, "Time-Domain Model of 4-Level Gain System Fitted to Nanohole Array Lasing Experiment," in CLEO: 2015, OSA Technical Digest (online) (Optical Society of America, 2015), paper FW3E.5.

168. Jongbum Kim, Nathaniel Kinsey, Aveek Dutta, Marcello Ferrera, Clayton Devault, Alexander V. Kildishev, Vladimir M. Shalaev and Alexandra Boltasseva, "Transparent conducting oxides as plasmonic component in near infrared (Presentation Recording)", Proc. SPIE 9544, Metamaterials, Metadevices, and Metasystems 2015, 954411 (October 5, 2015); doi:10.1117/12.2189922; <http://dx.doi.org/10.1117/12.2189922>

167. Justus Ndukaiife, Alexander V. Kildishev, Agbai Agwu Nnanna, Steven T. Wereley, Vladimir M. Shalaev and Alexandra Boltasseva, "Electrothermoplasmonic flow for plasmon-assisted optical trapping (Presentation

Recording)", Proc. SPIE 9547, Plasmonics: Metallic Nanostructures and Their Optical Properties XIII, 95471Q (September 2, 2015); doi:10.1117/12.2189844; <http://dx.doi.org/10.1117/12.2189844>

166. Jieran Fang, Jingjing Liu, Zhuoxian Wang, Xiangeng Meng, Ludmila J. Prokopeva, Vladimir M. Shalaev and Alexander V. Kildishev, "Time-resolved lasing dynamics for plasmonic system with gain (Presentation Recording)", Proc. SPIE 9546, Active Photonic Materials VII, 95460Y (September 1, 2015); doi:10.1117/12.2188474; <http://dx.doi.org/10.1117/12.2188474>

165. Nathaniel Kinsey, Clayton T. DeVault, Jongbum Kim, Marcello Ferrera, Alexander V. Kildishev, Vladimir M. Shalaev and Alexandra Boltasseva, "Ultrafast dynamics of Al-doped zinc oxide under optical excitation (Presentation Recording)", Proc. SPIE 9546, Active Photonic Materials VII, 95460N (September 1, 2015); doi:10.1117/12.2188175; <http://dx.doi.org/10.1117/12.2188175>

164. Nathaniel Kinsey, Marcello Ferrera, Clayton DeVault, Jongbum Kim, Alexander V. Kildishev, Vladimir M. Shalaev and Alexandra Boltasseva, "Alternative materials lead to practical nanophotonic components (Presentation Recording)", Proc. SPIE 9546, Active Photonic Materials VII, 95460L (September 1, 2015); doi:10.1117/12.2189811; <http://dx.doi.org/10.1117/12.2189811>

163. Mikhail Shalaginov, Simeon Bogdanov, Jing Liu, Alexei Lagutchev, Alexander V. Kildishev, Dimitrios Peroulis, Joseph M. Irudayaraj, Alexandra Boltasseva and Vladimir M. Shalaev, "Effect of photonic density of states on spin-flip induced fluorescence contrast in diamond nitrogen-vacancy center ensembles (Presentation Recording)", Proc. SPIE 9544, Metamaterials, Metadevices, and Metasystems 2015, 95440O (October 5, 2015); doi:10.1117/12.2187485; <http://dx.doi.org/10.1117/12.2187485>

162. Vladimir M. Shalaev, Mikhail Y. Shalaginov, Vadim V. Vorobyov, Simeon Bogdanov, Alexey V. Akimov, Alexei Lagutchev, Alexander V. Kildishev and Alexandra Boltasseva, "Nitrogen-vacancy single-photon emission enhanced with nanophotonic structures (Presentation Recording)", Proc. SPIE 9544, Metamaterials, Metadevices, and Metasystems 2015, 95440L (October 5, 2015); doi:10.1117/12.2190251; <http://dx.doi.org/10.1117/12.2190251>

161. N. Kinsey, D. Courtwright, C. DeVault, V. Gavrilenko, C. Bonner, A. Kildishev, A. Boltasseva, V. Shalaev, "Inherent Third-Order Nonlinearities in Refractory Metallic TiN Thin Films", NANOMETA 2015: 5th International Topical Meeting on Nanophotonics and Metamaterial Conference, Seefeld (Tirol), Austria, 5-8 January, 2015, paper TUE2o-I-02.

160. N. Kinsey, C. DeVault, J. Kim, I. Kitamura, M. Ferrera, U. Guler, L. Prokopeva, A. Kildishev, V. ShalaeV, A. Boltasseva, "Dynamic Properties of Highly Doped Zinc Oxide", NANOMETA 2015: 5th International Topical Meeting on Nanophotonics and Metamaterial Conference, Seefeld (Tirol), Austria, 5-8 January, 2015, paper MON3o-I-03.
159. R. Chandrasekar, N. Emani, A. Lagutchev, V.M. ShalaeV, A.V. Kildishev, C. Ciraci, D.R. Smith, Second harmonic generation by metamagnetics: Interplay of electric and magnetic resonances, in OSA Frontiers in Optics 2014 Proceedings, FM4b, 2 pages
158. V.E. Babicheva, N. Kinsey, G.V. Naik, M. Ferrera, A.V. Lavrinenko, V.M. ShalaeV, and A. Boltasseva, Plasmonic Modulator Using CMOS-Compatible Material Platform, 8th International Congress on Advanced Electromagnetic Materials in Microwaves and Optics - Metamaterials 2014, Copenhagen, Denmark, 25-30 August 2014.
157. N. Kinsey, M. Ferrera, G. Naik, A. V. Kildishev, V. M. ShalaeV, and A. Boltasseva, Low-loss plasmonic titanium nitride strip waveguides, in CLEO: Science and Innovations 2014 Proceedings, STu1M.1, 2 pages.
156. F. Ding, N. Kinsey, J. Liu, Z. Wang, V.M. ShalaeV, and A.V. Kildishev, Unidirectional surface plasmon polariton coupler in the visible using metasurfaces, in CLEO: QELS 2014 Proceedings, JW2A, 2 pages
155. V. Babicheva, N. Kinsey, G. Naik, M. Ferrera, A. Lavrinenko, V. M. ShalaeV, and A. Boltasseva, "CMOS Compatible Ultra-Compact Modulator," in CLEO: 2014, San Jose, California, 2014, FTu3K.3, 2 pages.
154. U. Guler, A. Kildishev, A. Boltasseva, and V. M. ShalaeV, "Titanium nitride nanoparticles for therapeutic applications," in CLEO: 2014, San Jose, California, 2014, FM1K.4, 2 pages.
153. U. Guler, W. Li, A. Boltasseva, A. Kildishev, and V. M. ShalaeV, "Titanium Nitride as a Refractory Plasmonic Material for High Temperature Applications," in CLEO: 2014, San Jose, California, 2014, FM4C.8, 2 pages.
152. J. Liu, U. Guler, W. Li, A. Kildishev, A. Boltasseva, and V. M. ShalaeV, "High-temperature plasmonic thermal emitter for thermo-photovoltaics," in CLEO: 2014, San Jose, California, 2014, FM4C.5, 2 pages.
151. X. Meng, J. Liu, A. Kildishev, and V. M. ShalaeV, "Highly-directional plasmonic lasing in the visible with subwavelength hole arrays," in CLEO: 2014, San Jose, California, 2014, FTh3K.3, 2 pages.

150. C. Pfeiffer, N. K. Emani, A. M. Shaltout, A. Boltasseva, V. M. ShalaeV, and A. Grbic, "Experimental Huygens' Surface for NIR Wavelengths," in CLEO: 2014, San Jose, California, 2014, FF1C.4, 2 pages.
149. M. Y. Shalaginov, V. Vorobyov, J. Liu, M. Ferrera, A. Akimov, A. Lagutchev, A. N. Smolyaninov, V. V. Klimov, J. Irudayaraj, A. Kildishev, A. Boltasseva, and V. M. ShalaeV, "Single-photon source based on NV center in
148. A. Shaltout, A. Kildishev, and V. M. ShalaeV, "Compact Subwavelength Cavities Using Reflecting Metasurfaces," in CLEO: 2014, San Jose, California, 2014, JW2A.116, 2 pages.
147. P. R. West, J. Stewart, A. Kildishev, V. M. ShalaeV, V. V. Shkunov, F. Strohkendl, Y. Zakharenkov, and R. Dodds, All-Dielectric Metasurface Focusing Lens, in CLEO: 2014 Postdeadline Paper Digest, OSA Technical Digest (online) (Optical Society of America, 2014), paper JTh5B.3.
146. N. Kinsey, M. Ferrera, V. ShalaeV, and A. Boltasseva, A platform for practical plasmonics, SPIE Newsroom, May 6, 2014.
145. G. V. Naik, B. Saha, J. Liu, S. M. Saber, E. Stach, J. Irudayaraj, T. D. Sands, V. M. ShalaeV, and A. Boltasseva, A Titanium Nitride based Metamaterial for Applications in the Visible, in CLEO: QELS 2013 Proceedings, QTu3A.7, 2 pages.
144. U. Guler, J. C. NdukaiFe, G. V. Naik, A. Nnanna, A. Kildishev, V. M. ShalaeV, and A. Boltasseva, Local heating with titanium nitride nanoparticles, in CLEO: QELS 2013 Proceedings, QTu1A.2, 2 pages.
143. U. Guler, X. Meng, V. M. ShalaeV, and A. Kildishev, Unidirectional lasing with symmetry broken core-shell nanoparticle, in CLEO: QELS 2013 Proceedings, QTh4B.5, 2 pages.
142. S. Ishii, V. M. ShalaeV, and A. Kildishev, Holey metallic lens for light focusing, in CLEO: QELS 2013 Proceedings, QW3N.6, 2 pages.
141. X. Ni, A. Kildishev, S. Ishii, and V. M. ShalaeV, Plasmonic Metasurface Based Ultra-thin Phase Holograms and Planar Micro-lenses, in CLEO: QELS 2013 Proceedings, QM4A.4, 2 pages.
140. A. Shaltout, J. Liu, A. Kildishev, and V. M. ShalaeV, Broadband Optical Chirality Using Ultrathin Metasurface, in CLEO: QELS 2013 Proceedings, QM4A.5, 2 pages.
139. M. Shalaginov, S. Ishii, J. Liu, J. Irudayaraj, A. Kildishev, and V. ShalaeV, Broadband enhancement of spontaneous emission from nitrogen-vacancy centers

in nanodiamonds by hyperbolic metamaterials, in CLEO: QELS 2013 Proceedings, QTu2A.5, 2 pages.

138. V.M. Shalaev, X. Ni, A.V. Kildishev, and S. Ishii, Planar meta-optics, Proceedings of V Intl. Conf. Frontiers Of Nonlinear Physics, Nizhny Novgorod, Russia, July 28 - August 2, 2013, p. 264-5.

137. V.M. Shalaev, M.Y. Shalaginov, A. Lagutchev, and A.V. Kildishev, Metasmaterials for quantum optics, 2nd International Conference on Quantum Technologies, July 20-24, 2013, Moscow, Russia.

136. Urcan Guler, Gururaj V. Naik, Alexandra Boltasseva, Vladimir M. Shalaev, Alexander V. Kildishev, Nitrides as alternative materials for localized surface plasmon applications, OSA Frontiers in Optics 2012, Rochester, NY, October 14 - 18, 2012.

135. Jieran Fang, Ludmila J. Prokopeva, M. A. Alam, Vladimir M. Shalaev, and Alexander V. Kildishev, Numerical studies on randomly distributed gold nano-net structures, ACES 2012 Conference, Columbus, OH, April 10-14, 2012.

134. Ludmila J. Prokopeva, Alexander V. Kildishev, Jieran Fang, Joshua Borneman, Mark D. Thoreson, Vladimir M. Shalaev, and Vladimir P. Drachev, Nanoplasmonics FDTD Simulations Using a Generalized Dispersive Material Model, ACES 2011 Conference, Williamsburg, VA, March 27 - 31, 2011.

133. Mark D. Thoreson, Rasmus B. Nielsen, Paul R. West, Arian Kriesch, Zhengtong Liu, Jieran Fang, Alexander V. Kildishev, Ulf Peschel, Vladimir M. Shalaev and Alexandra Boltasseva, Studies of plasmonic hot-spot translation by a metal-dielectric layered superlens, SPIE Metamaterials: Fundamentals and Applications IV, San Diego, CA, 21 - 25 August, 2011.

132. V. N. Smolyaninova, I. I. Smolyaninov, A. V. Kildishev, V. M. Shalaev, Maxwell Fisheye and Eaton Lenses Emulated by Microdroplets, Conference on Lasers and Electro-Optics(CLEO), Baltimore, MAY 01-06, 2011.

131. Satoshi Ishii, Alexander V. Kildishev, Vladimir M. Shalaev, Kuo-Ping Chen, and Vladimir P. Drachev, Gold Nanoslit Lenses, Conference on Lasers and Electro-Optics(CLEO), Baltimore, MAY 01-06, 2011.

130. I. I. Smolyaninov, E. A. Gibson, N. M. Litchinitser, V. M. Shalaev, Experimental Observation of Field Enhancement at the Negative-Positive Index Interface, Conference on Lasers and Electro-Optics(CLEO), Baltimore, MAY 01-06, 2011.

129. I. I. Smolyaninov, E. A. Gibson, N. M. Litchinitser, V. M. Shalaev, Experimental Observation of Field Enhancement at the Negative-Positive Index Interface, Conference on Lasers and Electro-Optics(CLEO), Baltimore, MAY 01-06, 2011.
128. Xingjie Ni, Gururaj V. Naik, Alexander V. Kildishev, Yuri Barnakov, Alexandra Boltasseva, and Vladimir M. Shalaev, Effect of Metallic and Hyperbolic Metamaterial Surface on Electric and Magnetic Dipole Emission, Conference on Lasers and Electro-Optics(CLEO), Baltimore, MAY 01-06, 2011.
127. M.D. Thoreson, R.B. Nielsen, P.R. West, A. Kriesch, Zh. Liu, J. Fang, A.V. Kildishev, U. Pescheld, V.M. Shalaev, and A. Boltasseva, Studies of plasmonic hot-spot translation by a metal-dielectric layered superlens, Proceedings of SPIE, Volume: 8093, Article Number: 80931J (2011) (Conference on Metamaterials - Fundamentals and Applications IV, San Diego, CA, AUG 21-25, 2011).
126. A.K. Popov, V.M. Shalaev, Nonlinear and active metamaterials, Proceedings of SPIE, Volume: 8093, Article Number: 809306 (2011) (Conference on Metamaterials - Fundamentals and Applications IV, San Diego, CA, AUG 21-25, 2011).
125. I.I. Smolyaninov, V.N. Smolyaninova, A.V. Kildishev, and V.M. Shalaev, Emulating Metamaterial Anisotropy by Tapered Waveguides, 2009 CONFERENCE ON LASERS AND ELECTRO-OPTICS, AND QUANTUM ELECTRONICS AND LASER SCIENCE CONFERENCE (CLEO/QELS 2009), VOLS 1-5, Pages: 2497-2498 (2009).
124. Z. Liu, M. Thoreson, A.V. Kildishev, V.P. Drachev, and V.M. Shalaev, Translation of Nanoantenna Field Enhancement by a Metal-Dielectric Composite Superlens, *ibid.*, Pages: 1889-1890.
123. Sh. Xiao, U.K. Chettiar, A.V. Kildishev, M. Thoreson, V.P. Drachev, V.M. Shalaev, and O.D. Lavrentovich, Negative Index Metamaterials for Visible Wavelengths, *ibid.*, Pages: 2210-2211.
122. X. Ni, Z. Jacob, A. Kildishev, V. Shalaev, and E.E. Narimanov, A Tool for Designing Realizable Hyperlenses, *ibid.*, Pages: 2983-2984
121. A.V. Kildishev, Sh. Xiao, U.K. Chettiar, H.-K. Yuan, Wh. Cai, V.P. Drachev, and V.M. Shalaev, Progress in Metamaterials for Optical Devices, OFC: 2009 CONFERENCE ON OPTICAL FIBER COMMUNICATION, VOLS 1-5, Pages: 1523-1525 (2009).

120. I. I. Smolyaninov, V.N. Smolyaninova, A.V. Kildishev, V. M. Shalaev, Experimental Observation of the Trapped Rainbow, Proceedings of CLEO/QELS 2010, San Jose, CA, USA, May 16-21, 2010.
119. Weiqiang Chen, Mark D. Thoreson, Alexander V. Kildishev and Vladimir M. Shalaev, Ultra-Thin Ultra-Smooth and Low-Loss Silver and Silver-Silica Composite Films for Superlensing Applications, *ibid.*
118. Vladimir P. Drachev, Tom Tiwald, Josh Borneman, Shumin Xiao, Alexander V. Kildishev, Vladimir M. Shalaev, and Augustine Urbas, Bi-anisotropy of optical metamagnetics studied with spectroscopic ellipsometry, *ibid.*
117. Zhengtong Liu, Kuo-Ping Chen, Xingjie Ni, Vladimir P. Drachev, Vladimir M. Shalaev, and Alexander V. Kildishev, SHA Modeling of Gold Gratings for Oblique Light Incidence, *ibid.*
116. Kuo-Ping Chen, Vladimir P. Drachev, Josh Borneman, Alexander V. Kildishev, and Vladimir M. Shalaev, Improving Plasmonic Nanoantennas, *ibid.*
115. Zubin Jacob, Ji-Young Kim, Gururaj V. Naik, Evgenii E. Narimanov, Alexandra Boltasseva, and Vladimir M. Shalaev, Radiative Decay Engineering with Hyperbolic Metamaterials, *ibid.*
114. V. M. Shalaev, Transforming Light with Metamaterials, The 40-th Winter Colloquium on the Physics of Quantum Electronics; Proceedings, p. 167; Snowbird, Utah, Jan 3-7, 2010.
113. Litchinitser Natalia M., Gibson Tolanya, Gabitov Ildar R., Maimistov Andrei I., Shalaev Vladimir M., Inhomogeneous and Guided-Wave Metamaterials: Linear and Nonlinear Optics, International Conference on Numerical Analysis and Applied Mathematics 2009: Volume 1 and Volume 2. AIP Conference Proceedings, Volume 1168, pp. 1233-1234 (2009).
112. Litchinitser N.M., Maimistov A.I., Gabitov I.R., and Shalaev V.M., From Positive- to Negative-Index Materials: Transitional Phenomena, Proceedings of Conference on Lasers and Electro-Optics/Quantum Electronics and Laser Science Conference, pp. 3195-3196 (2008).
111. Boltasseva A., Bakker R., Liu Z., Yuan H.-K., Kildishev A.V., Shalaev V.M., Nielsen R.B., Jeppesen C., Kristensen A., Fabricating plasmonic components for nanophotonics, IEEE/LEOS Winter Topicals Meeting Series, pp. 44-45 (2009).
110. V. M. Shalaev, A. V. Kildishev, W. Cai, U. K. Chettiar, and E. E. Narimanov, "Transformation Optics with Metamaterials: A New Paradigm for

Science of Light," in Plasmonics and Metamaterials, OSA Technical Digest (CD) (Optical Society of America, 2008), paper MMB3.

109. K. Chen, V. P. Drachev, Z. Liu, A. V. Kildishev, and V. M. Shalaev, Improving Au Nanoantenna Resonance by Annealing, in Plasmonics and Metamaterials, OSA Technical Digest (CD) (Optical Society of America, 2008), paper MWD5.

108. Do-Hoon Kwon, Douglas H. Werner, Alexander V. Kildishev, Vladimir P. Drachev, and Vladimir M. Shalaev, Optical Chiral Negative-Index Metamaterial Design, IEEE Antennas and Propagation Society International Symposium, San Diego, July 5-12 (2008).

107. A.K. Popov, S.A. Myslivets, T.F. George, and V.M. Shalaev, Quantum control and compensation of losses in negative-index metamaterials 16th International Laser Physics Workshop, (LPHYS'07) August 20-24, 2007, Leon, Mexico.

106. A. K. Popov, S. A. Myslivets, T. F. George, and V. M. Shalaev, Quantum switching in negative-index metamaterials, CEWQO 2007, Palermo, 1-5 June 2007.

105. A. K. Popov, S. A. Myslivets, T. F. George, and V. M. Shalaev, Compensating Losses in Doped Negative-Index Metamaterials via Four-Wave Mixing and Quantum Control, Frontiers in Optics 2007, September 16-20, 2007, San Jose, California, USA.

104. A. K. Popov, S. A. Myslivets, T. F. George, and V. M. Shalaev, Tailoring transparency of negative-index metamaterials with parametric amplification, Metamaterials'2007, 22-26 October 2007, Rome, Italy.

103. A. K. Popov, S. A. Myslivets, T. F. Goerge, and V. M. Shalaev, Compensating Losses in Positive- and Negative-index Metamaterials through Nonlinear-optical Quantum Switching, CLEO®/Pacific Rim 2007, August 26-31, 2007, Seoul, Korea.

102. H.-K. Yuan, W. Cai, U. K. Chettiar, V. de Silva, A. V. Kildishev, A. Boltasseva, V. P. Drachev, and V. M. Shalaev, Metamagnetics for Visible Wavelengths (491 - 754 nm), Proceedings of OSA Topical Meeting "Photonic Metamaterials: from Random to Periodic", Jackson Hole, WY, June 4-7, 2007.

101. U. K. Chettiar, A. V. Kildishev, H.-K. Yuan, W. Cai, S. Xiao, V. P. Drachev, and V. M. Shalaev, Double Negative Index Metamaterial: Simultaneous Negative Permeability and Permittivity at 812 nm, *ibid.*

100. A. K. Popov and V. M. Shalaev, Nonlinear optical switching from lossy to amplifying negative-index metamaterials, *ibid.*
99. W. Cai, U. K. Chettiar, A. V. Kildishev and V. M. Shalaev, Optical Cloak of Invisibility, *ibid.*
98. Z. Liu, U. K. Chettiar, A. V. Kildishev, and V. M. Shalaev, D.-H. Kwon, Z. Bayraktar, and D. H. Werner, Optical Negative Index Metamaterials with Low Losses: Nature-Inspired Methods for Optimal Design, *ibid.*
97. D.-H. Kwon, D. H. Werner, A. V. Kildishev, and V. M. Shalaev, Dual-band negative index metamaterials in the near-infrared frequency range, *Proceedings of the IEEE Antennas & Propagation Society Int. Symp.*, pp. 2861-64 (2007).
96. D.-H. Kwon, Z. Bayraktar, D. H. Werner, U. K. Chettiar, A. V. Kildishev, and V. M. Shalaev, Nature-based optimization of 2D negative-index metamaterials, *Proceedings of the IEEE Antennas & Propagation Society Int. Symp.*, pp. 1589-92 (2007).
95. D.-H. Kwon, D. H. Werner, I.-C. Khoo, A. V. Kildishev, and V. M. Shalaev, Liquid crystal clad metamaterial with a tunable negative-zero-positive index of refraction, *Proceedings of the IEEE Antennas & Propagation Society Int. Symp.*, pp. 2881-84 (2007).
94. Reuben M. Bakker., Vladimir P. Drachev, Hsiao-Kuan Yuan, Vladimir M. Shalaev, Near-field, broadband optical spectroscopy of metamaterials, *Physica B* 394, pp. 137-140 (2007): *Proceedings of the 7th International Conference on Electrical Transport and Optical Properties of Inhomogeneous Media*, Sydney, Australia, June 9-13, 2006.
93. Zhengtong Liu, Alexander V. Kildishev, Vladimir P. Drachev, and Vladimir M. Shalaev, Near-Field Imaging of a Silver Nanowire Using a Thin Silver Film, *23rd Annual Review of Progress in Applied Computational Electromagnetics*, March 19-23, Verona, Italy, pp.1886-90 (2007).
92. Alexander V. Kildishev*, Uday K. Chettiar, Hsiao-Kuan Yuan, Wenshan Cai, and Vladimir M. Shalaev, Optimizing Optical Negative Index Materials: Feedback from Fabrication, *23rd Annual Review of Progress in Applied Computational Electromagnetics*, March 19-23, Verona, Italy, pp.943-48 (2007).
91. V. M. Shalaev, Metamaterials: Giving the Second "Hand" to Light, *International Symposium on Biophotonics, Nanophotonics and Metamaterials*, Hnagzhou, China, October 16-18, 2006, p. 422.

90. V. M. Shalaev, Negative-Index Metamaterials: Going Optical, MITRE-DARPA Workshop on Principles of Advanced Electromagnetic Materials, July 26-27, 2006. pp. 112-122.
89. V. M. Shalaev, T. A. Klar, V. P. Drachev, and A. V. Kildishev, Optical Negative-Index Metamaterials: from Low Loss to No-Loss and from Linear to Nonlinear Optics, International Workshop on Plasmonics and Applications in Nanotechnologies, Singapore, Dec. 5-7, 2006, Proceedings, p. 25.
88. V. M. Shalaev, A. V. Kildishev, T. A. Klar, A. K. Popov, and V. P. Drachev, Optical Negative-Index Metamaterials: from low to no-loss and from linear to nonlinear optics, Proceedings of The 19th Annual Meeting of the IEEE Lasers & Electro-Optics Society, 29 Oct-2Nov, 2006, Montreal, Canada, p.246-247.
87. V. M. Shalaev, Empowering metamaterials: from low- to no-loss and from linear to nonlinear optics, Proceedings of SPIE Optics & Photonics, San Diego Convention Center, San Diego, CA, Aug. 13-17, 2006, p. 272.
86. V. M. Shalaev, T. A. Klar, A. V. Kildishev, A. K. Popov, U. Chettiar, W. Cai, H.-K. Yuan, and V. P. Drachev, Metamaterials: Going Optics, Proceeding of Electron Transport and Optical Properties of Inhomogeneous Media (ETOPIM7) International Conference, Sydney, Australia, July 2006, p. 23.
85. R. M. Bakker, V. P. Drachev, H.-K Yuan, V. M. Shalaev, Implementation of Broadband Spectroscopy to Near-Field Scanning Optical Microscopy for Studying Plasmonic Responses of Novel Metallic Samples, Proceedings of Electron Transport and Optical Properties of Inhomogeneous Media (ETOPIM7) International Conference, Sydney, Australia, July 2006, p. 72-73.
84. V.M. Shalaev, V.P. Drachev, A.V. Kildishev, T.A. Klar, and A.K.Popov, Empowering Metamaterials with Gain and Nonlinearities, EOS Topical Meeting on Nanophotonics, Metamaterials and Optical Microcavities, Paris, France, October 16-19, 2006.
83. V.M. Shalaev, T.A. Klar, V.P. Drachev, and A.V. Kildishev, Optical Negative-Index Metamaterials: from Low to no Loss, OSA Topical Meeting "Photonic Metamaterials: From Random to Periodic", The Bahamas, June 5-8, 2006.
82. A.K. Popov and V.M. Shalaev, Second-harmonic generation and parametric amplification in negative-index metamaterials, OSA Topical Meeting "Photonic Metamaterials: From Random to Periodic", The Bahamas, June 5-8, 2006.

81. U.K. Chettiar, A.V. Kildishev, T.A. Klar, H.-K. Yuan, W. Cai, A.K. Sarychev., V.P. Drachev, and V.M. Shalaev, From Low-loss to Lossless Optical Negative-Index Materials, CLEO/QELS-06 Annual Meeting Proceedings, Long Beach, CA, May 21-26.
80. V.P. Drachev, M.L. Narasimhan, Hsiao-Kuan Yuan, M.D. Thoreson, Yong Xie, V.Jo Davisson, and V.M. Shalaev, Adaptive silver films towards bio-array applications, SPIE Proceedings, 5703, 13 (2005).
79. V. Shalaev, W. Cai, U. Chettiar, H-K. Yuan, A. Sarychev, V. Drachev, A. Kildishev, Negative Refraction metamaterials in optics, 14th International Laser Physics Workshop, Book of Abstract, p. 45, 2005
78. V.A. Podolskiy, A.K. Sarychev, Narimanov, and V.M. Shalaev, Light manipulation with plasmonic nanoantennas, Proceedings of annual APS/URSI meeting (2004) vol.2 (APS), p.1915.
77. D.A. Genov, A.K. Sarychev, and V.M. Shalaev, Localization-delocalization transition in metal-dielectric films, Proceeding of SPIE (2004).
76. A.K. Sarychev and V.M. Shalaev, Magnetic Resonance in metal nanoantennas, Proceedings of SPIE, v. 5508, Complex Mediums V: Light and Complexity, pp. 128-137 (2004).
75. S. Gresillon, R. Lecaue, L. Willieme, S. Ducourtieux, A.C. Boccara, J.-C. Rivoal, P. Gadenne, H. Cory, and V.M. Shalaev, Near-field optical microscopy on the scale of 10s of nm, Book of Abstracts, 13th International Laser Physics Workshop (LPHYS'04; Trieste, Italy, July 12-16, 2004); p. 34.
74. V.M. Shalaev, V.P. Drachev, E. Khaliullin, M. Thoreson, V. Nashine, J.V. Davison, and D. Ben-Amotz, Protein SERS sensing with adaptive silver films, Book of Abstracts, 13th International Laser Physics Workshop (LPHYS'04; Trieste, Italy, July 12-16, 2004); p. 35.
73. G. Shvets, A.K. Sarychev, V.M. Shalaev, Electromagnetic Properties of Two and Three-Dimensional Wire Arrays: Photons, Plasmons, and Left-Handed Waves, Progress In Electromagnetics Research Symposium, PIERS 2003 Proceedings, The Electromagnetic Academy, p. 582, 2003.
72. A.K. Sarychev and V.M. Shalaev, Optical Nanoantennas, Progress In Electromagnetics Research Symposium, PIERS 2003 Proceedings, The Electromagnetic Academy, p. 257, 2003.

71. A.K. Sarychev, V.A. Podolskiy, V.M. Shalaev, Optical Properties of Plasmonic Nanowires: Surface Plasmon Modes and Negative Refractive Index Composite, Progress In Electromagnetics Research Symposium, PIERS 2003 Proceedings, The Electromagnetic Academy, p. 95, 2003.
70. V. M. Shalaev, Plasmonic Nanoantennas for Guiding Light and Sensing Molecules, Proceedings of the Workshop on Bio-Inspired Processes for Design, Assembly, and Repair of Electromagnetic and Structural Composites, Atlanta, Georgia, Aug. 19-20, 2003. Georgia Tech, p.25.
69. V. A. Podolskiy, A. K. Sarychev, and V. M. Shalaev, Plasmonic Nanowires as Left-Handed Materials, Book of Abstracts, 12th International Laser Physics Workshop, Hamburg, Germany, Aug. 25-29, 2003, p. 291.
68. A. K. Sarychev and V. M. Shalaev, Metal Nanoantennas for Manipulating Light on Nanoscale, Book of Abstracts, 12th International Laser Physics Workshop, Hamburg, Germany, Aug. 25-29, 2003, p. 30.
67. V. M. Shalaev, Plasmonic Nanoantennas for Guiding Light and Sensing Molecules, Proceedings of 8th International Meeting on Hole Burning, Single Molecule, and Related Spectroscopies: Science and Applications, July 27-31, 2003, p.3.
66. A.K. Sarychev, V.P. Drachev, H.-K. Yuan, V.A. Podolskiy, and V.M. Shalaev, Optical properties of metal nanowires, SPIE Proceedings, v. 1, 5219-13, San Diego (2003).
65. G. Shvets, A.K. Sarychev, and V.M. Shalaev, Electromagnetic properties of three-dimensional wire arrays: photons, plasmons, and equivalent circuits (invited presentation), SPIE Proceedings, v. 5221, pp.76-81, San Diego (2003).
64. Vladimir P. Drachev, Mark Thoreson, Eldar N. Khaliullin, Dor Ben-Amotz, and Vladimir M. Shalaev, Semicontinuous metal films for protein sensing with SERS (invited presentation) , SPIE Proceedings v. 5221, pp. 76-81, San Diego (2003).
63. A.K. Sarychev, D.A. Genov, A.Wei, V.M. Shalaev, Periodic Arrays of Optical Nanoantennas (invited presentation), SPIE Proceedings V. 4 5218-11, Sand Diego (2003).
62. V. M. Shalaev, A. K. Sarychev, D. Genov, E. N. Khaliullin, V. P. Drachev, V. A. Podolskiy, R. L. Armstrong, V. P. Safonov, S. G. Rautian, P. Gadenne, Plasmonic Nanophotonics: Manipulating Light and Sensing Molecules, IQEC 2002

Technical Digest, International Quantum Electronics Conference, June 22-27, 2002, Moscow, Russia, p.413.

61. A. M. Dykhne, A. K. Sarychev, V. A. Podolskiy, and V. M. Shalaev, Light-Controlled Extraordinary Optical Transmittance and Photonic Circuits in Plasmonic Nanomaterials, IQEC 2002 Technical Digest, International Quantum Electronics Conference, June 22-27, 2002, Moscow, Russia, p.403.

60. V. P. Drachev, E. N. Khaliullin, F. Alzoubi, A. Buin, S. G. Rautian, V. P. Safonov, R. L. Armstrong, and V. M. Shalaev, Saturation of optical transition in metal quantum dots, IQEC 2002 Technical Digest, International Quantum Electronics Conference, June 22-27, 2002, Moscow, Russia. p. 286.

59. V. M. Shalaev, V. P. Drachev, V. P. Safonov, W. Kim, R. L. Armstrong, Fractal-Microcavity Composites: Local-Field Optical Enhancement and Quantum-Size Effect, Laser Physics Workshop'02, Bratislava, July 1-5, 2002, Book of Abstracts, p. 182

58. V. M. Shalaev, Plasmonic Nanophotonics: Manipulating Light and Sensing Molecules, Laser Physics Workshop'02, Bratislava, July 1-5, 2002, Book of Abstracts, p. 36

57. V. M. Shalaev, A. K. Sarychev, V. A. Podolskiy, Plasmons in Nano-Wires and Left-Handed Plasmonic Materials, Progress in Electromagnetics Research Symposium, Proceedings, July 1-5, 2002, Cambridge, Massachusetts, USA, p.912 (2002)

56. V. M. Shalaev, V. P. Drachev, V. P. Safonov, W. Kim, and R. L. Armstrong, Fractal-Microcavity Composites: Local-Field Optical Enhancement and Quantum-Size Effect, Progress in Electromagnetics Research Symposium, Proceedings, July 1-5, 2002, Cambridge, Massachusetts, USA, p.840 (2002)

55. A. K. Sarychev, V. A. Podolskiy, and V. M. Shalaev, Light-Controlled Extraordinary Optical Transmittance and Photonic Circuits in Plasmonic Nanomaterials, Progress in Electromagnetics Research Symposium, Proceedings, July 1-5, 2002, Cambridge, Massachusetts, USA, p.650 (2002)

54. A. K. Sarychev and V. M. Shalaev, Plasmonic Band-Gap Materials, Progress in Electromagnetics Research Symposium, Proceedings, July 1-5, 2002, Cambridge, Massachusetts, USA, p.547 (2002).

53. A. K. Sarychev, V. A. Podolskiy, A. M. Dykhne, and V. M. Shalaev, Light Management at Nanoscale, Proceedings of SPIE, Complex Mediums III: Beyond

Linear Isotropic Dielectrics, Eds: A. Lakhtakia, G. Dewar, M. W. McCall, 8-10 July 2002, Seattle v. 4806, pp. 43-54 (2002)

52. V. M. Shalaev, V. A. Podolskiy, A. K. Sarychev, Plasmonic nanophotonics: manipulating light and sensing molecules, (Key Lecture), Proceedings of SPIE, Complex Mediums III: Beyond Linear Isotropic Dielectrics, Eds: A. Lakhtakia, G. Dewar, M. W. McCall, 8-10 July 2002, Seattle v. 4806, pp. 32-42 (2002)

51. A. K. Sarychev, A. M. Dykhne, and V. M. Shalaev, Resonance Transmittance Through Films with Fabricated and Light-Induced Modulation, Proceedings of 24th ESTEC Antenna Workshop. Innovative Periodic Antennas: Photonic Bandgap, Fractal and Frequency Selective Structures, 30 May - 1 June 2001, ESTEC, The Netherlands; p.231

50. A. K. Sarychev and V. M. Shalaev, Local fields and optical properties of metal-dielectric films, Proceeding of SPIE's 46 Annual Meeting v. 4467, 207 (2001)

49. M. Gadenne, V. Podolskiy, V. M. Shalaev, P. Gadenne, P. Sheng, Plasmon-enhanced absorption by optical phonons in cermets, Proceeding of SPIE's 46 Annual Meeting v. 4467, 219 (2001).

48. P. Gadenne, B. Berini, S. Buil, X. Quelin, S. Gresillon, S. Ducourtieux, J. C. Rivoal, A. K. Sarychev, V. M. Shalaev, Localized plasmon-enhanced optical response: harmonic generation and polarization effects, Proceeding of SPIE's 46 Annual Meeting v. 4467, 288 (2001).

47. V. M. Shalaev, Metal and Light - Friend or Foe, Proceedings of 10th Annual International Laser Workshop (LPHYS.01), Moscow, Russia, July 3-7, 2001; p. 53

46. V. A. Podolskiy, A. K. Sarychev, and V. M. Shalaev, Temporal dynamics of giant local fields in metal-dielectric percolation films, Proceedings of 10th Annual International Laser Workshop (LPHYS.01), Moscow, Russia, July 3-7, 2001; p. 44

45. M. Gadenne, V. Podolskiy, P. Gadenne, P. Sheng, and V. M. Shalaev, Optical phonons in metal-dielectric composites, Proceedings of 10th Annual International Laser Workshop (LPHYS.01), Moscow, Russia, July 3-7, 2001; p. 15

44. P. Gadenne, B. Berini, S. Ducourtieux, S. Gresillon, J. C. Rivoal, M. Breit, V. Shalaev, A. K. Sarychev, V. Podolskiy, Nonlinear response enhanced by surface plasmons of fractal metal thin films, Proceedings of 10th Annual International Laser Workshop (LPHYS.01), Moscow, Russia, July 3-7, 2001; p. 16.

43. V. M. Shalaev, Plasmonic meso- and nano-structures: new avenues for photonics, laser physics and spectroscopy, Proceedings of XVII International Conference on Coherent and Nonlinear Optics, Minsk, Belarus, June 26-July 1, 2001, WK3.
42. V. P. Drachev, W. Kim, V. A. Podolskiy, V. P. Safonov, V. M. Shalaev and R. L. Armstrong, Discrete spectrum of anti-Stokes emission from metal particle-adsorbate complexes in microcavity, Proceedings of XVII International Conference on Coherent and Nonlinear Optics, Minsk, Belarus, June 26-July 1, 2001, WK5.
41. W. D. Bragg, K. Banerjee, V. A. Podolskiy, V. P. Safonov, J. G. Zhu, V. M. Shalaev, Z. C. Ying, Study of Local Photomodification of Nanomaterials Using Near-Field Optics, in Near-Field Optics: Physics, Devices, and Information Processing, ed. by S. Jutamulia, M. Ohtsu, and T. Asakura, SPIE Proceedings, 3791 (1999).
40. S. Gresillon, S. Ducourtieux, L. Aigouy, A. C. Boccara, J. C. Rivoal, P. Gadenne, X. Quelin, V. M. Shalaev, V. A. Shubin, Optical excitations of semicontinuous metal films, COLOQ6, 7-9 September, Bordeaux, France.
39. V. P. Safonov, J. G. Zhu, N. N. Lepeshkin, R. L. Armstrong, V. M. Shalaev and Z. C. Ying, Nongenerate four-wave mixing in gold nanocomposites formed by ion implantation, in Switchable Materials and Flat Panel Displays, ed. by C. M. Lampert, SPIE Proceedings, 3788 (1999).
38. Vladimir M. Shalaev, Nonlinear Optics of Random Nanostructured Materials: Composites, Clusters, and Thin Films, XVI International Conference on Coherent and Nonlinear Optics (Moscow, Russia, June 29-July 3, 1998), ICONO.98 Technical Digest, URSS Publishers, p. 100 (1998).
37. V. M. Shalaev and A. K. Sarychev, Nonlinear Optics of Random Metal-Dielectric Films, in Nonlinear Optics.98. Materials, Fundamentals and Applications. Topical Meeting. Kauai, Hawaii, 10-14 August, 1998 IEEE Catalog Number 98CH36244, p. 22 (1998).
36. V. M. Shalaev, Fractal-surface-enhanced optical nonlinearities, Technical Digest of the Quantum Electronics and Laser Science Conference, QELS.97, Baltimore, May 18-23, 1997, 1997 OSA Technical Digest Series, v. 12, p. 88.
35. E. Poliakov, V. M. Shalaev, Nonlinear Optical Effects in Fractal Nanostructured Materials such as Nanocomposites and Self-Affine Surfaces, Chemistry and Physics of Small-Scale structures, Technical Digest Series, v. 2, Santa Fe, February 9-11, 1997; p. 49.

34. R. L. Armstrong, V. P. Safonov, N. N. Lepeshkin, W. Kim, and V. M. Shalaev, Giant optical nonlinearities of fractal colloid aggregates, SPIE, San Diego, p. 107, 1997.
33. Vladimir M. Shalaev, Giant Optical Nonlinearities in Fractal Nanostructured Composites, Technical Digest, XX International Quantum Electronics Conference, Sydney (1996).
32. Vladimir M. Shalaev, J. Mercer, V.P. Safonov, and R. Botet, Nonlinear Optics of Fractal Nanocomposites and Self-A.ene Surfaces, Technical Digest of Summer Topical Meeting, Nonlinear Optics: Materials, Fundamentals, and Applications, Maui, Hawaii, (1996).
31. V.A. Markel, E.B. Stechel, W. Kim, R. Armstrong, and Vladimir Shalaev, Optical Properties of fractal nanocomposites, Mat.Res.Soc Symp.Proc. vol.367, 417 (1995).
30. Vladimir Shalaev, R. Botet, M. Moskovits, Subwavelength localization of optical modes in fractals, In: Molecular Designed Ultrafine/Nanostructured Materials, Mat.Res.Soc Symp.Proc. vol.351, 449 (1994).
29. A.V. Butenko, V.A. Markel, L.S. Muratov, V.M. Shalaev, and M.I. Stockman, Theory and Numerical Simulations of Optical Properties and Selective Photomodification of Fractal Clusters, Proc. X International Vavilov Conference on Nonlinear Optics; in: Nonlinear Optics, edited by S.G. Rautian, Nova Science Publishers, 275 (1992).
28. Yu.E. Danilova, S.V. Karpov, A.K. Popov, S.G. Rautian, V.P. Safonov, V.V. Slabko, V.M. Shalaev, and M.I. Stockman, Experimental Investigation of Optical Nonlinearities of Silver Fractal Clusters, Proc. X International Vavilov Conference on Nonlinear Optics; in: Nonlinear Optics, edited by S.G. Rautian, Nova Science Publishers, 295 (1992).
27. A.V. Butenko, P.A. Chubakov, Yu.E. Danilova, S.V. Karpov, A.K. Popov, S.G. Rautian, V.P. Safonov, V.V. Slabko, V.M. Shalaev, M.I. Stockman, Nonlinear Optics of Metal Fractal Clusters, in: Proc. International School on Lasers and Applications, Sayanogorsk, Eastern Siberia, USSR; Published by Institute for Physics, USSR Academy of Sci., Krasnoyarsk, 78 (1991).
26. K.N. Alekseev, G.P. Berman, A.V. Butenko, A.K. Popov, V.M. Shalaev, V.Z. Yakhnin, Deterministic chaos in nonlinear optical wave mixing, Rev. Roum. Phys. 34, 839 (1989).

25. K.N. Alekseev, G.P. Berman, A.V. Butenko, A.K. Popov, V.M. Shalaev, V.Z. Yakhnin, Dynamical chaos in parametric interactions of optical waves, L.V. Kirenski Institute of Physics, Acad. of Sci., Preprint #477, Krasnoyarsk (1988); in Russian.
24. V.M. Shalaev, M.I. Stockman, Optical properties of fractal clusters, Proc. 3-rd Int. Conf. Trends in Quantum Electronics., Romania, 201 (1988).
23. K.N. Alekseev, G.P. Berman, A.V. Butenko, A.K. Popov, V.M. Shalaev, V.Z. Yakhnin, Deterministic chaos in nonlinear optical wave mixing, Proc. 3-rd Int. Conf. Trends in Quantum Electronics., Bucharest, Romania, 194 (1988).
22. Yu.E. Danilova, S.G. Rautian, V.P. Safonov, P.A. Chubakov, V.M. Shalaev, M.I. Stockman, Giant Parametric Light Scattering in Silver Clusters, Proc. of Int. Conf. on Quant. Electr. And Nonlinear Optics .KINO., Minsk, 71 (1988); in Russian.
21. A.V. Butenko, V.M. Shalaev, M.I. Stockman, Nonlinear Optics of Fractal Clusters, Proc. of Int. Conf. on Quant. Electr. and Nonlinear Optics .KINO., Minsk, 141 (1988); in Russian.
20. K.N. Alekseev, G.P. Berman, A.V. Butenko, A.K. Popov, V.M. Shalaev, V.Z. Yakhnin, Dynamical Chaos in Parametrically Interacting Light Waves, Proc. of Int. Conf. on Quant. Electr. And Nonlinear Optics .KINO., Minsk, 282 (1988); in Russian.
19. S.V. Karpov, A.K. Popov, S.G. Rautian, V.P. Safonov, V.V. Slabko, V.M. Shalaev, M.I. Stockman, Observation of wavelength- and polarization-selective photomodification of silver clusters, Institute of Automatics and Electrometry, Acad. of Sci., Preprint #405, Novosibirsk (1988); in Russian.
18. A.V. Butenko, V.M. Shalaev, M.I. Stockman, Nonlinear optical susceptibilities of fractal clusters, L.V. Kirenski Institute of Physics, Acad. of Sci., Preprint #527, Krasnoyarsk (1988); in Russian.
17. L.T. Bolotskikh, A.V. Butenko, V.G. Popkov, A.K. Popov, V.M. Shalaev, Optical Phase Conjugation of CO₂-laser radiation in a system of three interacting beams, in: Optical Phase Conjugation of Laser Radiation in Nonlinear Media, ed. A.S. Rubanov, Minsk, 28 (1987); in Russian.
16. L.T. Bolotskikh, V.G. Popkov, A.K. Popov, V.M. Shalaev, Degenerate multi-photon parametric scattering of IR-radiation in SF₆, in: Optical Phase Conjugation of Laser Radiation in Nonlinear Media, ed. A.S. Rubanov, Minsk, 34 (1987); in Russian.

15. S.G. Rautian, V.P. Safonov, P.A. Chubakov, V.M. Shalaev, M.I. Stockman, Giant enhancement of nonlinear light scattering by aggregated silver clusters, Institute of Automatics and Electrometry, Acad. of Sci., Preprint #466, Novosibirsk (1987); in Russian.
14. A.V. Butenko, V.M. Shalaev, M.I. Stockman, Giant optical nonlinearities of impurities in optics of fractal clusters, L.V. Kirenski Institute of Physics, Acad. of Sci., Preprint #426, Krasnoyarsk (1988); in Russian.
13. A.V. Butenko, V.G. Popkov, V.M. Shalaev, Reversal of CO₂-laser radiation wavefront in the process of interaction of three beams, Proc. of the II USSR conf. of young researchers .Theoretical and Applied Optics,. Leningrad, Vavilov.s Optical Institute, 131 (1986); in Russian.
12. V.G. Popkov, V.M. Shalaev, Degenerate multi-photon scattering of IR-radiation by vibrational-rotational molecular transitions, Proc. of the II USSR conf. of Young Researchers Theoretical and Applied Optics,. Leningrad, Vavilov.s Optical Institute, 84 (1986); in Russian.
11. V.M. Shalaev, V.Z. Yakhnin, Generation of LID-sound in gases under pulsed excitation, L.V. Kirenski Institute of Physics, Acad. of Sci., Preprint #374, Krasnoyarsk (1986); in Russian.
10. L.T. Bolotskikh, A.V. Butenko, V.G. Popkov, A.K. Popov, V.M. Shalaev, Reversal of CO₂-laser radiation wavefront in a system of three interacting beams, L.V. Kirenski Institute of Physics, Acad. of Sci., Preprint #335, Krasnoyarsk (1986); in Russian.
9. L .T. Bolotskikh, V.G. Popkov, A.K. Popov, V.M. Shalaev, Degenerate multi-photon parametric scattering of IR-radiation by rovibrational molecular transitions, L.V. Kirenski Institute of Physics, Acad. of Sci., Preprint #285, Krasnoyarsk (1984); in Russian.
8. A .K. Popov, V.M. Shalaev, Doppler-free transitions in strong optical fields due to compensation of Doppler broadening by light shifts, Proc. VII Vavilov Conference, ed. S.G. Rautian, part 1, 108, Novosibirsk (1982); in Russian.
7. A .K. Popov, V.M. Shalaev, Generation of radiation in Doppler-free transitions with optical pumping, L.V. Kirenski Institute of Physics, Acad. of Sci., Preprint #165, Krasnoyarsk (1981); in Russian.
6. A .K. Popov, V.M. Shalaev, V.Z. Yakhnin, Light-induced drift of gases under two-photon excitation, L.V. Kirenski Institute of Physics, Acad. of Sci., Preprint #183, Krasnoyarsk (1981); in Russian.

5. A .K. Popov, V.M. Shalaev, Unidirectional Doppler-free gain and generation in optically pumped lasers, Proc. Int. Conf. LASERS.81, USA, 148 (1981).
4. A .K. Popov, A.M. Shalagin, and V.M. Shalaev, V.Z. Yakhnin, Light-induced drift of gases induced by nonmonochromatic light, Proc. of the Int. Conf. on Lasers.80, New Orleans, LA, USA, 15-19 Dec. 1980 (McLean, VA,USA: STS press, 444 (1981)).
3. A .K. Popov, A.M. Shalagin, V.M. Shalaev, V.Z. Yakhnin, Light-induced diffusion of gases induced by nonmonochromatic radiation, Proc. of the X-th USSR Conference on Nonlinear and Coherent Optics, Kiev, 14-17 October, 1980 (Moscow, 291 1980); in Russian.
2. A .K. Popov, A.M. Shalagin, V.M. Shalaev, V.Z. Yakhnin, Light-induced diffusion of gases in the field of a nonmonochromatic wave, L.V. Kirenski Institute of Physics, Acad. of Sci., Preprint #117, Krasnoyarsk (1979); in Russian.
1. A .K. Popov, V.M. Shalaev, Suppression of Doppler broadening of the absorption and scattering spectral lines in two strong electromagnetic fields with different frequencies, Proc. 6-th Vavilov Conf. on Nonlinear Optics, Novosibirsk, part 1, 171 (1979); in Russian.

Issued and Pending Patents:

- [1] R.L. Armstrong, V.M. Shalaev, T.M. Shay, W.-T. Kim, Z.C. Ying, V.P. Drachev, V.P. Safonov, Optical Enhancement with Nanoparticles and Microcavities, US patent 6,608,716 B1, Aug. 19, 2003
- [2] R.L. Armstrong, V.M. Shalaev, T.M. Shay, W.-T. Kim, Z.C. Ying, V.P. Drachev, V.P. Safonov, Optical Enhancement with Nanoparticles and Microcavities, Australian patent No. 767234
- [3] R.L. Armstrong, V.M. Shalaev, H.V. Smith, Sensors Employing Nanoparticles and Microcavities, U.S. Patent 6,781,690 B2, Aug. 24, 2004.
- [4] "Optical Structures Employing Semicontinuous Metal Films," U.S. Provisional Patent Application Serial No. 60/233,804.
- [5] "Plasmonic and/or Microcavity Enhanced Optical Protein Sensing" US Patent #7,298,474, issued Nov 20, 2007
- [6] "Metal Tip-Substrate Nanoantennas and Molecule Counting for Bio-Molecule Raman Imaging and Sensing", P-03033

- [7] Robert L. Armstrong, Vladimir M. Shalaev, Harold V. Smith, Andrey K. Sarychev, and Z. Charles Ying, Optical devices and methods employing nanoparticles, microcavities, and semicontinuous metal films, US Patent 7,123,359 B2, October 17, 2006.
- [8] V.P. Drachev, V.M. Shalaev, A.K. Sarychev, Raman imaging and sensing apparatus employing nanoantennas, International patent application PCT/US2004/006361, filed March 2, 2004, US Patent 6,985,223 B2, January 10, 2006.
- [9] A.K. Sarychev, V.A. Podolskiy, A.M. Dykhne, and V.M. Shalaev, Plasmonic nanophotonics methods, materials, and apparatuses, US Patent # 6,977,767 B2, Dec. 20, 2005.
- [10] A.V. Kildishev, V.M. Shalaev, Planar Lens, US Patent #8,094,378 B2, Jan. 10, 2012.
- [11] Smolyaninov I.I., Smolyaninova V.N., Kildishev A.V., Shalaev V.M. Anisotropic Metamaterials Emulated By Tapered Waveguides: Application To Electromagnetic Cloaking, US Patent # 8,509,578 B2, Aug. 13, 2013.
- [12] Vladimir M. Shalaev, Alexander V. Kildishev, Vladimir P. Drachev, Wenshan Cai, Near-field Raman imaging, US patent # 8,599,489 B2, Dec. 3, 2013.
- [13] W. Cai, V. M. Shalaev, U. K. Chettiar, A. V. Kildishev, System, method and applications for modifying the visibility properties of an object, US patent # 8,488,247 B2, Jan 16, 2013.
- [14] Gururaj V. Naik, Bivas Saha, Timothy D Sands, Vladimir Shalaev, Alexandra Boltasseva, Titanium nitride based metamaterial, US patent #20150285953 A1, Oct. 9, 2013.
- [15] Vladimir M Shalaev, Alexandra Boltasseva, Mark Brongersma, Alexander V Kildishev, Nathaniel Kinsey, Solar-cell efficiency enhancement using metasurfaces, US patent #20150040978 A1, Aug. 7, 2014.
- [16] Alexander Kildishev, Ishii Satoshi, Vladimir Shalaev, Holey Optical Device, US patent # 20150247960, Sep. 3, 2015.
- [17] Urcan Guler, Alexander Kildishev, Vladimir M Shalaev, Alexandra Boltasseva, Donald Stocks, Gururaj Naik, Near Field Transducer for Heat-Assisted Magnetic Recording, US patent # 20150287425, Oct. 8, 2015.
- [18] Urcan Guler, Alexander Kildishev, Vladimir M Shalaev, Alexandra Boltasseva, Gururaj Naik, Refractory Plasmonic Metamaterial Absorber and Emitter for Energy Harvesting, US patent # 20150288318, Oct. 8, 2015.

- [19] Vladimir Shalaev, Alexander Kildishev, Xingjie Ni, Satoshi Ishii, Ultra-Thin, Planar, Plasmonic Metadevices, US patent # 20150309218, Oct. 29, 2015.
- [20] Xiangeng Meng, Jingjing Liu, Alexander V Kildishev, Vladimir M Shalaev, Laser with Sub-Wavelength Hole Array in Metal Film, US patent # 20150309218, Dec. 17, 2015.
- [21] U. Guler, A. Kildishev, V. M. Shalaev, A. Boltasseva, D. Stocks, G. Naik, Near field transducer for heat-assisted magnetic recording, Application number 14/401917, US Patent number 9343088 (May 17, 2016)
- [22] A. Kildishev, V.M. Shalaev, A. Shaltout, Time-varying metasurface structure, Application number 15/209,737 (July 13, 2016)
- [23] J. C. Ndukaife, A. Boltasseva, A. A. Nnanna, S. T. Wereley, A. Kildishev, V. M. Shalaev, Systems and methods for manipulation of particles, US Patent office; Patent number 20160370316, US Patent US9778400 B2, publication date: Oct 3, 2017, priority date: Jun 18, 2015
- [24] Alexander V Kildishev, Urcan Guler, Krishnakali Chaudhury, Shaimaa Azzam, Esteban E Marinero-Caceres, Harsha Reddy, Alexandra Boltasseva, Vladimir M Shalaev, Metamaterial device and method of making the same, application number 15978548, publication date: Nov 18, 2018
- [25] Vladimir Shalaev, Alexander Kildishev, Xingjie Ni, Satoshi Ishii, "Ultra-thin, planar, plasmonic metadevices" application number: 16000843, publication date: Oct 11, 2018
- [26] Amr Shaltout, Sajid Choudhury, Alexander V Kildishev, Alexandra Boltasseva, Vladimir M Shalaev, "System for producing ultra-thin color phase hologram with metasurfaces" US Patent US9952557B2, granted 2018-04-24
- [27] US Patent office Application number 15/152,535 (2018/4/24)
- [28] A. Shaltout, A. V. Kildishev, V. M. Shalaev, J. Liu, Sub-millimeter real-time circular dichroism spectrometer with metasurfaces, US Patent 10161797B2, granted Dec 25, 2018
- [29] A. Kildishev, S. Ishii, V. Shalaev, Holey Optical Device, US Patent 20190033496A1, publication date: Jan 31, 2018
- [30] J. C. Ndukaife, A. V. Kildishev, A. A. Nnanna, A. Boltasseva, V. M. Shalaev, S. T. Wereley, Multi-site particle sensing system, US Patent 10436780B2, granted: Oct 8, 2019
- [31] A. V. Kildishev, D. Wang, Z. A. Kudyshev, M. Song, A. Boltasseva, V. M. Shalaev, Tunable plasmonic color device and method of making the same, US Patent 20190353830A1, publication date: Nov 21, 2019

- [32] A. Dutta, V. M. Shalaev, A. Boltasseva, E. E. Marinero-Caceres, Surface-plasmon opto-magnetic field enhancement for all-optical magnetization switching, US Patent 10,739,261 B2, granted Aug 11, 2020
- [33] Aavek Dutta, Vladimir M. Shalaev, Alexandra Boltasseva, Esteban E. Marinero-Caceres, ALL-OPTICAL WRITE/READ SCHEME FOR MAGNETIC NANOSTRUCTURES; Publication number: 20200371026, Filed: August 11, 2020; Published: November 26, 2020
- [34] Vladimir M. Shalaev, Zhaxylyk Kudyshev, Alexandra Boltasseva, Alberto Naldoni, Alexander Kildishev, Luca Mascaretti, Stephan Kment, Radek Zboril, Jeong Eun Yoo, Patrik Schmuki,, Solar Thermoplasmonic Nanofurnaces and Method for Making and Using Same, Publication number: 20200347508; Filed: May 3, 2020; Publication date: November 5, 2020
- [35] Piotr Nyga, Alexander V. Kildishev, Sarah Nahar Chowdhury, Alexandra Boltasseva, Zhaxylyk Kudyshev, Vladimir M. Shalaev, OPTICAL DEVICE, METHOD OF USING THE SAME, AND METHOD OF MAKING THE SAME; Publication number: 20200285043; Filed: February 19, 2020; Publication date: September 10, 2020
- [36] Amr Shaltout, Sajid Choudhury, Alexander V. Kildishev, Alexandra Boltasseva, Vladimir M. Shalaev, Ultra-thin color phase hologram with metasurfaces, Patent number: 10754295, Type: Granted; Filed: April 19, 2018; Date of Patent: August 25, 2020
- [37] Urcan Guler, Alexander V. Kildishev, Krishnakali Chaudhury, Shaimaa Azzam, Esteban E. Marinero-Caceres, Harsha Reddy, Alexandra Boltasseva, Vladimir M Shalaev, Metamaterial device and method of making the same, Patent number: 10670772; Type: Granted; Filed: May 14, 2018; Date of Patent: June 2, 2020
- [38] Alexander V. Kildishev, Satoshi Ishii, Vladimir M. Shalaev, Holey optical device, Patent number: 10641930; Type: Granted; Filed: August 7, 2018; Date of Patent: May 5, 2020
- [39] Amr Mohammad E. A. SHALTOU, Vladimir M. SHALAEV, Mark L. BRONGERSMA, ULTRAFast LASER BEAM STEERING USING FREQUENCY-ARRAYED OPTICS, Publication number: 20200081099; Type: Application; Filed: April 17, 2018; Publication date: March 12, 2020
- [40] Urcan Guler, Alexander Kildishev, Gururaj Naik, Alexandra Boltasseva, Vladimir M. Shalaev, TITANIUM NITRIDE PLASMONIC NANOPARTICLES FOR CLINICAL THERAPEUTIC APPLICATIONS, Publication number: 20200054752; Type: Application; Filed: October 28, 2019; Publication date: February 20, 2020

- [41] A. Dutta, V. M. Shalaev, A. Boltasseva, E. E. Marinero-Caceres, A. Boltassev, All-optical write/read scheme for magnetic nanostructures, Publication of US11119042B2 (2021-09-14)
- [42] U Guler, AV Kildishev, VM Shalaev, AS Lagutchev, AN Smolyaninov, Single Photon Source, Application number 14934097, US Patent 11,520,105 (2022)
- [43] U Guler, A Naldoni, AV Kildishev, A Boltasseva, V. M. Shalaev, Plasmonic metal nitride and transparent conductive oxide nanostructures for plasmon assisted catalysis, - US Patent App. 17/859,665, 2022
- [44] VM Shalaev, Z Kudyshev, A Boltasseva, A Naldoni, A. Kildishev, L. Mascaretti, S. Kment, R. Zboril, J. E. Yoo, P. Schmuki, Solar Thermoplasmonic Nanofurnaces and Method for Making and Using Same, US Patent App. 17/734,934, 2022; US Patent 11,319,640
- [45] VM Shalaev, A Boltasseva, A Lagutchev, A Senichev, Z. O Martin, D. Sychev, S. Peana, X. Xu, Systems and methods for single-photon emission, US Patent App. 17/713,850, 2022
- [46] U Guler, A Naldoni, A Kildishev, A Boltasseva, V. M. Shalaev, Plasmonic metal nitride and transparent conductive oxide nanostructures for plasmon assisted catalysis, US Patent 11,385,386, 2022
- [47] AME Shaltout, AV Kildishev, VM Shalaev, Time-varying metasurface structure, US Patent App. 17/387,817, 2022
- [48] VM Shalaev, P Upadhyaya, AB Solanki, SI Bogdanov, Y. P Chen, M M Rahman, A Rustagi, NANODEVICE, METHOD OF MAKING THE SAME, AND METHOD OF USING THE SAME, US Patent App. 17/538,007, 2022

Conference Presentations:

(¥ Plenary; ** Invited or keynote)

Upcoming:

[359]** the 17th International Congress on Artificial Materials for Novel Wave Phenomena, 2023 Metamaterials Congress, Crete, Greece, September 11-16, 2023

[358]** Active Photonic Platforms (APP) 2023 conference, 2023 SPIE Optics & Photonics conference, San Diego, USA, August 20-24, 2023

[357]** The 13th International Conference on Metamaterials, Photonic Crystals and Plasmonics META 2023, Paris, France, July 18-21, 2023

[356]** 16th Mediterranean Workshop and Topical Meeting “Novel Optical Materials and Applications” NOMA 2023, June 4-10, 2023

[355]**The 10th International Conference on Surface Plasmon Photonics (SPP10), Houston, Texas, May 21-26, 2023

[354]** “Waves in Time-Varying Media” workshop, New York, NY, USA, May 2-5, 2023

[353] ¥ the 52nd Winter Colloquium on the Physics of Quantum Electronics (PQE), Snowbird, Utah, USA, January 8-13, 2023

[352] ¥ Gordon Research Conference on Plasmonics and Nanophotonics, Nanoscale Light-Matter Interactions for Sustainability, Newry, ME, United States, July 10 - 15, 2022

[351]**2023 MRS Fall meeting, Boston, MA, USA, November 27-December 1, 2022

[350]** the 14th International Congress on Artificial Materials for Novel Wave Phenomena (Metamaterials), Siena, Italy, September 12-17, 2022

[349] ¥ Lake Como School on Advanced Studies on Machine Learning Photonics, Como, Italy, August 28 to September 2, 2022

[348]** SPIE Optics and Photonics, Plasmonics: Design, Materials, Fabrication, Characterization, and Applications XX 2022, San Diego, California, USA, August 21-25, 2022

[347]** SPIE Optics and Photonics, Active Photonic Platforms 2022, San Diego, California, USA, August 21-25, 2022

[346]** SPIE Optics and Photonics, Metamaterials, Metadevices, and Metasystems 2022, San Diego, California, USA, August 21-25, 2022

[345]** Metamaterials 3.1 workshop, Cetraro, Calabria, Italy, August 1-5, 2022

[344]** META 2022, the 12th International Conference on Metamaterials, Photonic Crystals and Plasmonics, Torremolinos, Spain, July 19 - 22, 2022 – keynote and invited talks

[343] ATTO VIII Conference, July 12-15, 2022, UCF, Florida, USA

[342]** International Workshop on Structured materials and Structured Light, Erice, Sicily, Italy, July 3-9, 2022

- [341]** 295th IUVSTA Workshop on Plasmonic Thin Films: Theory, Synthesis and Applications, City of Guimarães, Portugal, June 20-23, 2022
- [340]** NanoPlasm conference, Cetraro, Italy, June 13-17, 2022 (postponed from 2020)
- [339]** 15th Mediterranean Workshop and Topical Meeting “Novel Optical Materials and Applications” NOMA 2022, May 24-28, 2022
- [338] 2022 Conference on Lasers and Electro-Optics (CLEO), San Jose, California, USA, 15 – 20 May 2022 – 7 talks
- [337]** 2022 SPIE Photonics Europe Conference, Strasbourg, France, 3-7 April 2022
- [336] APS March Meeting 2022, Chicago, IL, USA, March 14–18, 2022 – 6 talks
- [335] ** the 51-st Colloquium on the Physics of Quantum Electronics, Snowbird, Utah, Jan 10-14, 2022
- [334]**2021 MRS Fall meeting, Boston, MA, USA, November 29 – December 2, 2021 – Invited talk.
- [333] **The 67th Annual AVS International Symposium and Exhibition (AVS 67), Denver, CO, October 24-29, 2021 – Invited talk (online, postponed from 2020)
- [332] ¥ ** 2021 SPIE Optics & Photonics symposium, San Diego, USA, August 2-5, 2021 – one keynote and one invited talks
- [331]** 2021 Metamaterials Congress, New York, USA, August 2-7, 2021 - invited Talk (online)
- [330] ¥The 6th International Conference on Quantum Technologies (ICQT-2021), Moscow, Russia, July 2021 – Invited talk (online)
- [329]** MRS Fall Meeting (2020) – 2 invited and 1 contributed talks
- [328]** SPIE Nanoscience + Engineering 2020 Online conference, (August, 2020) - 1 keynote, 5 invited and 1 contributed talk from the group
- [327] IEEE, 2020 International Applied Computational Electromagnetics Society Symposium (ACES) virtual conference, 10.23919/ACES49320.2020.9196045 (July 2020)
- [326]** CLEO: QELS Fundamental Science, virtual conference (May, 2020) – 1 invited talk and 10 contributed talks from the group

- [325]** SPIE Photonics West, virtual conference on Advanced Optical Techniques for Quantum Information, Sensing, and Metrology (March, 2020) – 2 invited talks and 1 contributed talk
- [324] Optical Society of America, Frontiers in Optics/Laser Science, virtual conference (September, 2020)
- [323] Optical Society of America, Quantum 2.0 conference, virtual conference (September, 2020) – 2 contributed talks
- [322]][¥] -the 50-th Colloquium on the Physics of Quantum Electronics, Snowbird, Utah, Jan 5-10, 2020
- [321] [¥] Novel Concepts in Photonics Research 2019 conference, Ein Gedi, Israel, February 10 – 15, 2019
- [320]* V. Shalaev, XX, USA-Middle East Science symposium, New York City, USA, November 4-6, 2019
- [319] [¥] The International Symposium on Plasmonics and Nanophotonics, Kobe, Japan, Nov 11-14, 2019
- [318]** Northrop Grumman University Research Symposium, Anaheim, CA, USA, October 23-24, 2019
- [317]** IEEE Nanophotonics symposium, San Antonio, September 29-October 3, 2019 (tutorial)
- [316]** The 13th International Congress on Artificial Materials for Novel Wave Phenomena, Metamaterials, Rome, Italy, September 16-21, 2019 – 2 talks
- [315] CLEO: QELS_Fundamental Science proceedings, paper JTh2A. 119, San Jose, California, USA, May 5-10 2019 – 10 talks from the Shalaev group
- [314] 2019 International Applied Computational Electromagnetics Society Symposium (ACES), April 14, 2019 – 2 talks
- [313] American Physical Society Annual meeting, abstract id.B41.006 Boston, MA, USA, March 4–8, 2019
- [312] SPIE OPTO "Photonic and Phononic Properties of Engineered Nanostructures IX" conference, paper number 10927-54, San Francisco, California, United States, February 2-7, 2019 – 5 talks
- [311][¥] IEEE RAPID Conference, Miramar Beach, FL, USA, 19-21 August 2019

- [310]** SPIE Optics and Photonics, San Diego, CA, Aug 11-15, 2019; 2 keynote and 2 invited talks
- [309]** META 2019, Lisbon, Portugal, July 23-36, 2019
- [308]¥ 5th International Conference on Quantum Technologies, Moscow, Russia, July 15-19, 2019
- [307]** International Workshop “Harnessing Light with Structured Materials conference, Florence, Italy, July 9-12, 2019
- [306]¥ Workshop on Topological Photonics and Beyond, Tianjin, China, June 30 – July 2, 2019
- [305]** Artificial Intelligence in Nanophotonics workshop, International Work-Conference on Artificial Neural Networks (IWANN2019), Gran Canaria, Canary Islands, Spain, June 12-14, 2019
- [304]¥ 14th Mediterrenian Workshop and Topical Meeting “Novel Optical Materials and Applications” NOMA2019, Cetraro, Italy, June 2-9, 2019
- [303]** The 9th International Conference on Surface Plasmon Photonics (SPP9), Copenhagen, Denmark, May 26-31, 2019
- [302] 2019 International Applied Computational Electromagnetics Society Symposium (ACES), April 14, 2019 – 2 talks
- [301]¥ -the 49-th Colloquium on the Physics of Quantum Electronics, Snowbird, Utah, Jan 7-12, 2019
- [300]** Nano-Meta-2019 International Conference, Seefeld, Austria Jan 3-7, 2019
- [299]** Metamaterials Congress, ESPOO, Finland, Aug 27 – Sept 1, 2018.
- [298]** UCF Workshop in memory of George Segeman, March 12-13, 2018
- [297] Conference on Lasers and Electro-Optics (OSA, San Jose, CA , May 14-18, 2018)
- [296]** SPIE, Optics and Photonics, Aug 19-23, 2018, San Diego, CA (keynote and 2 invited talks)
- [295]** Metamaterials Films for in-Space Propulsion by Radiation Pressure Incubator, Oct 7-9, 2018, OSA Headquarters, Washington DC

- [294]** A Nature Conference on Nanophotonics and Integrated Photonics (NIP), Nov 9-11, 2018, Nanjing, China
- [293]** iNOW: International Nano-Optoelectronics Workshop, Berkeley, July 21-28, 2018
- [292] Plasmonics and Nanophotonics, Gordon Research Conference, July 8-13, 2018, Newry, ME; Discussion leader
- [291] ¥ META: The 9-th International Conference on Metamaterials, Photonic Crystals and Plasmonics, June 24-July 1, 2018, Marseille, France
- [290] ¥ EOQ Topica Meeting on Waves in Complex Media: Fundamentals and Device Applications, June 4-7, 2018, Capri, Italy
- [289] ¥ NanoPlams: New Frontiers in Plasmonics and Nano-Photonics, Cetraro, Italy, June 10-15, 2018
- [288] ¥ 2018 HIT Shenzhen Symposium of Nano-Optics, Shenzhen, China, May 22-24, 2018
- [287] ¥ The International Symposium on Plasmonics and Nanophotonics, May 24-27, 2018, Hangzhou, China
- [286]** Workshop on Topological Nanophotonics, University of Southern Denmark, Odense, Denmark, May 28-29, 2018
- [285]**Lasers in Micro, Nano and Bio Systems, Gordon Research Conference, June 17-22, 2018, Waterville Valley, NH
- [284]** SPIE Photonics West, San Francisco, CA, USA, January 28 – February 2, 2018
- [283] ¥ -the 48-th Colloquium on the Physics of Quantum Electronics, Snowbird, Utah, Jan 7-12, 2018
- [282] Materials Research Society Meeting, March 16-20, 2017
- [281]** International Conference on Quantum Photonics, Benasque, Spain, Feb 26-March 2, 2017
- [280]** SPIE Optics & Photonics, 6-10 Aug, 2017, San Diego, CA (one invited and one keynote talk)

- [279] ¥ The 8th International Conference on Surface Plasmon Photonics, May 22-26, 2017, Taipei, Taiwan
- [278] ¥ 13th Mediterranean Workshop “Novel Optical Materials and Applications”, Cetraro, Italy, June 4-10, 2017
- [277]** 26th International Laser Physics Workshop, July 17-21, 2017, Kazan, Russia
- [276] ¥ 4th International Conference on Quantum Technologies, Moscow, Russia, July 12-16, 2017
- [275] [CLEO: QELS_Fundamental Science proceedings, San Jose, CA (May 14-19, 2017) – co-author on 12 contributed talks
- [274]** OSA Frontiers in Optics, Laser Science APL/DLS, 17-21 Sept 2017, Washington DC (invited ‘visionary lecture’)
- [273] ¥ 11-th International Congress on Metamaterial, Marseille, 28 Aug – 2 Sept. 2017s
- [272] ¥ Gordon Conference on Plasmonics, July 2016
- [271] ¥ Frontiers of Nonlinear Physics 2016, Nizhny Novgorod-St. Petersburg, Russia, July 17 -23, 2016
- [270]** OSA Subwavelength Photonics Incubator, 21-23 Sept, Washington DC
- [269]** OSA Science & Applications of Nanolasers Incubator, 7-9 Sept, 2016, Washington DC
- [268]** META’16, Malaga, Spain, July 25-28, 2016 – 1 keynote and 5 invited talks
- [267] ¥ NanoPlasm conference proceedings, p. 16-17, Cetraro, Italy (June 17, 2016)
- [266] ¥ The International Midwest Symposium on Nano-Optics and Plasmonics (2016) (IMSNP16’ Hengyang); 24-26 June Hengyang, China
- [265]** SPIE Photonics Europe, Brussels, 4-7 April 2016; 2 invited talks
- [264]** 13th International Conference on Nanosciences & Nanotechnologies – NN16, Thessaloniki, Greece, 5-8 July 2016 – 2 keynote talks
- [263]** SPIE Photonics West 2016 Conference, 17-18 February 2016
- [262]** NANOMETA 2017: 6th International Topical Meeting on Nanophotonics and Metamaterials, Seefeld (Tirol), Austria (January 4-7, 2017) – two invited talks

- [261]** SPIE Optics and Photonics, Aug 28 – Sep 1, 2016, San Diego, CA – 2 keynote talks
- [260]** SPIE Optics and Photonics, Aug 28 – Sep 1, 2016, San Diego, CA – author/co-author on 4 invited talks
- [259]¥ The Fifth Annual Symposium Schawlow-Townes Symposium on Photonics, Ottawa, October 6, 2016
- [258] CLEO: QELS_Fundamental Science proceedings, JW2A. 85 (June 5, 2016) – co-author on 12 contributed talks
- [257] ¥ Physics of Quantum Electronics Colloquium, PQE 2016, Jan 3-7, Snowbird, Utah
- [256]** Material Research Society Fall meeting, Dec 1 – 4, 2015, Boston, MA (2 invited talks)
- [255]** OSA's Incubator on Nonlinear Metamaterials, Oct 1-2, 2015, Washington DC
- [254]** IEEE Photonics Conference, 4 – 8 Oct, 2015, Reston, Virginia (invited tutorial)
- [253]** Metacongress, Sept 6 – 11, 2015, Oxford, UK
- [252]** SPIE Optics and Photonics, Aug 9 – 14, 2015, San Diego, CA
- [251]¥ META15, the 6-th International Conference on Metamaterials, Photonic Crystals and Plasmonics, NYC, Aug 4-8, 2015
- [250]** Enrico Fermi School on Complex Photonics, July 12 – 18, 2015, Varenna, Italy
- [249]** International Workshop on Quantum Plasmonics, March 8-12, 2015, Benasque, Spain
- [248]** Minisymposium on Plasmonics and Nanophotonics, Odense June 19, 2015
- [247]** Metamaterials Science & Technology Workshop, 20 – 22 July 2015, San Diego, CA
- [246]¥ Electron Transport and Optical Properties of Inhomogeneous Media (ETOPIM 10), June 21 - 26, 2015 Tel Aviv, Israel
- [245]** Progress In Electromagnetic Research Symposium (PIERS), July 6-9, 2015, Prague, Czech Republic (3 invited talks)

- [244][¥] 8-th International Conference on Materials for Advanced Technologies (ICMAT), 28 June- 3 July 2015, Singapore
- [243]** Surface Plasmon Photonics 7, May 31-June 5, 2015, Jerusalem, Israel
- [242] CLEO:2015, 10-15 May 2015, San Jose, CA (11 presentations from our research group)
- [241]** Faraday Discussions 178, 16-18 February, 2015, London UK
- [240]** Nanometa 2015, Seefeld, Tirol, Austria, January 5-8, 2015
- [239]** SPIE Conference, San Diego, CA, August 19-21, 2014 (4 invited talks)
- [238][¥] 2014 Summer Topicals Meeting Series, Montreal, Quebec, Canada, July 14-16, 2014
- [237][¥] Nanoplasm 2014, Cetraro, Italy, June 16-20, 2014
- [236]** Photonics North 2014, Montreal, Canada, May 28-30, 2014 (keynote)
- [235]** META-2014, International Conference, Singapore, May 20-23, 2014
- [234]** SPIE Photonics Europe 2014, Brussels, Belgium, April 14-17, 2014
- [233]** From Atomic to Mesoscale: The Role of Quantum Coherence in Systems of Various Complexities, Cambridge, MA, March 10-12, 2014
- [232][¥] Active Nanoplasmonics and Metamaterial Dynamics, Germany, January 19-22, 2014
- [231]** Meta-2013, International Conference, Dubai, OAE, March 19-22, 2013 (keynote talk)
- [230]** Structured Light in Structured Media: From Classical to Quantum Optics, OSA Incubator Meeting, 29 Sept – 1 Oct, 2013, Washington DC, USA`
- [229]** The 6th International Conference on Surface Plasmon Photonics, Ottawa, Canada, May 26-31, 2013.
- [228][¥] Frontiers of Nonlinear Physics, Nizhny Novgorod, Russia, July 28 – August 2, 2013.
- [227]** 2nd International Conference on Quantum Technologies, Moscow, Russian, July 20-24, 2013.

- [226]** 2013 Materials Research Society (MRS) Fall Meeting, December 1-6, 2013, Boston, MA.
- [225]** CLEO:2013, Laser Science to Photonic Applications, 9-14 June 2013, San Jose, CA, USA (short course)
- [224] CLEO:2013, Laser Science to Photonic Applications, 9-14 June 2013, San Jose, CA, USA (7 contributed talks)
- [223]** 7-th International Congress on Advanced Electromagnetic Materials in Microwave and Optics, Metamaterials 2013, 16-21 September, 2013, Bordeaux, France (2 invited talks)
- [222]** Nano-Meta Conference, Seefeld, Austria, Jan 2-6, 2013 (keynote)
- [221][¥] Croucher Advanced Study Institute, “New Materials and new Concepts for Controlling Light and Waves”, Oct. 3-7, 2012, Hong Kong.
- [220]** Metamaterials Congress, St. Petersburg, Russia, Sept. 17-21, 2012
- [219][¥] SPIE conference, Aug. 11-16, 2012, San Diego, CA
- [218]** International Workshop “Microchip Plasmonics”, Erlangen, Germany, Aug. 29-31, 2012
- [217]** Advances in Nanophotonics IV, Erice, Sicily, July 23-29, 2012
- [216][¥] OSA Topical Meeting on nanophotonics, ColoraDO Springs, CO, June 17-20, 2012
- [215]** Gordon “Plasmonics” Conference, June 10-15, 2012, Waterville, ME
- [214]** CLEO 2012, San Jose, CA, May 6-11, 2012 (short course)
- [213]** SPIE’s Europe Photonics Europe International Symposium, April 15-19, 2012 (keynote)
- [212]** MRS Spring Meeting, San Fransisco, CA, April 2012.
- [211][¥] Metamaterials Symposium, March 8-10, 2012, Tokyo, Japan
- [210]** Workshop on Nanophotonics, ICTP, Trieste, 3-7 December, 2012
- [209][¥]The Exciting Science of Light with Metamaterials, 2012 SPIE Conference, San Diego, CA, Aug 5-10, 2012

- [208]** NRC at National Academy of Science, Washington DC, October 3, 2011.
- [207]** Quantum Metamaterials, Buffalo, NY, Sept. 19-20, 2011
- [206]** DoD Technologies Workshop, Dallas, April 20, 2011
- [205]¥ SPIE, Optics+Photonics, San Diego, CA, August 21-26, 2011
- [204]¥ NanoMeta International Conference, Jan 3-6, 2011, Seefeld, Austria
- [203]** Quantum Optics International Conference, Moscow, Russia, July 13-16, 2011
- [202]** CLEO/QELS, Baltimore, MD, May 1-6, 2011. Short Course
- [201]** Materials Research Society Fall Meeting, Boston, MA, Nov 29-Dec 3, 2010
- [200]** Materials Research Society Spring Meeting, San Francisco, CA, April 5-9, 2010
- [199]** SPIE, Optics+Photonics, San Diego, CA, August 1-5, 2010
- [198]** Federation of Analytical Chemistry and Spectroscopy Societies Conference (37th FACSS), Raleigh, NC October 17 - 21, 2010.
- [197]** 4th International Congress on Advanced Electromagnetic Materials, Karlsruhe, Germany, Sept. 13-17, 2010
- [196]** International Conference on Coherent and Nonlinear Optics, ICONO, Kazan', Russia, August 23-26, 2010
- [195]** Workshop on Metamaterials (organized by Sandia NL and Los Alamos NL), August 11-13, 2010
- [194]¥ The 4th International Conference "Frontiers of Nonlinear Physics" on the boat traveling from Nizhny Novgorod to St.-Petersburg, 2010
- [193]¥ 19th International Laser Physics Workshop (LPHYS'07), Brazil, July 5-9, 2010
- [192]** USA JASON Workshop, La Jolla, CA, June 28-29, 2010
- [191]¥ OSA International School for Young Scientists, Moscow, Russia, June 20-23, 2010
- [190]** 5th Forum on New Materials, CIMTEC, Tuscany, Italy, June 14-18, 2010
- [189]** CLEO/QELS, San Jose, CA, May 16-21, 2010. Short Course

- [188]** CLEO/QELS, San Jose, CA, May 16-21, 2010. Tutorial
- [187]** SPIE-Europe, Brussels, Belgium, April 12-16, 2010
- [186]¥ German Physical Society Meeting, Hannover, Germany, March 8-12, 2010
- [185]** META'10, the 2nd International Conference on Metamaterials, Photonic Crystals and Plasmonics, 22-25 February 2010, Cairo, Egypt
- [184]¥ The 40th Winter Colloquium on the Physics of Quantum Electronics, Snowbird, Utah, Jan. 2-8, 2010
- [183]** Workshop on Metamaterials, Washington DC, Nov 16-17, 2009
- [182]¥ Heraeus Seminar: Nanostructures for Photonics, Bad Honnef, Oct 26-30, 2009.
- [181]** NanoForum, Moscow, Oct 5-8, 2009
- [180]** Invited lecture series at School on Advance Materials for Young Researchers, Hamburg, Sept 21-25, 2009
- [179]** Congress on Metamaterials, LondoinAug 30 – Sept4, 2009; two invited talks.
- [178]** SPIE Optics + Photonics, Aug 2-7, 2009, San Diego, CA. Three invited talks.
- [177]** Laser Physics International Workshop, Barcelona, Spain, July 13-17, 2009
- [176]** Spring 2009 MRS Meeting, San Francisco, CA, April 13-17
- [175]** 6th Annual CRI Conference, UNC Charlotte, May 27-31, 2009
- [174]**International Conference on Materials for Advanced Technologies 2009, Symposium G: Plasmonics and Applications, 28 June – 3 July, 2009, Singapore
- [173]** Short Course: Metamaterials, CLEO/IQEC-2009, May 31 – June 5, 2009, Baltimore, MD
- [172]** The 8th International Meeting on the Electrical Transport and Optical Properties of Inhomogeneous Media (ETOPIM-8), June 7-12, 2009, Crete, Greece
- [171]** APS March 2009 Meeting
- [170]** NanoMeta, International Conference, Seefeld, Austria, 5-8 January, 2009
- [169]**Frontiers in Optics, OSA Annual Meeting, Rochester, Oct. 19-23, 2008.

- [168]¥ A*STAR Metamaterials Workshop, Singapore, Dec. 10-12, 2008
- [167]¥ International Workshop “Nanotechnology Revolution (NTR)” Marseille, France, October 5-10, 2008.
- [166]¥ International Workshop “Meta-materials and Plasmonics,” Fudan University, Shanghai, China, Nov 12-15, 2008.
- [165]¥ NATO Advanced Study Institute: Workshop on Photonics, Ottawa, Canada, Nov. 25-Dec. 2, 2008
- [164]**Metamaterials-2008, International Congress, Pamplona, Spain, 21-26 September, 2008
- [163]** Photon08 International Conference, Edinburgh, Scotland, 26-29 August (2008)
- [162]** SPIE Optics+Photonics, 26-30 August 10-15, 2008, San Diego, Ca (two invited talks)
- [161]** Gordon Research Conference “Plasmonics” July 27-Aug. 1, Tilton, NH (2008)
- [161]** International Conference “Laser Optics 2008”, St. Petersburg, Russia, June 23-28 (2008)
- [160]** OSA Topical Meeting “Slow and Fast Light”, July 13-16, Boston, (2008)
- [159]** Moscow International Symposium on Magnetism, June 20-25, Moscow, Russia, 2008
- [158]** Quantum Electronics and Laser Science Conference (CLEO/QELS), San Jose, May 4-9, San Jose, Ca, 2008
- [157]**NATO Advanced Research Workshop: Metamaterials for Secure Information and Communication Technologies, 7-10 May, 2008, Marrakesh, Morocco
- [156]**SPIE Europe, Photonics Europe, April 7-10, 2008, Strasbourg, France; two invited talks
- [155]** NATO Workshop on Cloaking, April 10-12, Strasbourg, France.
- [154]**ICCES08, Computational and Experimental Aspects of Electromagnetic Metamaterials, Honolulu, Hawaii, March 17-22, 2008.
- [153]** Heraeus Seminar: Periodic Nanostructures for Photonics, Bad Honnef, Feb. 27-29, 2008.

- [152]** SPIE Photonics West Conference, January 19-24, 2008, San Jose, CA.
- [151]¥ The 38th Winter Colloquium on the Physics of Quantum Electronics, Snowbird, Utah, Jan. 6-10, 2008
- [150]¥ The 5-th International Conference on Advanced Materials and Devices, Dec. 12-14, 2007, Jeju, Korea
- [149]¥**Metamaterials 2007, The First International Congress on Advanced Electromagnetic Materials in Microwaves and Optics, Rome, Italy, 22-26 October 2007 (plenary talk and tutorial).
- [148]** Plasmonics Workshop, IEEE LEOS (Boston branch), MIT Lincoln Lab, Oct. 10, 2007
- [147]** Symposium on Photonics in the Translational Era, Duke University, Durham, NC, Oct. 11-12, 2007.
- [146]** MORIS 2007: Workshop on Thermal and Optical Magnetic Materials and Devices, Sept. 24-26, 2007, Carnegie Mellon University, Pittsburgh, PA.
- [145]** Frontiers in Optics, OSA 91-st Annual Meeting, San Jose, CA, Sept 16-20, 2007
- [144]** Los Alamos National Lab Workshop on Metamaterials, Sept. 5-6, 2007, Los Alamos, NM
- [143]** SPIE Optics+Photonics, 26-30 August, 2007, San Diego, Ca (two invited talks)
- [142]¥** 16th International Laser Physics Workshop (LPHYS'07), August 20-24, 2007, Leon, Mexico (plenary and two invited talks).
- [141]** 5-th Symposium on Photonics, Networking and Computing, July 18-19, Salt Lake City, Utah, 2007
- [140]** Third International Conference on Surface Plasmon Photonics (SPP-III), Dijon, June 17-22, 2007.
- [139]** CLEO/Europe IQEC Conference, Munich, June 17-22, 2007
- [138] OSA Topical Meeting: Photonic Metamaterials: from Random to Periodic, Jackson Hole, Wyoming, June 4-7, 2007; 4 contributed talks
- [137]¥ ICONO 2007 (International Conference on Coherent and Nonlinear Optics), May 28- June 1, 2007, Minsk, Belarus
- [136]** CLEO/QELS 2007 Conference, May 6-11, Baltimore, Maryland (invited talk and tutorial)

- [135]** “Metamaterials and Nonlinear Materials” Conference, Redstone Arsenal, Alabama, April 4-5, 2007.
- [134]** International Workshop on Nonlinear Physics in Periodic Structures and Metamaterials, Dresden, Germany, March 19-30, 2007
- [133]** DARPA Workshop on Metamaterials, March 5-7, 2007.
- [132] American Physical Society March Meeting, Denver, CO, March 5-9, 2007
- [131]** Nanophotonics Accessibility and Applicability, National Research Council, The National Academies, Washington DC, Jan 23-24, 2007.
- [130]** SPIE Photonics West, January 22-26, 2007
- [129]** NanoMeta 2007, First European Topical Meeting on Nanophotonics and Metmaterials, Seefeld, Austria, Jan 8-11, 2007
- [128]** International Workshop on Plasmonics and Applications in Nanotechnologies, Singapore, Dec. 5-7, 2006
- [127]** Materials Research Society Meeting, Boston MA, Nov. 27-Dec. 1, 2006.
- [126]** Institute for Mathematics and its Applications (IMA) Workshop on Negative Index Metamaterials, University of Minnesota, October 2-4, 2006
- [125]** European Optical Society Meeting, Paris, October 16-18, 2006.
- [124]** The 19th Annual Meeting of the IEEE Lasers & Electro-Optics Society, 29 Oct-2 Nov, 2006, Montreal, Canada.
- [123]** International Symposium on Biophotonics, Nanophotonics and Metamaterials, Hangzhou, China, October 16-18, 2006 (plenary talk and tutorial)
- [122]** Frontiers in Optics, The 90th OSA Annual Meeting, Rochester, October 8-12, 2006 (one invited and two contributed talks)
- [121]** Photonic Crystals and Metamaterials, Heraeus Workshop, Bad Honnef, Germany, Sept. 17-22, 2006.
- [120]** Quantum Electronics and Photonics (QEP-17) International Conference, 4-7 September 2006, Manchester UK
- [119]** SPIE Optics & Photonics, San Diego Convention Center, San Diego, CA, Aug. 13-17, 2006 (one invited talk and four contributed talks)

- [118]** Gordon Conference on Plasmonics, Keene, July 23-28, 2006
- [117]** Electron Transport and Optical Properties of Inhomogeneous Media (ETOPIM7) International Conference, Sydney, Australia, July 2006 (one invited and one contributed talks)
- [116] Photonic Metamaterials: from Random to Periodic, Bahamas, June 3-7, 2006 (two contributed talks)
- [115]** Materials Research Society Meeting, April 2006, San Francisco
- [114]** German Physical Society Meeting, Dresden, March 2006.
- [113] International Workshop on Multifunctional Materials III, March 2006, San Carlos de Bariloche, Argentina
- [112]** a) MITRE/DARPA Nanophotonics Workshop, McLean VA, Feb. 2006
b) MITRE Workshop “Principles of Advanced Electromagnetic Materials, 26-27 July 2006, McLean, VA
- [111][¥] “Physics of Quantum Electronics” (PQE) Winter Colloquium, Snowbird, Utah, January 3-7, 2006.
- [110]** IEEE/LEOS, Lasers & Electro-Optics Society 2005 Annual Meeting, 23-27 October 2005, Sydney, Australia.
- [109]** Frontiers in Optics, The 89th OSA Annual Meeting, October 16-20, 2005, Tucson, AZ.
- [108][¥] Summer School “Photonic Metamaterials: from Micro to Nano Scale”, Erice, Italy, 1-7 August, 2005.
- [107]** The International Society for Optical Engineering (SPIE) Meeting, San Diego, CA, 1-5 August, 2005; 2 invited talks
- [106]** International Workshop on Metamaterials for Microwave and Optical Technologies, July 18-20, 2005, San Sebastian, Spain.
- [105]** 14th International Laser Physics Workshop, July 4-8, 2005, Kyoto, Japan
- [104]** PECS-VI: International Symposium on Photonic and Electromagnetic Crystal Structures, Crete, Greece, June 19-24 (2005)

- [103]** 7th Mediterranean Workshop and Topical Meeting “Novel Optical Materials and Applications” Cetraro, Italy, May 29-June 4, 2005.
- [102]** Conference on Lasers and Electro-Optics and International Quantum Electronics Conference, CLEO/IQEC, Baltimore, May 22-27, 2005. Tutorial: “Plasmonic Nanophotonics”
- [101]**International Conference “Surface Plasmon Photonics 2”, Graz, Austria, May 21-26, 2005.
- [100]** International Conference on Coherent and Nonlinear Optics (ICONO-2005), 11–15 May 2005 St. Petersburg, Russia, "Plasmonic Nanophotonics”
- [99]** International Conference on Coherent and Nonlinear Optics (ICONO-2005), 11–15 May 2005 St. Petersburg, Russia, "Protein sensing with plasmonic nanostructures".
- [98]** Second International Conference on Advanced Materials and Nanotechnology, 6-11 Febr., 2005, Queenstown, New Zealand.
- [97][¥] “Physics of Quantum Electronics” (PQE) Winter Colloquium, Snowbird, Utah, January 3-7, 2005.
- [96]** LEOS 2004, Annual Meeting of the IEEE Lasers & Electro-Optics Society, November 7-11, 2004, Rio Grande, Puerto Rico. 2 invited talks
- [95] “Frontiers in Optics” OSA Meeting, Rochester, NY, 2004. 5 contributed talks.
- [94]** Joint Workshop: "Nanoscience: linking disciplines", Venice, Italy, Sept. 27 - Oct. 1, 2004.
- [93]**The International Society for Optical Engineering (SPIE) Meeting, Denver, CO, 2-6 August, 2004; 4 invited talks
- [92]**Plasmonics from Fundamentals to Applications, 2nd International Nanophotonics Symposium, Handai (INPS 2004), Osaka, July 26-28, 2004.
- [91]**2004 Gordon Research Conference on Nanostructure Fabrication, discussion leader for Nanophotonics Session, Tilton, NH, 2004
- [90]**Laser Physics 2004 International Workshop, Trieste, Italy, July12-16, 2004.
- [89]**Conference on Lasers and Electro-Optics and International Quantum Electronics Conference, CLEO/IQEC, San Francisco, CA, May 16-21, 2004.
- [88]**"From Photonics Crystals to Metamaterials", International WE-Heraeus Seminar, Bonn, April 26-30, 2004.

- [87]**Materials Research Society Meeting, San Francisco, CA, April 12-16, 2004.
- [86]**American Physical Society March Meeting, Montreal, Canada, March 22-26, 2004.
- [85]** Nanophotonics Workshop at Stanford Photonics Research Center, January 24, 2004
- [84]** Bi-national USA-Mexico Workshop on Nanostructure Optics, University of Arizona, Tucson, Jan. 10-12, 2004
- [83]** Physics of Quantum Electronics Winter Colloquium, Snowbird, Utah, January 5-10, 2004
- [82]** NSF-NIRT Workshop, December 16, 2003, Arlington, VA
- [81]** Progress in Electromagnetic Research Symposium (PIERS), Honolulu, Hawaii, October 2003 (3 papers presented).
- [80]** Optical Society of America Annual Meeting, Frontiers in Optics, Tucson, AZ, October 2003 (3 papers presented, including 2 invited)
- [79]** VIII International Conference “Laser and Laser-Information Technologies”, Smolyan, Bulgaria, September 2003.
- [78]** Surface Plasmon Photonics, Europhysics conference on Nano-Optics, Granada, Spain, Sept. 2003
- [77]** International Workshop “Novel Optical Materials and Applications (NOMA)”, Cetraro, Italy, June, 2003.
- [76]** 12th International Laser Physics Workshop (LPHYS’03), Hamburg, Germany, Aug. 25-29, 2003 (2 papers presented)
- [75]**SPIE 48th Annual Meeting, San Diego, CA, 3-8 August, 2003 (3 papers presented by the Shalaev group)
- [74]** 8th International Meeting on Hole Burning, Single Molecule, and Related Spectroscopies: Science and Applications, Bozeman, Montana, July 27-31, 2003.
- [73]** XI International Conference on Laser Physics, St. Petersburg, June 30-July 4, 2003.
- [72]** Workshop on Bio-Inspired Progress for Design, Assembly, and Repair of Electromagnetic and Structural Composites, Atlanta, Georgia, August 19-20, 2003.
- [71]** DIPC International Workshop “Optical Properties of Complex Materials over Different Length Scales”. San Sebastian, Spain, July 7-11, 2003.

- [70] American Physical Society March Meeting, 6 papers presented by the Shalaev group, March 3-7, 2003, Austin TX
- [69]** Physics of Quantum Electronics (PQE) Winter Colloquium, Snowbird, Utah, January 5-10, 2003
- [68]** Materials Research Society annual meeting, Boston, MA, Dec. 2-6, 2002.
- [67]** Optical Society of America annual meeting, Sept. 27 – Oct. 2, 2002, Orlando, FL
- [66] International Workshop on Multifunctional Materials, Oct. 26-30, 2002, Pucon, Chile
- [65]** Electron Transport and Optical Properties of Inhomogeneous Media (ETOPIM6) International Conference, July 12-19, 2002, Snowbird, Utah; invited and 2 contributed talks
- [64]**Progress in Electromagnetics Research Symposium, PIERS 2002, Boston, July 1-5, 2002; 4 invited talks in different sessions
- [63]** Laser Physics'02 International Workshop, Bratislava, Slovak Republic, July 1-5, 2 invited talks.
- [62]** International Quantum Electronics Conference (IQEC/LAT) Moscow, Russia, June 24-27, 2002; one invited and 3 contributed talks.
- [61] “Wave Scattering in Complex Media” NATO Advanced Science Institute International School, Cargese, Corsica, France, 10-22 June 2002.
- [60]** Optical Science and Technology SPIE 47th Annual Meeting, Seattle, WA, 7-11 July, 2002.
- [59]** Quantum Electronics & Laser Science Conference (CLEO/QELS), Long Beach, CA, May 19-24, 2002
- [58] American Physical Society Meeting, Indianapolis, IN, March 18-22, 2002 (4 presentations)
- [57]**Physics of Quantum Electronics (PQE) Winter Colloquium, Snowbird, Utah, January 10-15, 2002.
- [56]** American Physical Society 3-Corner Meeting, November 2001.
- [55] Optical Society of America Meeting, October, 2001, Long Beach, California.

- [54]** Electromagnetic Crystal Structures, International Conference, St. Andrews, Scotland, June 9-14, 2001.
- [53]** XVII International Conference on Coherent and Nonlinear Optics, Minsk, Belarus, June 26 -July 1, 2001.
- [52]** 10th International Laser Physics Workshop (LPHYSTM01), Moscow, Russia, July 3-7, 2001.
- [51]** 5th Mediterranean Workshop and Topical Meeting Novel Optical Materials and Applicationsle (NOMA,01), Grand Hotel San Michele, Cetraro, Italy, May 20-26, 2001.
- [50] The American Physical Society March Meeting, March 12-16, 2001, Seattle (4 talks)
- [49]** The Optical Society of America Annual Meeting, October 22-26, 2000, Providence,Rhode Island,
- [48]** Winter Colloquium on the Physics of Qunatum Electronics, Snowbird, Utah, January, 2001.
- [47]^Y**Invited Lecturer at the NATO Summer School "Linear and Nonlinear Optics." Ericie, Sicily, Italy, 2-14 July 2000
- [46]** 9th Annual International Laser Physics Workshop (LPHYSTM2000) Bordeaux, France, July 17-21, 2000
- [45] Photonic Crystals and Light Localization, NATO Advanced Study Institute, June 19-30, 2000, Crete, Greece.
- [44]^Y**Winter Colloquium on the Physics of Qunatum Electronics, Snowbird, Utah, January, 2000.
- [43]^Y**Fifth International Conference on Electrical Transport and Optical Properties of Inhomogeneous Media, Hong Kong, June, 1999.
- [42]** SPIE Meeting, Denver, Co, July (1999).
- [41]** 4th Mediterranean Workshop "Novel Optical Materials and Applications," Cetraro, Italy, June 4-10, 1999.
- [40]** 8th International Laser Physics Workshop, Lphy'99, Budapest, July 2-6, 1999.
- [39] Conference on Lasers and Electro-Optics (CLEO), Baltimore, Maryland, May 23-28, 1999.

- [38]** Winter Colloquium on the Physics of Qunatum Electronics, Snowbird, Utah, January, 1999.
- [37] 1998 OSA Annual Meeting, Baltimore, 4-9 October, 1998.
- [36] Nonlinear Optics '98, Kauai, Hawaii, 10-14 August 1998.
- [35] International Conference on Percolation and Disordered Systems, Giessen, Germany, 14-17 July, 1998.
- [34]¥***XVI International Conference on Coherent and Nonlinear Optics, Moscow, June 29-July 8, 1998.
- [33] Conference on Lasers and Electro-Optics (CLEO), San Francisco, California, May 3-8, 1998.
- [32] Winter Colloquium on the Physics of Qunatum Electronics, Snowbird, Utah, January, 1998.
- [31]** XI International Vavilov Conference on nonlinear optics, Novosibirsk, Russia, June 24-28, 1997.
- [30] 3rd Mediterranean Workshop on inNovel Optical Materials and Applications,ñ Cetraro, Italy, June 8-13, 1997.
- [29] 213th American Chemical Society Meeting, San Francisco, CA, April 13-17, 1997.
- [28] 4th International Multidisciplinary Conference Fractals in the Natural and Applied Sciences, 8-11 April 1997, Denver, Colorado, USA.
- [27]¥***International Conference "Electron Transport and Optical Properties of Inhomogeneous Media," Moscow-St. Petersburg, July 23-30 (1996).
- [26] XX International Quantum Electronics Conference, Sydney, 14-19 July (1996)
- [25] Summer Topical Meeting, Nonlinear Optics: Materials, Fundamentals, and Applications, Maui, Hawaii, July 8-12 (1996).
- [24] The American Physical Society March Meeting, St. Louis, Mi (1996).
- [23] The American Physical Society March Meeting, San Jose, CA (1995).
- [22] The Materials Research Society Fall Meeting, Boston (1994).
- [21] The Optical Society Meeting, Dallas, October, 1994.

- [20] The Materials Research Society Spring Meeting, San Francisco (1994).
- [19] The American Physical Society March Meeting, Seattle (1993).
- [18]** 67th Colloid and Surface Science Symposium, Toronto, June, 1993.
- [17]** Third International Conference on Electrical Transport and Optical Properties of Inhomogeneous Media, Guanajuato, Mexico, August, 1993.
- [16] The American Physical Society March Meeting, Indianapolis, Indiana (1992).
- [15] Int. Conf. on Fractals and Disordered Systems, Hamburg, July, 1992.
- [14] 7th Symposium on Chemical Physics, Waterloo, Canada, October, 1992.
- [13] Fractals in Engineering, Montreal, Canada, June, 1992.
- [12] Int. Conf. on Complex systems: Fractals, Spin Glasses and Neural Networks, Trieste, Italy, July, 1991.
- [11] 6th Symposium on Chemical Physics, Waterloo, Canada, Oct. 1991.
- [10] European Conf. on Quantum Optics, Davos, Switzerland, Sept. 1990.
- [9]** Xth International Vavilov's Conference on Nonlinear Optics, Novosibirsk, Russia, June, 1990.
- [8]** European Int. Conf. on Quantum Electr., Dresden, Germany (1989).
- [7]** Int. School "Laser and its applications", Sayanogorsk, USSR, April, 1989.
- [6]** International Conf. on Quantum Electronics and Nonlinear Optics KINO, Minsk, Belorussia, September, 1988.
- [5]** 3-rd Int. Conf. "Trends in Quantum Electronics." Bucharest, Romania, Aug.-Sept. (1988).
- [4]** IXth Vavilov's International Conferences on Nonlinear Optics, Novosibirsk, Russia (1988).
- [3] VIIIth Vavilov's International Conferences on Nonlinear Optics, Novosibirsk, Russia (1985).
- [2] VIIth Vavilov's International Conferences on Nonlinear Optics, Novosibirsk, Russia (1981).

[1] Vith VavilovTMs International Conferences on Nonlinear Optics, Novosibirsk, Russia (1979).

Invited Lectures/Seminars:

[138] Technion, Israel, December 2022

[137] Australian Research Council Centre of Excellence for Transformative Meta-Optical Systems (TMOS), November 2022

[136] University of Technology Sydney, November 2022

[135] Advanced Science Research Center, CUNY, New York, NY, USA, October 2022

[134] Georgia Institute of Technology, October 2022

[133] Technical University of Denmark, June 2022

[132] Quantum Seminar, Harvard University, November 2021 (in person)

[131] Quantum Seminar, Niels Bohr Institute, University of Copenhagen, June 2021 (in person)

[130] University of Southern Denmark, June 2021 (in person)

[129] University of Oklahoma, OU Inaugural Research Distinguished Lecture Series, November 2019

[128] University of Illinois Urbana – Champaign, September 2019 (Distinguished Lecture)

[127] UCF Workshop in memory of George Segeman, March 12-13, 2018

[126] SUNY Polytechnic, March 2, 2018

[125] Technion, Israel, December 2017

[124] Technical University of Denmark, Copenhagen, April 2017

[123] Siberian Federal University, Krasnoyarsk, Russia, July 2017

[122] University of Southampton, UK, July 2016

[121] University of Copenhagen, Denmark, April 2016

[120] Technical University of Denmark, April 2016

[119] IFCO, The Institute of Photonic Sciences, Barcelona, Spain, May 2016

- [118] Series of lectures in Southern University of Denmark, May-June 2016
- [117] Harriot-Watt University, Edinburg, Scotland, March 2016
- [116] Workshop organized by Southampton University in Chamonie, France, March 2016
- [115] MIT, February 2016
- [114] Harvard, February 2016
- [113] Data Storage Institute, Singapore, Dec 2015
- [112] National University of Singapore, Dec 2015
- [111] Boston University, December 2015.
- [110] Harvard University, March 4, 2015
- [109] Northwestern University, Distinguished lecturer of ECE, Jan 21, 2015
- [108] Kazan Federal University, Russia, June 2014 (series of invited lectures)
- [107] Krasnoyarsk Institute of Physics, Russia, June 2014.
- [106] Raytheon, Los Angeles, CA, Nov 12, 2013.
- [105] Technion, Haifa, Israel, Oct 16, 2013
- [104] St. Petersburg ITMO (Russia), Sept. 26, 2013
- [103] AMOLF, Amsterdam, The Netherlands, Sept. 23, 2013
- [102] MITRE Corporation, JASON Program, McLean, VA, April 27-28, 2012
- [101] UC Berkeley, April 11, 2012
- [100] Skolkovo, Russia, Days of Quantum Physics, December, 2012
- [99] Russian Quantum Center, Moscow, Russia, December, 2012
- [98] Krasnoyarsk Institute of Physics, Russia, Dec 9, 2011.
- [97] Dayton University, Sept. 9, 2011.
- [96] Instrument Technology Research Center (ITRC), National Applied Research Laboratories, Taipei, Taiwan, Dec. 13, 2010
- [95] National Taiwan University, Taipei, Taiwan, Dec. 14, 2010

- [94] The Lebedev Institute of Physics of the Russian Academy of Science (FIAN), October 13, 2010
- [93] Kirensky Institute of Physics, Siberian Branch of Russian Academy of Science, OJune 23, 2010
- [92] Kirensky Institute of Physics, Siberian Branch of Russian Academy of Science, October 14, 2009
- [91] SAOT/MIPT and Erlangen University, Germany, May 12, 2009
- [90] University of Illinois, Urbana-Champaign, Feb. 26, 2009.
- [89] Northwestern University, Jan. 27, 2009
- [88] MIT, October 29, 2008.
- [87] Harvard University, October 31, 2008
- [86] Ohio State University, Physics Department, Nov. 25, 2008
- [85] Yale University, April 30, 2008.
- [84] Bordeaux University, France, April 2008.
- [83] Max Plank Institute, Erlangen, Germany, April 2008.
- [82] Indiana University, Physics Department, April 2008
- [81] CREOL, University of Central Florida, Febr. 15, 2008
- [80] Weizmann University, Tel Aviv, Dec. 25, 2007 (colloquium in Physics Department)
- [79] Bar-Ilan University, Tel Aviv, Israel, Dec. 23, 2007 (colloquium in Physics Department)
- [78] Technion University, Haifa, Israel, Dec. 20, 2007 (colloquium in EE Department).
- [77] Siberian Federal University, Krasnoyarsk, Russia, Dec 1-6, 2007 (series of invited lectures on nanophotonics and metamaterials)
- [76] University of Florida, (colloquium in Physics Department) Nov. 8, 2007
- [75] CalTech, October 31, 2007.
- [74] Hannover Laser Center, Hannover, Germany, Nov. 14, 2007
- [73] IBM Watson Lab, March 16, 2007.

- [72] Queens College, New York City, May 2006.
- [71] Technical University of Denmark, Copenhagen, Denmark, May 2006.
- [70] University of Connecticut, Physics Department, April 2006.
- [69] Stony Brook University, Physics Department, February 2006.
- [68] AFRL/MLBP Colloquium, WPAFB, Dayton, OH, February 2006
- [67] IUPUI Colloquium, Physics Department, Feb. 2006.
- [66] Colorado University, January 2006
- [65] Princeton University, December, 2005
- [64] Versailles University, France, July 2005.
- [63] Krasnoyarsk Institute of Physics, Russia, May, 2005
- [62] University of Texas, Austin, Physics Department, February 2005.
- [61] Los Alamos National Lab, June 2004.
- [60] Columbia University, Electrical Engineering, May 2004
- [59] Rochester University, Chemistry Department, April 2004
- [58] Chicago University, Physics Department, February 2004.
- [57] Northwestern University, Chemistry Department, October 2003
- [56] Toyohashi University, Toyohashi, Japan, Jan. 28, 2003
- [55] Lehigh University, Dec. 16, 2002
- [54] CNRS, Ottawa, Canada, Dec. 20, 2002
- [53] ARO Workshop, Oct. 15-16, 2002
- [52] Norfolk State University, Nov. 8, 2002, Norfolk, VA
- [51] Ecole Normale Superieure de Physique et de Chemie Industrielles, Paris, France, June 2002.
- [50] Universite de Versailles, Versailles, France, June 2002.
- [49] Ecole Normale Superieure de Cachan, Cachan, France, June 2002.
- [48] Purdue University, Chemistry Department, January 2002.

- [47] University of Arizona, Chemistry Department, February 2002.
- [46] Purdue University, Graduate Seminar Series, January 2002.
- [45] Purdue University, Nanotechnology Seminar, November 2001.
- [44] New Mexico State University, Physics Department, November 2001.
- [43] Northwestern University, Physics Department, April 2001.
- [42] Purdue University, ECE, April 2001.
- [41] Princeton University, EE, February 2001.
- [40] University of Oregon, Physics Department, January 2001.
- [39] City University of New York, Hunter College, January 2001.
- [38] New Mexico State University, Physics Department and Chemistry Department, February 2001.
- [37] Ludwig-Maximilians University and Center for NanoScience, Munich, May, 2000.
- [36] Hong Kong University of Science and Technology, February 2000 (Hong Kong).
- [35] Ecole Supérieure de Physique et de Chimie Industrielles, October 1999 and December 2000 (Paris, France).
- [34] Institute de Optique, December 1999 (Orsay, France) .
- [33] University of Bonn, December 1999 (Bonn, Germany)
- [32] University of Taiwan, June 1999, Taiwan.
- [31] Université de Versailles Saint-Quentin, Versailles, France, July, 1998.
- [30] Institute of Optics, University of Rochester, Rochester, NY, October 1998.
- [29] Cornell University, Applied Physics, October 1998.
- [28] Sandia National Laboratory, Albuquerque, April, 1998.
- [27] University of New Mexico, Albuquerque, March, 1998.
- [26] Los Alamos National Laboratory, Los Alamos, May, 1998.
- [25] Washington State University, Pullman, WA, September, 1997.
- [24] Université de Versailles Saint-Quentin, Versailles, France, June, 1997.

- [23] I.U.S.T.I., Universite de Province, Marseille, France, May, 1997.
- [22] Aalborg University, Institute of Physics, Denmark, May, 1997.
- [21] Institute of Physics, Krasnoyarsk, Russia, July, 1996.
- [20] Universite Montpellier, France, June, 1995.
- [19] Krasnoyarsk State University, Russia, June, 1995.
- [18] University of New Mexico, January, 1995.
- [17] Yale University, November, 1994.
- [16] University of California, Irvine, April, 1994.
- [15] Sandia National Laboratory, January, 1994.
- [14] Los Alamos National Laboratory, November, 1993.
- [13] Iowa State University, March, 1993.
- [12] Washington State University, March, 1993.
- [11] Ontario Laser & Lightwave Research Centre, March, 1992.
- [10] Department of Chemistry, University of Toronto, Canada, October 1991.
- [9] Max-Plank-Institut fur Kernphysik, Heidelberg, Germany, May, 1991.
- [8] Universite Claude Bernard, Lyon, France, March, 1991.
- [7] Ecole Polytechnique, Paris, France, March, 1991.
- [6] Paris-Sud Universite, Orsay, France, January, 1991.
- [5] Huygens Laboratory, University of Leiden, Netherland, December, 1990.
- [4] Chalmers University of Technology, Gothenburg, Sweden, December, 1990.
- [3] H.H.Wills Phys. Lab., University of Bristol, United Kingdom, November, 1990.
- [2] De L'Ecole Normale Superiere, Paris, France, October 1990.
- [1] Heidelberg University, Germany, Aug. 1990.

Activities as a Referee:

1993-present. Reviewing editor for Science. Reviewing panel member of the European Research Council for consolidation grants. Referee for funding agencies (NSF, ACS-PRF, ARO, DoD, DOE, and others) and numerous research journals, such as Science, Nature, Nature Photonics, Nature Materials, Physical Review and Physical Review Letters, Surface Science, Journal of Physical Chemistry, Physica A, Applied Physics B, Applied Physics Letters, Optical Communications, Metamaterials, Laser Physics Letters, and several other journals. Regularly participate in various NSF and European Research Council (ERC) panels. Invited many times to serve as an external referee for PhD thesis defenses in different countries. Served several times as a referee for evaluating European conference projects. Member of NSF and NIH Committees for site visits of various Centers.

Editorial Positions:

[1] Editorial Advisory Board, *International Journal of Theoretical Physics, Group Theory and Nonlinear Optics*, 2000-2015

[2] Optical Properties of Random Nanostructures, Editor: V. M. Shalaev, Springer Verlag, Topics in Applied Physics, Berlin 2001.

[3] Nanostructured Materials: Clusters, Composites, and Thin Films, V. M. Shalaev and Martin Moskovits (eds.), ACS Symposium Series v. 679, ACS Books, 1997.

[4] Editorial Board Member for International Journal Laser Physics Letters

[5] Editorial Board Member for J. Nonlinear Optical Physics and Materials (JNOPM)

[6] Co-Editor of Applied Physics B – Lasers and Optics 2006-2013

[7] Co-Editor for Advances in Nano-Optics and Nanophotonics book series (Elsevier)

[8] Guest Co-Editor for J. of Optics B: Quantum and Semiclassical Optics special issue on Metamaterials, 2005.

[9] Associate Guest Editor for IEEE's Journal of Selected Topics in Quantum Electronics (JSTQE) on Nonlinear Optics, 2005

[11] Guest Editor for Journal of Optical Society of America B (JOSA-B) Focus Issue on Metamaterials, 2005

[12] Topical Editor for J. of Optical Society of America B, 2005-2011

- [13] Editor for Special Issue of Applied Physics B on Optics on the Nanoscale, July-Aug. 2006
- [14] Editorial Board Member for “Metamaterials” Journal, 2006-2013
- [15] S. Kawata and V. M. Shalaev (Editors), Tip Enhancement (Advances in Nano-Optics and Nano-Photonics), Elsevier, 2007.
- [16] V. M. Shalaev and S. Kawata (Editors), Nanophotonics with Surface Plasmons (Advances in Nano-Optics and Nano-Photonics), Elsevier, 2007.
- [17] Editor for Feature Issue of J. of the Optical Society of America A and B on “Photonic Metamaterials”, v. 24, #10, 2007
- [18] Co-Editor for Series in Nanooptics and Nanophotonics, Taylor & Francis Books, Inc.2008-
- [19] Editorial Advisory Board Member for Laser and Photonics Reviews, 2008-
- [20] Editorial Board Member for Journal of Nanotechnology, 2008-2016
- [21] Guest Editor for IEEE's Journal of Selected Topics in Quantum Electronics (JSTQE) on Negative Index and Metamaterials, 2009
- [22] Reviewing Editor for Science, 2011-
- [23] Editorial Board member for Nanophotonics, 2012-

Special Projects, Short Courses, etc. – Contribution:

- [1] Invited lecturer for NATO Summer School "Linear and Nonlinear Optics", Erice, Sicily, Italy, July 2-14, 2000.
- [2] Lecture in the 2002 Industrial Workshop at Purdue University, March 2002.
- [3] Scientific Secretary, International School (workshop) on Laser and Its Applications, Sayanogorsk, Russia, April 1989.
- [4] Outreach Community Lecture: "Fractals Around Us," presented to the Las Cruces, NM, community, April 1998.
- [5] Organizer and moderator for Nanophotonics Session for Gordon Conference (2004)
- [6] Invited lecturer for Summer School “Photonic Metamaterials: from Micro to Nano Scale”, Erice, Italy, 1-7 August, 2005.

- [7] International Symposium on Biophotonics, Nanophotonics and Metamaterials, Hnagzhou, China, October 16-18, 2006 (tutorial)
- [8] Siberian Federal University, Krasnoyarsk, Russia, Dec 1-6, 2007 (series of invited lectures on nanophotonics and metamaterials)
- [9] Invited Lecturer for International School on Metamaterials, Crete, Greece, June 12-13, 2009.
- [10] Invited Expert on evaluating the Strategic Effort on Metamaterials in Singapore; December 10-12, 2008, Singapore.
- [11] Invited Expert on evaluating projects on Metamaterials in Singapore, June 29-30, 2009, Singapore.
- [12] Invited expert on metamaterials for JASON, an advisory group that works for the U.S. government on issues of science and technology.
- [13] In 20013, served on the photonics sub-committee organized by NSF and NRC to assess most important areas of science and technology for future support (chaired by T. Heinz).
- [14] Short course on nanophotonics in Kazan Federal University, Russia, June 2014.
- [15] Short course in CLEO conference, June 8, 2014, San Jose, CA.
- [16] Series of invited lectures on nanophotonics, metamaterials and quantum photonics in University of Southern Denmark, May – June 2016.
- [17] Organizer and co-Chair of “Coherent Phenomena in Physics and Chemistry”, April 2017, Purdue, West Lafayette
- [18] Organizer and Program Committee Member of International Symposium on Quantum Science and Technology, April 21-23, 2019, Purdue University, West Lafayette, IN
- [19] Chair and organizer of Special Workshop to celebrate 80th birthday of Prof. A. K. Popov, Dec 16 (2021)
- [20] Organizer of special seminar in memory of Prof. Alex K. Popov, Purdue, Sept 5, 2022 (hybrid mode)