

# Curriculum Vitae

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**Alexey G. Yamilov**

Professor

Department of Physics

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## Alexey G. Yamilov

Associate Professor

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### Academic Experience

- 1997 - 2001      PhD in Physics, The City University of New York, New York, NY  
Advisor: Alexander A. Lisyansky  
Thesis: “*Concept of local polaritons and optical properties of mixed crystals and quantum heterostructures*” (4.0 GPA)
- 1995 - 1997      MS in Physics/Engineering (summa cum laude), Donetsk State University Donetsk, Ukraine  
Advisor: Alexander E. Filippov  
Thesis: “*Study of multicomponent systems in the framework of the renormalization group equation*”
- 1992 - 1995      BS in Physics, Donetsk State University Donetsk, Ukraine  
Advisor: Anatoly Yu. Zakharov  
Thesis: “*Application of Kadanoff-Baym kinetic equations to calculation of electro-conductivity in disordered systems*”

### Work Experience

- |                |                              |  |
|----------------|------------------------------|--|
| 2021 - present | Full Professor               | Department of Physics, Missouri S&T  |
| 2022 Fall      | Visiting Researcher          | Centre national de la recherche scientifique (CNRS), Grenoble, France                  |
| 2014 - 2021    | Associate Professor          | Department of Physics, Missouri S&T  |
| 2017 Fall      | Research Fellow in Residence | Institute for Computational and Experimental Research in Mathematics, Brown University |
| 2008 - 2014    | Assistant Professor          | Department of Physics, Missouri S&T  |
| 2005 - 2008    | Research Assistant Professor | Department of Physics, Missouri S&T  |
| 2003 - 2004    | Summer Adjunct Lecturer      | Department of Physics & Astronomy Northwestern University                              |
| 2003 - 2005    | Research Associate           | Department of Physics & Astronomy Northwestern University                              |
| 2001 - 2003    | Postdoctoral research fellow | Department of Physics & Astronomy Northwestern University                              |
| 2000 - 2001    | Adjunct Lecturer             | Department of Physics<br>Queensborough College, CUNY                                   |
| 1997 - 2001    | Research Assistant           | Department of Physics, Queens College, CUNY  |

### Research Interests

- Wave propagation in complex (random, aperiodic, partially or fully ordered) media
- Coherent control of wave transport and imaging in turbid media
- Wave diffusion in confined geometries, localization phenomena
- Lasing in complex photonic media
- Compressive sensing and machine learning algorithms and optimization

## Scholarly Contributions: Publications

### Citation index summary (Sept. 2022)

|           | Overall   | Since 2017 |
|-----------|-----------|------------|
| Citations | 2560      | 759        |
| h-index   | <b>25</b> | 14         |
| i10-index | 56        | 24         |

**Refereed Articles** [Names of the supervised graduate and undergraduate students are highlighted. About journal *impact factor*.]

1. “*Universal lineshape of open channels for light in diffusive media*”  
J. Bosch, P. Pai, A. Yamilov, C. W. Hsu, H. Yilmaz, H. Cao, S. Faez, A. P. Mosk, Physical Review Letters submitted (2022)
2. “*Anderson localization of electromagnetic waves in three dimensions*,”  
A. Yamilov S. E. Skipetrov, T. W. Hughes, M. Minkov, Z. Yu, H. Cao, submitted (2022)
3. “*Coherent enhancement of optical remission in diffusive media*,”  
N. Bender, A. Goetschy, C. W. Hsu, H. Yilmaz, P. Jara Palacios, A. Yamilov, H. Cao, Proceedings of the National Academy of Sciences 119, 2207089119 (2022)
4. “*Sum rules for energy deposition eigenchannels in scattering systems*,”  
A. Yamilov, N. Bender, and H. Cao, Optics Letters 47, 4889-4892 (2022)
5. “*Roadmap on Wavefront Shaping and deep imaging in complex media*,”  
S. Gigan, O. Katz, H. B. de Aguiar, E. R. Andresen, A. A., J. Bertolotti, E. Bossy, D. Bouchet, J. Brake, S. Brasselet, Y. Bromberg, H. Cao, T. Chaigne, Z. Cheng, W. Choi, T. Cizmar, M. Cui, V. R. Curtis, H. Defienne, M. Hofer, R. Horisaki, R. Horstmeyer, N. Ji, A. K. LaViolette, J. Mertz, C. Moser, A. P. Mosk, N. C. Pegard, R. Piestun, S. Popoff, D. B. Phillips, D. Psaltis, B. Rahmani, H. Rigneault, S. Rotter, L. Tian, I. M. Vellekoop, L. Waller, L. Wang, T. Weber, S. Xiao, C. Xu, A. Yamilov, C. Yang, H. Yilmaz, Journal of Physics: Photonics 4, 042501 (2022)
6. “*Depth-Targeted Energy Deposition Deep Inside Scattering Media*,”  
N. Bender, A. Yamilov, A. Goetschy, H. Yilmaz, C. W. Hsu, and H. Cao, Nature Physics 18, 309-315 (2022)
7. “*Fluctuations and correlations of transmission eigenchannels in diffusive media*,”  
N. Bender, A. Yamilov, H. Yilmaz, H. Cao, Physical Review Letters 125, 165901 (2020)
8. “*Angular memory effect of transmission eigenchannels*,”  
H. Yilmaz, C. W. Hsu, A. Goetschy, S. Bittner, S. Rotter, A. Yamilov, and H. Cao, Physical Review Letters 123, 203901 (2019)
9. “*Inverse design of long-range intensity correlation in scattering media*,”  
M. Koirala, R. Sarma, H. Cao, A. Yamilov, Physical Review B 100, 064203 (2019)
10. “*Transverse localization of transmission eigenchannels*,”  
H. Yilmaz, C. W. Hsu, A. Yamilov, and H. Cao, Nature Photonics 13, 352 (2019)
11. “*Coherent injection of light into absorbing scattering medium with a microscopic pore*,”  
A. Yamilov, R. Sarma, V. V. Yakovlev, and H. Cao, Optics Letters 43, 2189-2192 (2018)
12. “*Enhanced optical coupling and Raman scattering via microscopic interface engineering*,”  
J. V. Thompson, B. H. Hokr, W. Kim, C. W. Ballmann, B. Applegate, J. Jo, A. Yamilov, H. Cao, M. O. Scully, and V. V. Yakovlev, Applied Physics Letters 111, 201105 (2017)
13. “*Inverse design of perfectly transmitting eigenchannels in scattering media*,”  
M. Koirala, R. Sarma, H. Cao, A. Yamilov, Physical Review B 96, 054209 (2017)

14. *“Enhanced coupling of light into a turbid medium through microscopic interface engineering,”*  
J. V. Thompson, B. H. Hokr, W. Kim, C. W. Ballmann, B. Applegate, J. Jo, A. Yamilov, H. Cao, M. O. Scully, and V. V. Yakovlev, *Proceedings of National Academy of Science* 114, 7941 (2017)
15. *“Uncloaking diffusive-light invisibility cloaks by speckle analysis,”*  
A. Niemeyer, F. Mayer, A. Naber, M. Koirala, A. Yamilov, M. Wegener, *Optics Letters* 42, 1998 (2017)
16. *“Enhancing light transmission through a random medium with inhomogeneous scattering and loss,”*  
R. Sarma, A. Yamilov, H. Cao, *Applied Physics Letters* 110, 021103 (2017)
17. *“Control of energy density inside disordered medium by coupling to open or closed channels,”*  
R. Sarma, A. Yamilov, S. Petrenko, Y. Bromberg, H. Cao, *Physical Review Letters* 117, 086803 (2016)
18. *“Detection of a diffusive cloak via second-order statistics,”*  
M. Koirala, A. Yamilov, *Optics Letters* 41, 3860 (2016)
19. *“Shape-dependence of transmission, reflection and absorption eigenvalue densities in disordered waveguides with dissipation,”*  
A. Yamilov, S. Petrenko, R. Sarma, H. Cao, *Physical Review B* 93, 100201(R) (2016)
20. *“Control of mesoscopic transport by modifying transmission channels in opaque media,”*  
R. Sarma, A. Yamilov, S. F. Liew, M. Guy, H. Cao, *Physical Review B* 92, 214206 (2015)
21. *“Using geometry to manipulate long-range correlation of light inside disordered media,”*  
R. Sarma, A. Yamilov, P. Neupane, H. Cao, *Physical Review B* 92, 180203(R) (2015)
22. *“Applicability of the position-dependent diffusion approach to localized transport through disordered waveguides,”*  
P. Neupane, A. Yamilov, *Physical Review B* 92, 014207 (2015)
23. *“Critical states embedded in the continuum,”*  
M. Koirala, A. Yamilov, A. Basiri, Y. Bromberg, H. Cao, T. Kottos, *New Journal of Physics* 17, 013003 (2015)
24. *“Light localization induced by random refraction index,”*  
A. Basiri, Y. Bromberg, A. Yamilov, H. Cao, T. Kottos, *Physical Review A* 90, 043815 (2014)
25. *“Controlling diffusion inside a disordered nanophotonic waveguide using geometry,”*  
R. Sarma, T. Golubev, A. Yamilov, and H. Cao, *Applied Physics Letters* 105, 041104 (2014)
26. *“Probing Long-range intensity correlations inside disordered photonic nanostructures,”*  
R. Sarma, A. Yamilov, P. Neupane, B. Shapiro, and H. Cao, *Physical Review B* 90, 014203 (2014)
27. *“Position-dependent diffusion of light in disordered waveguides,”*  
A. Yamilov, R. Sarma, B. Redding, B. Payne, H. Noh, and H. Cao, *Physical Review Letters* 112, 023904 (2014)
28. *“Interplay between localization and absorption in disordered waveguides,”*  
A. Yamilov and B. Payne, *Optics Express* 21, 11688-11697 (2013)
29. *“Effect of evanescent channels on position-dependent diffusion in disordered waveguides,”*  
B. Payne, T. Mahler, and A. Yamilov, *Waves in Random and Complex Media* 23, 43-55 (2013)
30. *“Artificially disordered birefringent optical fibers,”*  
S. Herath, N. P. Puente, E.I. Chaikina, and A. Yamilov, *Optics Express* 20, 3620-3632 (2012)
31. *“Fabrication, characterization and theoretical analysis of controlled disorder in the core of the optical fibers,”*  
N. P. Puente, E.I. Chaikina, S. Herath and A. Yamilov, *Applied Optics* 50, 802 (2011) - Highlighted in “Spotlight on Optics” by the Optical Society of America as a significant impact article - Top 10 most downloaded Applied Optics article in March and April 2011.

32. “*Relation between transmission and energy stored in random media with gain,*”  
B. Payne, J. Andreasen, H. Cao, and A. Yamilov, Physical Review B 82, 104204 (2010)
33. “*Classification of regimes of wave transport in non-conservative random media,*”  
A. Yamilov and B. Payne, Journal of Modern Optics 57, 1916 (2010)
34. “*Anderson localization as position-dependent diffusion in disordered waveguides,*”  
B. Payne, A. Yamilov, S. E. Skipetrov, Physical Review B 82, 024205 (2010)
35. “*Criterion for light localization in random amplifying media,*”  
B. Payne, H. Cao, and A. Yamilov, Physica B 405, 3012 (2010)
36. “*Five-fold reduction of lasing threshold near the first  $\Gamma L$ -pseudogap of ZnO inverse opals,*”  
M. Scharrer, H. Noh, X. Wu, M. A. Anderson, A. Yamilov, H. Cao, and R. P. H. Chang, Journal of Optics 12, 024007 (2010)
37. “*Relation between channel and spatial mesoscopic correlations in volume-disordered waveguides,*”  
A. Yamilov, Physical Review B 78, 045104 (2008)
38. “*Slow-light effect in dual-periodic photonic lattice,*”  
A. Yamilov, M. R. Herrera and M. F. Bertino, Journal of Optical Society of America B 25, 599-608 (2008)
39. “*Entrainment and stimulated emission of auto-oscillators in an acoustic cavity,*”  
R. L. Weaver, O. I. Lobkis, and A. Yamilov, Journal of Acoustical Society of America 122, 3409-18 (2007)
40. “*Effect of local pumping on random laser modes,*”  
X. Wu, J. Andreasen, H. Cao, and A. Yamilov, Journal of Optical Society of America B 24, A26 (2007)
41. “*Quantum dots by ultraviolet and X-ray lithography,*”  
M. F. Bertino, R. R. Gadipalli, L. A. Martin, L. E. Rich, A. Yamilov, B. R. Heckman, N. Leventis, S. Guha, J. Katsoudas, R. Divan and D. C. Mancini, Nanotechnology 18, 315603 (2007)
42. “*Disorder-immune coupled resonator optical waveguide,*”  
A. Yamilov and M. Bertino, Optics Letters 32, 283-285 (2007)
43. “*Effect of amplification on conductance distribution of a disordered waveguide,*”  
A. Yamilov, and H. Cao, Physical Review E 74, 056609 (2006)
44. “*Lasing with coherent feedback in weakly scattering media,*”  
X. Wu, W. Fang, A. Yamilov, A. Chabanov, A. A. Asatryan, L. C. Botten, and H. Cao, Physical Review A 74, 053812 (2006)
45. “*An ultrasonic analog for a laser,*”  
R. Weaver, O. Lobkis, and A. Yamilov, Journal of Acoustical Society of America 119, 3413 (2006)  
Research reported in the media; featured in the UMR magazine
46. “*Ultraviolet lasing in high-order bands of three-dimensional ZnO photonic crystals,*”  
M. Scharrer, A. Yamilov, X. Wu, H. Cao, and R. P. H. Chang, Applied Physics Letters 88, 201103 (2006)
47. “*Self-optimization of optical confinement in ultra-violet photonic crystal slab laser,*”  
A. Yamilov, X. Wu, X. Liu, R. P. H. Chang, and H. Cao, Physical Review Letters 96, 083905 (2006)
48. “*Photonic band structure of ZnO photonic crystal slab laser,*”  
A. Yamilov, X. Wu, and H. Cao, Journal of Applied Physics 98, 103102 (2005)
49. “*Absorption-induced confinement of lasing modes in diffusive random medium,*”  
A. Yamilov, X. Wu, H. Cao, and A. L. Burin, Optics Letters 30, 2430 (2005)

50. “*Analysis of high-quality modes in open chaotic microcavities,*”  
W. Fang, [A. Yamilov](#), and H. Cao, *Physical Review A* 72, 023815 (2005)
51. “*Near-field intensity correlations in semicontinuous metal-dielectric films,*”  
K. Seal, A. K. Sarychev, H. Noh, D.A. Genov, [A. Yamilov](#), V. M. Shalaev, Z. C. Ying, H. Cao, *Physical Review Letters* 94, 226101 (2005)
52. “*Fabrication of inverse opal ZnO photonic crystals by atomic layer deposition,*”  
M. Scharrer, X. Wu, [A. Yamilov](#), H. Cao, R.P.H. Chang, *Applied Physics Letters* 86, 151113 (2005)
53. “*Field and intensity correlations in amplifying random media,*”  
[A. Yamilov](#), A. Burin, H. Cao, S. H. Chang, and A. Taflove, *Physical Review B* 71, 092201 (2005)
54. “*Effect of ZnO Nanostructures on 2-dimensional random lasing properties,*”  
X. Liu, [A. Yamilov](#), X. Wu, J. Zheng, H. Cao, R.P.H. Chang, *Chemistry of Materials* 16, 5414 (2004)
55. “*Ultraviolet photonic crystal laser,*”  
X. Wu, [A. Yamilov](#), X. Liu, S. Li, V. P. Dravid, R. P. H. Chang and H. Cao, *Applied Physics Letters* 85, 3657 (2004) Research highlighted in “*Laser Focus World,*” “*Photonics Spectra,*” and “*Optics and Photonics News*” magazines
56. “*Effects of localization and amplification on intensity distribution of light transmitted through random media,*”  
[A. Yamilov](#), and H. Cao, *Physical Review E* 70, 037603 (2004)
57. “*Numerical study of light correlations in a random medium close to the Anderson localization threshold,*”  
S. H. Chang, A. Taflove, [A. Yamilov](#), A. Burin, H. Cao, *Optics Letters* 29, 917 (2004)
58. “*Random lasing in closely packed resonant scatterers,*”  
X. H. Wu, [A. Yamilov](#), H. Noh, H. Cao, E. W. Seelig, and R. P. H. Chang, *Journal of Optical Society of America B* 21, 159 (2004)
59. “*Statistics of transmission in one-dimensional disordered systems: universal characteristics of states in the fluctuation tails,*”  
L. I. Deych, M. V. Eremenchouk, A. A. Lisyansky, [A. Yamilov](#), H. Cao, *Physical Review B* 68, 174203 (2003)
60. “*Highest-quality modes in disordered photonic crystals,*”  
[A. Yamilov](#) and H. Cao, *Physical Review A* 69, 031803(R) (2004)
61. “*Large spontaneous emission enhancement in InAs quantum dots coupled to microdisk whispering gallery modes,*”  
G.S. Solomon, Z. Xie, W. Fang, J.Y. Xu, [A. Yamilov](#), H. Cao, Y. Ma, S.T. Ho, *Physica Status Solidi B* 238(2) 309-312 (2003)
62. “*Effect of Kerr nonlinearity on defect lasing modes in weakly disordered photonic crystals,*”  
B. Liu, [A. Yamilov](#), and H. Cao, *Applied Physics Letters* 83, 1092 (2003)
63. “*Dynamic nonlinear effect on lasing in random medium,*”  
B. Liu, [A. Yamilov](#), Y. Ling, J. Y. Xu and H. Cao, *Physical Review Letters* 91, 063903 (2003)
64. “*Manifestation of photonic band structure in small clusters of spherical particles,*”  
[A. Yamilov](#) and H. Cao, *Physical Review B* 68, 085111 (2003)
65. “*Large enhancement of spontaneous emission rates of InAs quantum dots in GaAs microdisks,*”  
W. Fang, J. Y. Xu, [A. Yamilov](#), H. Cao, Y. Ma, S. T. Ho, G. S. Solomon, *Optics Letters* 27, 948 (2002)

66. “*Self-assembled 3D photonic crystals from ZnO colloidal spheres,*”  
E. W. Seelig, B. Tang, A. Yamilov, H. Cao, R. P. H. Chang, *Materials Chemistry and Physics* 80, 257-263 (2003)
67. “*Optical spectra and inhomogeneous broadening in CdTe/CdZnTe MQW structures with defects,*”  
L.I. Deych, A. Yamilov, and A.A. Lisyansky, *Nanotechnology* 13, 114 (2002)
68. “*Tunable local polariton states,*”  
M. Foygel, A. Yamilov, L.I. Deych, and A.A. Lisyansky, *Physical Review B*, 64, 115203 (2001)
69. “*Single parameter scaling in presence of absorption,*”  
L.I. Deych, A. Yamilov, and A.A. Lisyansky, *Physical Review B* 64, 024201 (2001)
70. “*Local polariton modes and resonant tunneling of electromagnetic waves through periodic Bragg multiple quantum well structures,*”  
L.I. Deych, A. Yamilov, and A.A. Lisyansky, *Physical Review B* 64, 075321 (2001)
71. “*Polariton local states in periodic Bragg multiple quantum well structures,*”  
L.I. Deych, A. Yamilov, and A.A. Lisyansky, *Optics Letters* 25, 1705 (2000)
72. “*Concept of local polaritons and optical properties of mixed polar crystals,*”  
L.I. Deych, A. Yamilov, and A.A. Lisyansky, *Physical Review B* 62, 6301 (2000)
73. “*Impurity-induced polaritons in a one-dimensional chain,*”  
A. Yamilov, L.I. Deych, and A.A. Lisyansky, *Journal of Optical Society of America B* 17, 1498 (2000)
74. “*Polariton impurity band,*”  
A. Yamilov, L.I. Deych, and A.A. Lisyansky, *Annals of Physics* 8, 293 (1999)
75. “*Effects of resonant tunneling in electromagnetic wave propagation through a polariton gap,*”  
L.I. Deych, A. Yamilov, and A.A. Lisyansky, *Physical Review B* 59, 11339 (1999)
76. “*Defect-induced resonant tunneling of electromagnetic waves through a polariton gap,*”  
L.I. Deych, A. Yamilov, and A.A. Lisyansky, *Europhysics Letters* 46, 524 (1999)

#### **Invited Book Chapters**

1. “*Self-optimization of optical confinement and lasing action in disordered photonic crystals,*”  
A. Yamilov and H. Cao, book chapter in “*Optical properties of photonic structures: interplay between order and disorder,*” ed. by M. Limonov and R. De La Rue (Taylor & Francis, 2012) ISBN 978-143-9871-91-1
2. “*Dual-Periodic Photonic Crystal Structures,*”  
A. Yamilov and M. Herrera, in “*Recent Optical and Photonic Technologies,*” Ed. by Ki Young Kim, pp. 1–30 INTEH, (2010) ISBN 978-953-7619-71-8

#### **Invited Magazine Articles**

1. “*UASER: Ultrasound Amplification by Stimulated Emission of Radiation,*” (invited)  
A. Yamilov, R. Weaver, and O. Lobkis, *Photonic Spectra* pp. 90-94 (August 2006)

#### **Peer-Reviewed Conference Proceedings**

1. “*Statistics of individual eigenchannels of diffusive random medium,*”  
A. Yamilov, N. Bender, H. Yilmaz, H. Cao, *QELS Fundamental Science*, Paper FTu4B.7 (2020)
2. “*Memory effect of transmission eigenchannels in random media,*”  
H. Yilmaz, C. W. Hsu, A. Yamilov, and H. Cao, *QELS Fundamental Science*, Paper FF3B.3 (2019)
3. “*Transverse localization of transmission eigenchannels in the diffusive regime,*”  
H. Yilmaz, C. W. Hsu, A. Yamilov, and H. Cao, *QELS Fundamental Science*, Paper FF3B.5 (2019)
4. “*Inverse Design of Long-range Intensity Correlations in Scattering Media,*”  
M. Koirala, R. Sarma, H. Cao, A. Yamilov, *Laser Science*, Paper JTU2A.101 (2018)

5. *“Inverse Design of Long-range Intensity Correlations in Scattering Media,”*  
M. Koirala, R. Sarma, H. Cao, A. Yamilov, *Frontiers in Optics*, Paper JTu2A.101 (2018)
6. *“Coherent Injection of Light into Lossy Micro-Porous Scattering Medium,”*  
A. Yamilov, R. Sarma, V. V. Yakovlev, H. Cao, *QELS Fundamental Science*, Paper FF3H.6 (2018)
7. *“Inverse Design of Eigenchannels in Scattering Media,”*  
M. Koirala, R. Sarma, H. Cao, A. Yamilov, *QELS Fundamental Science*, Paper FTu1G.4 (2017)
8. *“Control of Optical Intensity Distribution inside a Disordered Waveguide,”*  
H. Cao, R. Sarma, Y. Bromberg, A. Yamilov, S. Petrenko, *Frontiers in Optics*, Paper FW2D.1 (2016)
9. *“Detection of Diffusive Cloak via Second-Order Statistics,”*  
M. Koirala, A. Yamilov, *QELS Fundamental Science*, Paper FW4D.5 (2016)
10. *“Control of Transmission Eigenchannels by Modifying the Geometry of Turbid Media,”*  
Sarma, A. Yamilov, H. Cao, *Frontiers in Optics*, Paper FTh1G.4 (2015)
11. *“Critical States Embedded in the Continuum,”*  
M. Koirala, A. Yamilov, A. Basiri, Y. Bromberg, H. Cao, T. Kottos, *QELS Fundamental Science*, Paper FW3C.2 (2015)
12. *“Critical States Embedded in the Continuum,”*  
M. Koirala, A. Yamilov, A. Basiri, Y. Bromberg, H. Cao, T. Kottos, *Frontiers in Optics*, Paper FTh3C.4 (2014)
13. *“Wave localization as position-dependent diffusion: analytical results,”*  
P. Neupane, A. Yamilov, *Frontiers in Optics*, Paper FTh3C.3 (2014)
14. *“Probing Long Range Intensity Correlations inside Disordered Photonic Waveguides,”*  
R. Sarma, A. Yamilov, P. Neupane, B. Shapiro, H. Cao, *Frontiers in Optics*, Paper FTh1C.7 (2014)
15. *“Controlling Diffusion of Light inside a Disordered Photonic Waveguide,”*  
R. Sarma, T. Golubev, A. Yamilov, H. Cao, *Frontiers in Optics*, Paper FTh1C.6 (2014)
16. *“Long Range Correlations of Light Intensity inside Photonic Nanostructures,”*  
R. Sarma, A. Yamilov, B. Shapiro, H. Cao, *QELS Fundamental Science*, Paper FM2C.3 (2014)
17. *“Position Dependent Diffusion of Light in Disordered Waveguides,”*  
R. Sarma, A. Yamilov, B. Redding, B. Payne, H. Noh, H. Cao, *QELS Fundamental Science*, Paper QW3A.5 (2013)
18. *“Position-Dependent Diffusion of Light in Disordered Waveguides,”*  
A. Yamilov, R. Sarma, B. Redding, B. Payne, H. Noh, H. Cao, *International Quantum Electronics Conference*, Paper JSIII.1.5 (2013)
19. *“Position-Dependent Diffusion of Light in Disordered Waveguides,”*  
A. Yamilov, R. Sarma, B. Redding, B. Payne, H. Noh, H. Cao, *The European Conference on Lasers and Electro-Optics*, Paper JSIII.1.5 (2013)
20. *“2D Thue-Morse array of optical cavities: tight-binding model,”*  
B. Payne, L. Siskin, H. Noh, H. Cao, A. Yamilov, *Frontiers in Optics*, Paper FTh2G.3 (2012)
21. *“Universality of wave transport in absorbing random media,”*  
A. Yamilov, B. Payne, *Frontiers in Optics*, Paper FTh2G.2 (2012)
22. *“Teaching an Undergraduate Nanotechnology Course Online,”*  
A. Yamilov, *Proceedings of the Midwest Section Conference of the ASEE*, Rolla, (2012)
23. *“Artificially disordered birefringent optical fibers,”*  
S. Herath, N. P. Puente, E. I. Chaikina, A. Yamilov, *Frontiers in Optics*, Paper FTh2G.4 (2012)



24. *“Position-dependent diffusion coefficient as localization criterion in nonconservative random media,”*  
B. Payne, A. Yamilov, *Frontiers in Optics*, Paper FWM1 (2011)
25. *“Anderson Localization as position-dependent diffusion in disordered waveguides,”*  
B. Payne, A. Yamilov, S. E. Skipetrov, *Frontiers in Optics*, Paper FTuQ3 (2010)
26. *“Frequency correlation between eigenmodes of disordered waveguides,”*  
B. Payne, A. Yamilov, *Frontiers in Optics*, Paper FTuQ4 (2010)
27. *“Investigations of mode coupling in optical fibers with controlled volume disorder,”*  
N. P. Puente, E.I. Chaikina, S. Herath and A. Yamilov, *SPIE Proceedings: Specialty Optical Fibers and Their Applications* 7839, 78391O-1 (2010)
28. *“Fabrication and characterization of controlled disorder in the core of the optical fibers,”*  
N. P. Puente, E. I. Chaikina, S. Herath, A. Yamilov, *Frontiers in Optics*, Paper FTuQ5 (2010)
29. *“Effect of evanescent modes on conductance distribution in disordered waveguides,”*  
B. Payne, T. Mahler, A. Yamilov, *Frontiers in Optics*, Paper FMC6 (2009)
30. *“Classification of regimes of wave transport in non-conservative random media,”*  
B. Payne, A. Yamilov, *Frontiers in Optics*, Paper FMC3 (2009)
31. *“On criterion for light localization in random amplifying media,”*  
B. Payne, A. Yamilov, J. Andreasen, H. Cao, *Frontiers in Optics*, Paper FThJ3 (2008)
32. *“Trench Waveguide in Photonic Crystal Slab,”*  
A. Yamilov, M. Herrera, *Quantum Electronics and Laser Science Conference*, Paper QFG3 (2008)
33. *“Waveguiding in photonic crystal slab with variable thickness,”*  
M. Herrera, A. Yamilov, *Organic Materials and Devices for Displays and Energy Conversion*, Paper JSuA27 (2007)
34. *“Waveguiding in photonic crystal slab with variable thickness,”*  
M. Herrera, A. Yamilov, *Laser Science*, Paper JSuA27 (2007)
35. *“Mesoscopic correlations in disordered waveguide: dependence on channel indexes,”*  
A. Yamilov, *Frontiers in Optics*, Paper FTuC2 (2007)
36. *“Waveguiding in photonic crystal slab with variable thickness,”*  
M. Herrera, A. Yamilov, *Frontiers in Optics*, Paper JSuA27 (2007)
37. *“Effect of Local Pumping on 1D Random Laser Modes,”*  
X. Wu, J. Andreasen, H. Cao, A. Yamilov, *Frontiers in Optics*, Paper FThO5 (2007)
38. *“Effect of Local Pumping on Random Laser Modes,”*  
X. Wu, J. Andreasen, H. Cao, A. Yamilov, *Photonic Metamaterials: From Random to Periodic*, Paper TuB4 (2007)
39. *“Factorization of mesoscopic intensity correlations,”*  
A. Yamilov, A. A. Chabanov, A. Z. Genack, H. Cao, *Photonic Metamaterials: From Random to Periodic*, Paper TuB20 (2007)
40. *“Quasi-modes in disordered waveguide with gain,”*  
A. Yamilov, *Frontiers in Optics*, Paper FTuC6 (2006)
41. *“Light propagation in dual-periodic 1D photonic crystal,”*  
A. Yamilov, M. Herrera, M. F. Bertino, *Laser Science*, Paper JWD25 (2006)
42. *“Light propagation in dual-periodic 1D photonic crystal,”*  
A. Yamilov, M. Herrera, M. F. Bertino, *Frontiers in Optics*, Paper JWD25 (2006)

43. *“Light propagation in dual-periodic 1D photonic crystal,”*  
A. Yamilov, M. Herrera, M. F. Bertino, Organic Photonics and Electronics, Paper JWD25 (2006)
44. *“Light propagation in dual-periodic 1D photonic crystal,”*  
A. Yamilov, M. Herrera, M. F. Bertino, Optical Fabrication and Testing, Paper JWD25 (2006)
45. *“An ultrasonic analogue for a random laser,”*  
A. Yamilov, R. L. Weaver, O. Lobkis, Frontiers in Optics, Paper FThB5 (2006)
46. *“UV Lasing near the First GL-Pseudogap of ZnO Inverse Opals,”*  
M. Scharrer, X. Wu, A. Yamilov, H. Cao, R. P. H. Chang, Frontiers in Optics, Paper FTuI3 (2006)
47. *“Two-Scatterer Laser,”*  
H. Cao, X. Wu, W. Fang, A. A. Chabanov, A. Yamilov, Quantum Electronics and Laser Science Conference, Paper QTuI1 (2006)
48. *“UV Lasing in High-Order Bands of ZnO Inverse Opal Photonic Crystals,”*  
M. Scharrer, A. Yamilov, X. Wu, H. Cao, R. P. H. Chang, Quantum Electronics and Laser Science Conference, Paper QTuL7 (2006)
49. *“Disordered UV photonic crystal lasers,”*  
H. Cao, A. Yamilov, X. Wu, Photonic Metamaterials: From Random to Periodic, Paper WC1 (2006)
50. *“Effect of amplification on distribution of conductance in disordered waveguide,”*  
A. Yamilov, H. Cao, Frontiers in Optics, Paper FThC4 (2005)
51. *“Mesoscopic Optics,”*  
A. A. Chabanov, A. Yamilov, H. Cao, B. Hu, A. Z. Genack, Frontiers in Optics, Paper FThC1 (2005)
52. *“Disorder optimizes the performance of UV photonic crystal laser,”*  
A. Yamilov, X. Wu, H. Cao, Frontiers in Optics, Paper FWJ4 (2005)
53. *“Near-field intensity correlations in semicontinuous metal films,”*  
H. Cao, K. Seal, A. K. Sarychev, D. A. Genov, V. M. Shalaev, A. Yamilov, H. Noh, Z. C. Ying, Frontiers in Optics, Paper FThC3 (2005)
54. *“Near-field intensity correlations in semicontinuous metal films,”*  
K. Seal, H. Noh, A. Yamilov, H. Cao, A. K. Sarychev, D. A. Genov, V. M. Shalaev, Z. C. Ying, Conference on Lasers and Electro-Optics, Paper JThA3 (2005)
55. *“Near-field intensity correlations in semicontinuous metal films,”*  
K. Seal, H. Noh, A. Yamilov, H. Cao, A. K. Sarychev, D. A. Genov, V. M. Shalaev, Z. C. Ying, Quantum Electronics and Laser Science Conference, Paper JThA3 (2005)
56. *“ZnO photonic crystal lasers,”*  
X. Wu, A. Yamilov, X. Liu, S. Li, V. P. Dravid, R. P. H. Chang, and H. Cao, Proc. SPIE 6122, 612205 (2006)
57. *“Laser resonators formed by two nanoparticles,”*  
X. Wu, W. Fang, A. Yamilov, A. Chabanov, and H. Cao, Proc. SPIE 6101, 61010M (2006)
58. *“Interplay between amplification and absorption in diffusive random lasers,”*  
H. Cao, A. Yamilov, A. L. Burin, and X. Wu, Proc. SPIE Int. Soc. Opt. Eng. 5924, 59240A (2005)
59. *“Intensity distribution in passive and amplifying random media near localization threshold,”*  
A. Yamilov, H. Cao, Frontiers in Optics, Paper FThB2 (2004)
60. *“Mode coupling in open chaotic microcavities,”*  
A. Yamilov, W. Fang, H. Cao, Frontiers in Optics, Paper FTuD3 (2004)

61. *“Study of High Quality Modes in Fully Chaotic Microcavities,”*  
W. Fang, A. Yamilov, H. Cao, *Frontiers in Optics*, Paper FTuG7 (2004)
62. *“Ultraviolet photonic crystal lasers,”*  
X. Wu, A. Yamilov, X. Liu, S. Li, V. P. Dravid, R. P. H. Chang, H. Cao, *Frontiers in Optics*, Paper FWV4 (2004)
63. *“Dynamic nonlinear effect on lasing in random media,”*  
H. Cao, A. Yamilov, B. Liu, J.-Y. Xu, Y. Ling, E. Seelig, R. P. H. Chang, *Proc. SPIE Int. Soc. Opt. Eng.* 5508, 216 (2004)
64. *“Lasing in disordered media,”*  
H. Cao, A. Yamilov, J. Xu, E. Seelig, R. P. Chang, *Proceedings of SPIE* 4995, 134 (2003)
65. *“Study of random lasing in closely-packed resonant scatterers,”*  
X. Wu, A. Yamilov, H. Noh, H. Cao, E. W. Seelig, R. P. H. Chang, *Frontiers in Optics*, Paper TuO4 (2003)
66. *“FDTD Modeling of Field and Intensity Correlations in 2-D Active Random Media,”*  
S. H. Chang, A. Taflove, A. Yamilov, A. Burin, H. Cao, *Frontiers in Optics*, Paper TuO1 (2003)
67. *“Dynamic Nonlinear Effect on Lasing in Random Media,”*  
H. Cao, X. Liu, A. Yamilov, Y. Ling, J. Y. Xu, *Quantum Electronics and Laser Science Conference*, Paper QThG3 (2003)
68. *“Large Enhancement of Spontaneous Emission Rates of InAs Quantum Dots in GaAs Microdisks,”*  
H. Cao, W. Fang, J. Y. Xu, A. Yamilov, Y. Ma, S. T. Ho, G. S. Solomon, *Quantum Electronics and Laser Science Conference*, Paper QTuC1 (2002)
69. *“Polariton local states in periodic Bragg multiple quantum well structures,”*  
L.I. Deych, A. Yamilov, and A.A. Lisyansky, *“Nanostructures: Physics and Technology”*, pp. 273–275, Ioffe Physico-Technical Institute Press (2001) ISBN 5-93634-005-8

## Scholarly Contributions: Presentations

### Invited talks

1. Laboratoire de Physique et Modelisation des Milieux Condenses, CNRS, Grenoble, France (2022)  
Coherent control of wave propagation inside scattering media
2. 12th International Conference on Elastic, Electrical, Transport, and Optical Properties of Inhomogeneous Media (ETOPIM12), Besancon, France (2022)  
Depth-targeted energy delivery deep inside scattering media
3. Queens College, City University of New York, Flushing, NY (2022)  
Controlling wave propagation inside scattering media
4. FlexCompute Inc., Belmont, MA (2021)  
Anderson localization of light
5. CLEO 2020, San Jose, CA, (2020)  
Statistics of Individual Eigenchannels of Diffusive Random Medium
6. SPIE Metamaterials, Metadevices, and Metasystems 2018, San Diego, CA (2018)  
Strategies for enhanced injection of light into scattering medium
7. MRS Spring Meeting, Phoenix, AZ (2018)  
Wave propagation via eigenchannels of scattering medium
8. École Supérieure de Physique et de Chimie Industrielles (ESPCI), Paris, France (2017)  
Custom-made eigenchannels, or how to choose the eigenchannel that's right for you
9. The Institute for Computational and Experimental Research in Mathematics (ICERM), Brown University, RI (2017)  
Determinism of wave transport and eigenchannels of multiple scattering media
10. Illinois State University, Normal, IL (2017)  
Random or complex? Looking through walls and around the corner
11. Physics of Quantum Electronics (PQE), Snowbird, UT (2017)  
Eigenchannels in scattering media: from manipulation to inverse design
12. 7th International Conference on Metamaterials, Photonic Crystals and Plasmonics, META 2016, Spain (2016)  
Eigenchannels in scattering media
13. Missouri S&T Chemistry (2016)  
Coherent control of wave transport in scattering media: Looking through walls and around the corner
14. Workshop on "Waves and imaging in random media," Institut Henri Poincare, Paris (2015)  
Control of mesoscopic transport by modifying transmission channels in scattering media
15. Ecole Polytechnique de Montréal, QC, Canada (2015)  
New approach to control light transport in random media
16. 9th IMACS International Conference on Nonlinear Evolution Equations and Wave Phenomena: Computation and Theory, Athens, GA (2015)  
Control of light transport via non-local wave interference effects in random media
17. Wesleyan University, Middletown, CT (2015)  
Control of light transport in random media
18. 9th International Workshop on Disordered Systems, San Antonio, TX (2014)  
Interplay between localization and absorption in disordered waveguides

19. Summer school “Waves and disorder,” Cargese, Corsica, France (2014)  
Wave localization in open random media as position-dependent diffusion: Analytical, numerical and experiment results
20. Yale University (2013)  
Position-dependent diffusion in absorbing random media
21. University of Texas - Dallas (2012)  
Regimes of wave transport in absorbing random media
22. Workshop on “Recent developments in wave propagation and imaging in complex media,” Institut Henri Poincaré, Paris (2012)  
Regimes of wave transport in absorbing random media
23. Old Dominion University, Norfolk Virginia (2012)  
Mesoscopic Optics
24. University of Missouri Columbia (2011)  
Teaching an online physics course: from psychology to technology
25. Board of Curators Meeting, Rolla (2011)  
Wave Propagation in Random Media
26. Washington University in Saint Louis (2011)  
Mesoscopic Optics
27. Missouri State University (2011)  
Mesoscopic Optics: Carrot laser anyone?
28. University of North Carolina at Charlotte (2010)  
Mesoscopic Physics of Photons: Particle Versus Wave Transport Through Random Media
29. UMKC, March (2010)  
Particle Versus Wave Transport Through Random Media
30. Missouri S&T Chemistry (2009)  
Mesoscopic physics of photons
31. University of Missouri St. Louis (2009)  
Mesoscopic physics of photons: from Anderson localization to random lasing
32. International Diffuse Reflectance Spectroscopy Conference, Chambersburg, PA (2008)  
Simulations and statistical analysis of electromagnetic wave propagation in random amplifying media
33. El Centro de Investigacion Cientifica y de Educacion Superior de Ensenada (CICESE) at Ensenada, Mexico (2008)  
Mesoscopic Phenomena in Disordered Waveguides

### Conference Presentations

1. Summer School “Waves in complex media”, Cargese, France, September 2022  
Suppressing background for wave focusing in diffusive media L. Shaughnessy, C.W. Hsu, N. Bender, A. Goetschy, H. Yilmaz, [A. Yamilov](#) and H. Cao
2. Summer School “Waves in complex media”, Cargese, France, September 2022  
Depth-targeted energy delivery deep inside scattering media [A. Yamilov](#), N. Bender, A. Goetschy, H. Yilmaz, C.W. Hsu and H. Cao
3. Complex Nanophotonic Science Camp 2019, London, UK, August 2019  
Transmission eigenchannels in a wide multiple-scattering slab  
H. Yilmaz; C. W. Hsu [A. Yamilov](#), and H. Cao

4. CLEO/QELS 2019, San Jose, CA, May 2019  
Transmission localization of transmission eigenchannels in the diffusive regime  
H. Yilmaz; C. W. Hsum A. Yamilov, and H. Cao
5. CLEO/QELS 2019, San Jose, CA, May 2019  
Memory effect of transmission eigenchannels in random media  
H. Yilmaz; C. W. Hsum A. Yamilov, and H. Cao
6. CLEO/QELS 2018, San Jose, CA, May 2018  
Coherent injection of light into lossy micro-porous scattering medium  
A. Yamilov, R. Sarma, V. V. Yakovlev, and H. Cao
7. Photonics West 2018, San Francisco, CA, January 2018  
Transverse localization of transmission eigenchannels  
H. Yilmaz, C. W. Hsu, A. Yamilov, H. Cao
8. Metamaterials 2017, Marseille, France, August 2017  
Partial Coherence Uncloaks Diffusive Optical Invisibility Cloaks  
A. Niemeyer, F. Mayer, A. Naber, M. Koirala, A. Yamilov, M. Wegener
9. CLEO/QELS 2017, San Jose, CA, May 2017  
Inverse Design of Eigenchannels in Scattering Media  
M. Koirala, R. Sarma, H. Cao and A. Yamilov
10. Summer school "Spatio-Temporal Control of Waves," Cargese, Corsica, France (2017)  
Transmission eigenchannels of disordered media in open geometry  
H. Yilmaz, C. Wei Hsu, A. Yamilov and H. Cao
11. CLEO/QELS 2016, San Jose, CA, June 2016  
Critical States Embedded in the Continuum  
M. Koirala, A. Yamilov
12. Frontiers in Optics 2016, Rochester, NY, Oct. 2016  
Control of Optical Intensity Distribution inside a Disordered Waveguide  
H. Cao, R. Sarma, Y. Bromberg, A. Yamilov, S. Petrenko
13. Frontiers in Optics 2015, San Jose CA, Oct. 2015  
Control of Transmission Eigenchannels by Modifying the Geometry of Turbid Media  
R. Sarma, A. Yamilov, H. Cao
14. CLEO/QELS 2015, San Jose, CA, May 2015  
Critical States Embedded in the Continuum  
A. Yamilov, M. Koirala, A. Basiri, Y. Bromberg, H. Cao, T. Kottos
15. 6th International Conference on Metamaterials, Photonic Crystals and Plasmonics (META15), New York, NY, Aug. 2015  
Light Localization in the Presence of Non-Hermitian Defects  
A. Basiri, M. Koirala, A. Yamilov, Y. Bromberg, H. Cao, T. Kottos
16. Frontiers in Optics 2014, Tucson, AZ, October 2014  
Probing Long Range Intensity Correlations inside Disordered Photonic Waveguides  
R. Sarma, A. Yamilov, P. Neupane, B. Shapiro, H. Cao
17. Frontiers in Optics 2014, Tucson, AZ, October 2014  
Controlling Diffusion of Light inside a Disordered Photonic Waveguide  
R. Sarma, T. Golubev, A. Yamilov, H. Cao
18. Frontiers in Optics 2014, Tucson, AZ, October 2014  
Wave localization as position-dependent diffusion: analytical results  
P. Neupane, A. Yamilov

19. Frontiers in Optics 2014, Tucson, AZ, October 2014  
Critical States Embedded in the Continuum  
M. Koirala, A. Yamilov, A. Basiri, Y. Bromberg, H. Cao, T. Kottos
20. APS March meeting, Denver, CO, March 2014  
Transverse Light Localization in waveguide arrays with random absorption or amplification  
A. Basiri, Y. Bromberg, A. Yamilov, H. Cao, and T. Kottos
21. CLEO/EUROPE, Munich, May 2013  
Position-Dependent Diffusion of Light in Disordered Waveguides  
A. Yamilov, R. Sarma, B. Redding, B. Payne, H. Noh, and H. Cao
22. Teaching and Learning Technology Conference, Rolla, MO, March 2013  
Teaching Nanotechnology with Technology  
A. Yamilov
23. Midwest Section Conference of the ASEE, Rolla, November 2012  
Teaching an Undergraduate Nanotechnology Course Online A. Yamilov
24. Frontiers in Optics 2012, Rochester, NY, October 2012  
Artificially disordered birefringent optical fibers  
S. Herath, N. P. Puente, E.I. Chaikina, and A. Yamilov
25. Frontiers in Optics 2012, Rochester, NY, October 2012  
2D Thue-Morse array of optical cavities: tight-binding model  
B. Payne, L. Sissen, H. Noh, H. Cao, and A. Yamilov
26. Frontiers in Optics 2012, Rochester, NY, October 2012  
Universality of wave transport in absorbing random media  
A. Yamilov and B. Payne
27. APS March meeting, Boston MA, March 2012  
Position-dependent diffusion coefficient as localization criterion in non-conservative random media  
B. Payne and A. Yamilov
28. Physics of Quantum Electronics (PQE) 2012, Snowbird, UT, January 2012  
Characterization of wave transport in non-conservative random media (invited)  
A. Yamilov and B. Payne
29. Frontiers in Optics 2011, San Jose, CA, October 2011  
Position-Dependent Diffusion Coefficient as Localization Criterion in non-Conservative Random Media  
B. Payne and A. Yamilov
30. Recent developments in wave physics of complex media, Cargese, Corsica, France, May 2011  
Classification of regimes of wave transport in non-conservative random media  
B. Payne and A. Yamilov
31. 2nd Workshop on Specialty Optical Fibers and Their Applications, Oaxaca, Mexico, October 2010  
Investigations of mode coupling in optical fibers with controlled volume disorder  
N. P. Puente, E.I. Chaikina, S. Herath and A. Yamilov
32. Frontiers in Optics 2010, Rochester NY, October 2010  
Frequency correlation between eigenmodes of disordered waveguides  
B. Payne and A. Yamilov
33. Frontiers in Optics 2010, Rochester NY, October 2010  
Anderson localization as position-dependent diffusion in disordered waveguides  
B. Payne, A. Yamilov, and S. E. Skipetrov

34. Frontiers in Optics 2010, Rochester NY, October 2010  
Fabrication and characterization of controlled disorder in the core of the optical fibers  
N. P. Puente, E. I. Chaikina, S. Herath, and A. Yamilov
35. Physics of Quantum Electronics (PQE) 2010, Snowbird, UT, January 2010  
Survey of regimes of wave transport in random waveguides with gain or absorption  
A. Yamilov and B. Payne
36. Electrical Transport and Optical Properties of Inhomogeneous Media (ETOPIM 8), Greece, June 2009  
Criterion for light localization in random amplifying media  
B. Payne, J. Andreasen, H. Cao and A. Yamilov
37. Frontiers in Optics 2009, San Jose, CA, October 2009  
Classification of regimes of wave transport in non-conservative random media  
B. Payne and A. Yamilov
38. Frontiers in Optics 2009, San Jose, CA, October 2009  
Effect of evanescent modes on conductance distribution in disordered waveguides  
B. Payne, T. Mahler and A. Yamilov
39. Frontiers in Optics 2008, Rochester, NY, October 2008  
On criterion for light localization in random amplifying media  
Ben Payne, A. Yamilov, Jonathan Andreasen, H. Cao
40. Frontiers in Optics 2008, Rochester, NY, October 2008  
Relation between channel and spatial mesoscopic correlations in volume-disordered waveguides  
A. Yamilov
41. The Quantum Electronics and Laser Science Conference (QELS), San Jose CA, May 2008  
Trench Waveguide in Photonic Crystal Slab  
A. Yamilov, M. Herrera
42. Frontiers in Optics 2007, San Jose CA, September 2007  
Mesoscopic Correlations in Disordered Waveguide: Dependence on Channel Indexes  
A. Yamilov
43. Frontiers in Optics 2007, San Jose CA, September 2007  
Effect of Local Pumping on 1-D Random Laser Modes  
X. Wu, J. Andreasen, H. Cao, A. Yamilov
44. Frontiers in Optics 2007, San Jose CA, September 2007  
Waveguiding in Photonic Crystal Slab with Variable Thickness  
M. Herrera, M. Bertino, A. Yamilov
45. The Photonic Metamaterials: From Random to Periodic Topical Meeting, Jackson Hole WY, June 2007  
Effect of Local Pumping on Random Laser Modes,  
X. Wu, J. Andreasen, H. Cao, A. Yamilov
46. The Photonic Metamaterials: From Random to Periodic Topical Meeting, Jackson Hole WY, June 2007  
Factorization of Mesoscopic Intensity Correlations,  
A. Yamilov, A. Chabanov, A. Z. Genack, H. Cao
47. Frontiers in Optics 2006, Rochester NY, October 2006  
Quasi-Modes in Disordered Waveguide with Gain  
A. Yamilov



48. Frontiers in Optics 2006, Rochester NY, October 2006  
UV Lasing near the First  $\Gamma$ L-Pseudogap of ZnO Inverse Opals  
M. Scharrer, X. Wu, A. Yamilov, H. Cao, R. P. H. Chang
49. Frontiers in Optics 2006, Rochester NY, October 2006  
Light Propagation through Dual-Periodic 1D Photonic Crystal  
A. Yamilov, M. Herrera, M. Bertino
50. Frontiers in Optics 2006, Rochester NY, October 2006  
An Ultrasonic Analogue for a Random Laser  
A. Yamilov, R. W. Weaver, Oleg Lobkis
51. SPIE, Optics and Photonics: Nanophotonics, Complex Mediums, San Diego, CA, July 2005  
Lasing in disordered photonic crystals  
H. Cao, A. Yamilov, X. Wu, M. Scharrer, R.P.H. Chang
52. Frontiers in Optics 2005, Tuscon AZ, October 2005  
Disorder Optimizes the Performance of UV Photonic Crystal Laser  
A. Yamilov, X. Wu, H. Cao
53. Frontiers in Optics 2005, Tuscon AZ, October 2005  
Absorption Induced Confinement of Lasing Modes in Diffusive Random Medium  
A. Yamilov, A. L. Burin, X. Wu, H. Cao
54. Frontiers in Optics 2005, Tuscon AZ, October 2005  
Mesoscopic Optics  
Andrey Chabanov, A. Yamilov, H. Cao, Bing Hu, Azriel Genack
55. Frontiers in Optics 2005, Tuscon AZ, October 2005  
Near-Field Intensity Correlation in Semicontinuous Metal Films  
H. Cao, K. Seal, A. K. Sarychev, D. A. Genov, V. M. Shalaev, A. Yamilov, H. Noh, C. Z. Ying
56. Frontiers in Optics 2005, Tuscon AZ, October 2005  
Effect of Amplification on Distribution of Conductance in Disordered Waveguide  
A. Yamilov, H. Cao
57. Frontiers in Optics 2004, Rochester NY, October 2004  
Mode coupling in open chaotic microcavities  
A. Yamilov, Wei Fang, H. Cao
58. Frontiers in Optics 2004, Rochester NY, October 2004  
Study of high quality modes in fully chaotic microcavities  
H. Cao, Wei Fang, A. Yamilov
59. Frontiers in Optics 2004, Rochester NY, October 2004  
Ultraviolet photonic crystal lasers  
X. Wu, A. Yamilov, Xiang Liu, Shuyou Li, Vinayak P. Dravid, R. P. H. Chang, H. Cao
60. Frontiers in Optics 2004, Rochester NY, October 2004  
Intensity distribution in passive and amplifying random media near localization threshold  
A. Yamilov, H. Cao
61. Frontiers in Optics 2003, Tucson AZ, October 2003  
Effects of gain and localization on the light correlation in random media  
A. Yamilov, S. H. Chang, A. Burin, H. Cao, A. Taflove
62. Frontiers in Optics 2003, Tucson AZ, October 2003  
Study of random lasing in closely-packed resonant scatterers  
X. Wu, A. Yamilov, X. Liu, S. Li, V. P. Dravid, R. P. H. Chang and H. Cao

63. 2nd International Conference on Semiconductor Quantum Dots, Tokyo, Japan, September 2002  
Large Spontaneous Emission Enhancement in InAs Quantum Dots Coupled to Microdisk Whispering Gallery Modes  
G.S. Solomon, Z. Xie, W. Fang, J.Y. Xu, A. Yamilov, H. Cao, Y. Ma, S.T. Ho
64. PIERS 2003 in Hawaii, Progress in Electromagnetics Research Symposium, Honolulu HI, October 2003  
Lasing in Closely Packed Resonant Nanoscatterers  
H. Cao, X. Wu, A. Yamilov, Eric Seelig, Robert Chang
65. MRS 2002 Spring Meeting: Photonic Crystals–From Materials to Devices, San Francisco CA, April 2002  
3D photonic crystals from monodisperse ZnO colloidal spheres  
E. W. Seelig, B. Tang, R.P.H. Chang, A. Yamilov, H. Cao
66. 2002 Annual Meeting of the Optical Society of America, Orlando FL, October 2002
67. 9th International Symposium. Nanostructures: Physics and Technology, St. Petersburg, Russia, June 2001
68. March Meeting of the American Physical Society, Seattle WA, March 2001  
Photoinduced transformation of polariton impurity band in semiconductors  
M. Foygel, A. Yamilov, L.I. Deych, and A.A. Lisyansky
69. March Meeting of the American Physical Society, Seattle WA, March 2001  
Polariton local states in periodic Bragg MQW structures  
L.I. Deych, A. Yamilov, and A.A. Lisyansky
70. March Meeting of the American Physical Society, Seattle WA, March 2001  
Concept of local polaritons  
A. Yamilov, L.I. Deych, and A.A. Lisyansky
71. March Meeting of the American Physical Society, Seattle WA, March 2001  
Single parameter scaling in localized absorbing systems  
L.I. Deych, A. Yamilov, and A.A. Lisyansky
72. Wave Propagation in New York City and other Random Media, Yeshiva University NY, July 2000
73. Localization 1999 - Disorder and Interaction in Transport Phenomena, International Conference, Hamburg, Germany (July, 1999)
74. March Meeting of the American Physical Society, Atlanta GA, March 1999  
Resonant tunneling of electromagnetic waves through a polariton gap,  
L.I. Deych, A. Yamilov, and A.A. Lisyansky
75. The 79th Statistical Mechanics Meeting, New Brunswick NJ, May 1998

## Research Grants and Contracts

### Research Proposals: Awarded

- |             |   |
|-------------|---|
| 2020 - 2023 | National Science Foundation, “Collaborative Research: Wave transport via eigenchannels of complex media,” \$203,881, PI                   |
| 2012 - 2016 | National Science Foundation, “Collaborative Research: Anomalous Transport and Wavefront Shaping in Complex Photonic Media,” \$170,000, PI |
| 2009 - 2010 | University of Missouri Research Board, “Electromagnetic wave transport through disordered amplifying optical fibers,” \$21,000, PI        |
| 2007 - 2011 | National Science Foundation, “Collaborative research: Mesoscopic transport and localization in active random media,” \$135,000, PI        |

### Competitive Computational Proposals: Awarded

- |             |   |
|-------------|---|
| 2010 - 2011 | Tera-Grid, “Non-diffusive transport and localization in the random amplifying medium” |
| 2009 - 2010 | Tera-Grid, “Non-diffusive transport and localization in the random amplifying medium” |

## Professional Service and Society Memberships

### Professional Service

- Referee for journals of American Physical Society, Optical Society of America, American Institute of Physics, Institute of Electrical and Electronics Engineers, International Society for Optics and Photonics and others
- Proposal reviewer for National Science Foundation and numerous European funding agencies
- Session chair at the annual meeting of the American Optical Society (Frontiers in Optics), CLEO/QELS
- CLEO/QELS member of subcommittee on Metamaterials and Complex Media 2015-2018
- CLEO/QELS chair of subcommittee on Metamaterials and Complex Media 2017, 2018

### Professional Memberships

- Senior Member of the Optical Society of America

### Collaborators

- H. Cao (experiment), Department of Applied Physics, Yale University
- V. V. Yakovlev, Texas A&M
- M. Wegener, Karlsruhe Institute of Technology
- T. Kottos (theory), Wesleyan University
- S. Skipetrov (theory), Laboratoire de Physique et Modélisation des Milieux Condensés, CNRS
- L. Tian, Department of Electrical and Computer Engineering, Boston University
- U. Kamilov, Department of Electrical and Systems Engineering, Washington University in St. Louis

## Teaching

### Courses Taught

| Year      | Title                              | Level | Role                | Institution                           |
|-----------|------------------------------------|-------|---------------------|---------------------------------------|
| 2019-     | Coherence and random processes     | G     | Instructor          | Missouri S&T                          |
| 2005-     | Classical Optics                   | UG    | Instructor          | Missouri S&T                          |
| 2010-2019 | Modern Physics                     | UG    | Instructor          | Missouri S&T                          |
| 2010      | Introduction to Mesoscopic Physics | G     | Co-Instructor (25%) | Missouri S&T                          |
| 2009-2018 | Nanotechnology                     | UG    | Instructor          | Missouri S&T                          |
| 2006-     | Introductory Physics I             | UG    | Instructor          | Missouri S&T                          |
| 2003-2004 | Introductory Physics               | UG    | Instructor          | Northwestern University               |
| 2000-2001 | Introductory Physics               | UG    | Adjunct Instructor  | Queensborough Community College, CUNY |
| 1997-2001 | Introductory Physics               | UG    | TA                  | Queens College, CUNY                  |

### Course Development

- Developed of a new graduate elective course “Random processes and wave coherence,” which reviewed key concepts of theory of probability and random processes and applied them to obtain statistical models of propagation, interference and detection of partially coherent waves (2019)
- Adopted undergraduate course “An Introduction to Nanostructures,” for online instruction (six campuses state-wide participated) (2011)
- Co-developed of a team-taught graduate course (25%, 12 lectures) “Special Topics in Condensed Matter Physics: Introduction to Mesoscopic Physics” (2010):
- Developed a new undergraduate course “An Introduction to Nanostructures,” which surveyed the modern topics in the field of nanotechnology and quantum transport (2009)

### Course Development Grants

- To develop University of Missouri shared undergraduate course “Intercampus Course Sharing Proposal Introduction to Nanotechnology,” (2016)
- To develop University of Missouri shared undergraduate course “Intercampus Course Sharing Proposal Classical Optics,” (2014)

### Graduate Advising

- PhD thesis adviser for Ben Payne (2007-12), Sumudu Herath (2009-2013), Milan Koirala (2014-2019)
- MS supervisor for Aaron Viets (2012-2014), Pauf Neopane (2013-2014), Jayson Summers (2017-2018)
- PhD thesis committee member for Nathan Dees (UMSL), Raghuvver R. Gadipalli (S&T), Altynbek Murat (S&T), Tim Mason (UMSL), Tina Phukan (S&T), Kaushalya Premachandra (UMSL, 2012), David Peaslee (UMSL, 2013), Kristen Erickson (UMSL, 2013), Nilanka Gurusinghe (S&T, 2013), Fawaz Hrahsheh (S&T, 2013), Andrey Markov (PolyMontreal, Canada, 2015), Hichem Guerboukha (PolyMontreal, Canada, 2015), Logan Brown (UMSL, 2016), Huixu Deng (S&T/MAE, 2017), Tim Sullivan (UMSL, 2018), Nikos Fayard (ESPCI, Paris, France, 2017), Wei Wang (S&T/MAE, 2019), Chris Carr (UMSL, 2018), Sebastien Kerherve (University of Manitoba, Canada, 2018), Tera Glaze (UMSL, 2019), Waruni Jayawardana (UMSL 2018), Matt Wentzel-Long (UMSL, 2019), Leixin Ouyang (S&T/MAE, 2019), Nathan Roth (UMSL, 2019), Chathuri Silva (UMSL, 2019), Mohammad Saki (UMSL, 2020), Chemedda Ejeta (UMSL, 2020), Gaurav Khairnar (2020, S&T), Kentaro Mogushi (2020, S&T), Kapil Sharma (2020, S&T), Harmeet Bhoday (S&T/Chemistry, 2020)

### Undergraduate Advising

- Supervised research projects for Jeffery Jau (2005-2006), Mark Herrera (2005-09), John Gigax (2008-09), Tom Mahler (2006-09), Laura Sisken (2009-12), Winston Carr (2009-10), Grant MacDonal (2011-12),

Dan Franklin (2011-12), Brock Hinton (2012-2013), Tim Golubev (2012-2014), Sasha Petrenko (2015-2016), Lawrence Thompson (2016-2017), Jacob Moore (2017-2019), Samuel Halladay (2019-)

- Voted “Favorite teacher of freshman engineering students” (2006)

## Department and University Service

- Physics Department Promotion & Tenure committee chair (2022-present)
- Physics Department representative in Faculty Senate (2022-present)
- Physics Department Graduate Committee (2018-present, chair 2019-present)
- Opportunities for Undergraduate Research Experiences liaison (2012-present)
- Physics Qualifying Examination Committee (2011-present)
- Physics Department library liaison (2011-present)
- Research highlights annual presentation for freshman physics students (2007-present)
- College of Arts, Sciences and Business (CASB) Faculty Leadership Council (2018-2022)
- Division of Science Curriculum Committee (2017-2019)
- Rules, Procedure, and Agenda (RP&A) Committee (2017-2018)
- Library and Learning Resources Committee Chair (2017-2018)
- Non-tenure-track faculty search and hiring committee (2016-2017)
- Library and Learning Resources Committee (2009-2018)
- Center for Educational Research and Teaching Innovation (CERTI) steering committee (2016-2017)
- Introductory Physics Teaching Steering Committee (2013-2015)
- Tenure-track faculty search and hiring committee (2013-2014)
- Honorary Degree Committee (2013)
- Organizer of the weekly Physics Colloquium series at Missouri S&T (2008-11)
- The Annual Physics Phonathon supervisor (2007,2009-12)
- MST & UMSL joint physics program meeting organizer (2008)
- Physics undergraduate student competition Fuller Committee Chair (2009)
- Minority Introduction to Technology & Engineering summer camp presentations (2007-2009)