

# Curriculum Vitae

---

## Alexey G. Yamilov

Associate Professor  
Department of Physics  
Missouri University of Science and Technology (Missouri S&T)  
1315 N. Pine St., Rolla, MO 65409-06403  
Fax: (573) 341-4715  
Email: yamilov@mst.edu  
Web: <http://www.mst.edu/~yamilov/>

---

### 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

- |                |                              |  |
|----------------|------------------------------|--|
| 2014 - present | Associate Professor          | Department of Physics, Missouri S&T                          |
| 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<br>Northwestern University |
| 2003 - 2005    | Research Associate           | Department of Physics & Astronomy<br>Northwestern University |
| 2001 - 2003    | Postdoctoral research fellow | Department of Physics & Astronomy<br>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

Names of the supervised graduate and undergraduate students are highlighted.

### Refereed Publications

1. “*Transverse localization of transmission eigenchannels,*”  
H. Yilmaz, C. W. Hsu, A. Yamilov, and H. Cao, arXiv:1806.01917
2. “*Coherent injection of light into absorbing scattering medium with a microscopic pore,*”  
A. Yamilov, R. Sarma, V. V. Yakovlev, and H. Cao, Opt. Lett. 43, 2189-2192 (2018)
3. “*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, Appl. Phys. Lett. 111, 201105 (2017)
4. “*Inverse design of perfectly transmitting eigenchannels in scattering media,*”  
M. Koirala, R. Sarma, H. Cao, A. Yamilov, Physical Review B 96, 054209 (2017)
5. “*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, Proc. Nat. Acad. Sci. 114, 7941 (2017)
6. “*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)
7. “*Enhancing light transmission through a random medium with inhomogeneous scattering and loss,*”  
R. Sarma, A. Yamilov, H. Cao, Applied Physics Letters 110, 021103 (2017)
8. “*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)
9. “*Detection of a diffusive cloak via second-order statistics,*”  
M. Koirala, A. Yamilov, Optics Letters 41, 3860 (2016)
10. “*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)
11. “*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)
12. “*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)
13. “*Applicability of the position-dependent diffusion approach to localized transport through disordered waveguides,*”  
P. Neupane, A. Yamilov, Physical Review B 92, 014207 (2015)
14. “*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)
15. “*Light localization induced by random refraction index,*”  
A. Basiri, Y. Bromberg, A. Yamilov, H. Cao, T. Kottos, Physical Review A 90, 043815 (2014)
16. “*Controlling diffusion inside a disordered nanophotonic waveguide using geometry,*”  
R. Sarma, T. Golubev, A. Yamilov, and H. Cao, Applied Physics Letters 105, 041104 (2014)
17. “*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)

18. *"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)
19. *"Interplay between localization and absorption in disordered waveguides,"*  
A. Yamilov and B. Payne, Optics Express 21, 11688-11697 (2013)
20. *"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)
21. *"Artificially disordered birefringent optical fibers,"*  
S. Herath, N. P. Puente, E.I. Chaikina, and A. Yamilov, Optics Express 20, 3620-3632 (2012)
22. *"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.
23. *"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)
24. *"Classification of regimes of wave transport in non-conservative random media,"*  
A. Yamilov and B. Payne, Journal of Modern Optics 57, 1916 (2010)
25. *"Anderson localization as position-dependent diffusion in disordered waveguides,"*  
B. Payne, A. Yamilov, S. E. Skipetrov, Physical Review B 82, 024205 (2010)
26. *"Criterion for light localization in random amplifying media,"*  
B. Payne, H. Cao, and A. Yamilov, Physica B 405, 3012 (2010)
27. *"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)
28. *"Relation between channel and spatial mesoscopic correlations in volume-disordered waveguides,"*  
A. Yamilov, Physical Review B 78, 045104 (2008)
29. *"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)
30. *"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)
31. *"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)
32. *"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)
33. *"Disorder-immune coupled resonator optical waveguide,"*  
A. Yamilov and M. Bertino, Optics Letters 32, 283-285 (2007)
34. *"Effect of amplification on conductance distribution of a disordered waveguide,"*  
A. Yamilov, and H. Cao, Physical Review E 74, 056609 (2006)

35. *“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)
36. *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
37. *“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)
38. *“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)
39. *“Photonic band structure of ZnO photonic crystal slab laser,”*  
A. Yamilov, X. Wu, and H. Cao, *Journal of Applied Physics* 98, 103102 (2005)
40. *“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)
41. *“Analysis of high-quality modes in open chaotic microcavities,”*  
W. Fang, A. Yamilov, and H. Cao, *Physical Review A* 72, 023815 (2005)
42. *“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)
43. *“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)
44. *“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)
45. *“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)
46. *“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
47. *“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)
48. *“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)
49. *“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)
50. *“Statistics of transmission in one-dimensional disordered systems: universal characteristics of states in the fluctuation tails,”*  
L. I. Deych, M. V. Erementchouk, A. A. Lisiansky, A. Yamilov, H. Cao, *Physical Review B* 68, 174203 (2003)

51. “*Highest-quality modes in disordered photonic crystals,*”  
A. Yamilov and H. Cao, Physical Review A 69, 031803(R) (2004)
52. “*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)
53. “*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)
54. “*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)
55. “*Manifestation of photonic band structure in small clusters of spherical particles,*”  
A. Yamilov and H. Cao, Physical Review B 68, 085111 (2003)
56. “*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)
57. “*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)
58. “*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)
59. “*Tunable local polariton states,*”  
M. Foygel, A. Yamilov, L.I. Deych, and A.A. Lisyansky, Physical Review B, 64, 115203 (2001)
60. “*Single parameter scaling in presence of absorption,*”  
L.I. Deych, A. Yamilov, and A.A. Lisyansky, Physical Review B 64, 024201 (2001)
61. “*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)
62. “*Polariton local states in periodic Bragg multiple quantum well structures,*”  
L.I. Deych, A. Yamilov, and A.A. Lisyansky, Optics Letters 25, 1705 (2000)
63. “*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)
64. “*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)
65. “*Polariton impurity band,*”  
A. Yamilov, L.I. Deych, and A.A. Lisyansky, Annals of Physics 8, 293 (1999)
66. “*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)
67. “*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)

### 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

### 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)

### Conference Proceedings

1. “*Teaching an Undergraduate Nanotechnology Course Online*,”  
A. Yamilov, Proceedings of the Midwest Section Conference of the ASEE, Rolla, (2012)
2. “*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)
3. “*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)
4. “*Laser resonators formed by two nanoparticles*,”  
X. Wu, W. Fang, A. Yamilov, A. Chabanov, and H. Cao, Proc. SPIE 6101, 61010M (2006)
5. “*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)
6. “*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)
7. “*Lasing in disordered media*,”  
H. Cao, A. Yamilov, J. Xu, E. Seelig, R. P. Chang, Proceedings of SPIE 4995, 134 (2003)
8. “*Polariton local states in periodic Bragg multiple quantum well structures*,”  
L.I. Deych, A. Yamilov, and A.A. Lisiansky, “Nanostructures: Physics and Technology”, pp. 273–275, Ioffe Physico-Technical Institute Press (2001) ISBN 5-93634-005-8

## Scholarly Contributions: Presentations

### Conference Presentations

1. 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
2. Photonics West 2018, San Francisco, CA, January 2018  
Transverse localization of transmission eigenchannels  
H. Yilmaz, C. W. Hsu, A. Yamilov, H. Cao
3. 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
4. CLEO/QELS 2017, San Jose, CA, May 2017  
Inverse Design of Eigenchannels in Scattering Media  
M. Koirala, R. Sarma, H. Cao and A. Yamilov
5. 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

6. CLEO/QELS 2016, San Jose, CA, June 2016  
Critical States Embedded in the Continuum  
M. Koirala, A. Yamilov
7. 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
8. 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
9. 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
10. 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
11. 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
12. Frontiers in Optics 2014, Tucson, AZ, October 2014  
Wave localization as position-dependent diffusion: analytical results  
P. Neupane, A. Yamilov
13. 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
14. 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
15. 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
16. Teaching and Learning Technology Conference, Rolla, MO, March 2013  
Teaching Nanotechnology with Technology  
A. Yamilov
17. Midwest Section Conference of the ASEE, Rolla, November 2012  
Teaching an Undergraduate Nanotechnology Course Online A. Yamilov
18. Frontiers in Optics 2012, Rochester, NY, October 2012  
Artificially disordered birefringent optical fibers  
S. Herath, N. P. Puente, E.I. Chaikina, and A. Yamilov
19. 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
20. Frontiers in Optics 2012, Rochester, NY, October 2012  
Universality of wave transport in absorbing random media  
A. Yamilov and B. Payne

21. APS March meeting, Boston MA, March 2012  
Position-dependent diffusion coefficient as localization criterion in non-conservative random media  
B. Payne and A. Yamilov
22. 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
23. 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
24. 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
25. 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
26. Frontiers in Optics 2010, Rochester NY, October 2010  
Frequency correlation between eigenmodes of disordered waveguides  
B. Payne and A. Yamilov
27. 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
28. 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
29. 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
30. 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
31. 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
32. 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
33. 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
34. Frontiers in Optics 2008, Rochester, NY, October 2008  
Relation between channel and spatial mesoscopic correlations in volume-disordered waveguides  
A. Yamilov
35. The Quantum Electronics and Laser Science Conference (QELS), San Jose CA, May 2008  
Trench Waveguide in Photonic Crystal Slab  
A. Yamilov, M. Herrera



36. Frontiers in Optics 2007, San Jose CA, September 2007  
Mesoscopic Correlations in Disordered Waveguide: Dependence on Channel Indexes  
A. Yamilov
37. 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
38. Frontiers in Optics 2007, San Jose CA, September 2007  
Waveguiding in Photonic Crystal Slab with Variable Thickness  
M. Herrera, M. Bertino, A. Yamilov
39. 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
40. 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
41. Frontiers in Optics 2006, Rochester NY, October 2006  
Quasi-Modes in Disordered Waveguide with Gain  
A. Yamilov
42. 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
43. Frontiers in Optics 2006, Rochester NY, October 2006  
Light Propagation through Dual-Periodic 1D Photonic Crystal  
A. Yamilov, M. Herrera, M. Bertino
44. Frontiers in Optics 2006, Rochester NY, October 2006  
An Ultrasonic Analogue for a Random Laser  
A. Yamilov, R. W. Weaver, Oleg Lobkis
45. 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
46. Frontiers in Optics 2005, Tuscon AZ, October 2005  
Disorder Optimizes the Performance of UV Photonic Crystal Laser  
A. Yamilov, X. Wu, H. Cao
47. 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
48. Frontiers in Optics 2005, Tuscon AZ, October 2005  
Mesoscopic Optics  
Andrey Chabanov, A. Yamilov, H. Cao, Bing Hu, Azriel Genack
49. 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

50. Frontiers in Optics 2005, Tucson AZ, October 2005  
Effect of Amplification on Distribution of Conductance in Disordered Waveguide  
A. Yamilov, H. Cao
51. Frontiers in Optics 2004, Rochester NY, October 2004  
Mode coupling in open chaotic microcavities  
A. Yamilov, Wei Fang, H. Cao
52. Frontiers in Optics 2004, Rochester NY, October 2004  
Study of high quality modes in fully chaotic microcavities  
H. Cao, Wei Fang, A. Yamilov
53. 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
54. Frontiers in Optics 2004, Rochester NY, October 2004  
Intensity distribution in passive and amplifying random media near localization threshold  
A. Yamilov, H. Cao
55. 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
56. 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
57. 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
58. 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
59. 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
60. 2002 Annual Meeting of the Optical Society of America, Orlando FL, October 2002
61. 9th International Symposium. Nanostructures: Physics and Technology, St. Petersburg, Russia, June 2001
62. 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
63. 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
64. March Meeting of the American Physical Society, Seattle WA, March 2001  
Concept of local polaritons  
A. Yamilov, L.I. Deych, and A.A. Lisyansky

65. 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
66. Wave Propagation in New York City and other Random Media, Yeshiva University NY, July 2000
67. Localization 1999 - Disorder and Interaction in Transport Phenomena, International Conference, Hamburg, Germany (July, 1999)
68. 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
69. The 79th Statistical Mechanics Meeting, New Brunswick NJ, May 1998

### Invited talks

1. SPIE Metamaterials, Metadevices, and Metasystems 2018, San Diego, CA (2018)  
Strategies for enhanced injection of light into scattering medium
2. MRS Spring Meeting, Phoenix, AZ (2018)  
Wave propagation via eigenchannels of scattering medium
3. 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
4. The Institute for Computational and Experimental Research in Mathematics (ICERM), Brown University, RI (2017)  
Determinism of wave transport and eigenchannels of multiple scattering media
5. Illinois State University, Normal, IL (2017)  
Random or complex? Looking through walls and around the corner
6. Physics of Quantum Electronics (PQE), Snowbird, UT (2017)  
Eigenchannels in scattering media: from manipulation to inverse design
7. 7th International Conference on Metamaterials, Photonic Crystals and Plasmonics, META 2016, Spain (2016)  
Eigenchannels in scattering media
8. Missouri S&T Chemistry (2016)  
Coherent control of wave transport in scattering media: Looking through walls and around the corner
9. Workshop on "Waves and imaging in random media," Institut Henri Poincaré, Paris (2015)  
Control of mesoscopic transport by modifying transmission channels in scattering media
10. Ecole Polytechnique de Montréal, QC, Canada (2015)  
New approach to control light transport in random media
11. 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
12. Wesleyan University, Middletown, CT (2015)  
Control of light transport in random media
13. 9th International Workshop on Disordered Systems, San Antonio, TX (2014)  
Interplay between localization and absorption in disordered waveguides

14. Summer school “Waves and disorder,” Cargese, Corsica, France (2014)  
Wave localization in open random media as position-dependent diffusion: Analytical, numerical and experiment results
15. Yale University (2013)  
Position-dependent diffusion in absorbing random media
16. University of Texas - Dallas (2012)  
Regimes of wave transport in absorbing random media
17. 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
18. Old Dominion University, Norfolk Virginia (2012)  
Mesoscopic Optics
19. University of Missouri Columbia (2011)  
Teaching an online physics course: from psychology to technology
20. Board of Curators Meeting, Rolla (2011)  
Wave Propagation in Random Media
21. Washington University in Saint Louis (2011)  
Mesoscopic Optics
22. Missouri State University (2011)  
Mesoscopic Optics: Carrot laser anyone?
23. University of North Carolina at Charlotte (2010)  
Mesoscopic Physics of Photons: Particle Versus Wave Transport Through Random Media
24. UMKC, March (2010)  
Particle Versus Wave Transport Through Random Media
25. Missouri S&T Chemistry (2009)  
Mesoscopic physics of photons
26. University of Missouri St. Louis (2009)  
Mesoscopic physics of photons: from Anderson localization to random lasing
27. International Diffuse Reflectance Spectroscopy Conference, Chambersburg, PA (2008)  
Simulations and statistical analysis of electromagnetic wave propagation in random amplifying media
28. El Centro de Investigacion Cientifica y de Educacion Superior de Ensenada (CICESE) at Ensenada, Mexico (2008)  
Mesoscopic Phenomena in Disordered Waveguides

## Research Grants and Contracts

### Research Proposals Awarded

- 2012 - 2016 National Science Foundation, “Collaborative Research: Anomalous Transport and Wavefront Shaping in Complex Photonic Media,”
- 2009 - 2010 University of Missouri Research Board, “Electromagnetic wave transport through disordered amplifying optical fibers,”
- 2007 - 2011 National Science Foundation, “Collaborative research: Mesoscopic transport and localization in active random media,”

### 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 member of subcommittee on Metamaterials and Complex Media 2015-
- 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
- E. Chaikina and E. Mendez (experiment), Centro de Investigación Científica y de Educación Superior de Ensenada (CICESE)

## Teaching

### Courses Taught

Year	Title	Level	Role	Institution
2010-	Modern Physics	UG	Instructor	Missouri S&T
2010	Introduction to Mesoscopic Physics	G	Co-Instructor (25%)	Missouri S&T
2009-	Nanotechnology	UG	Instructor	Missouri S&T
2006-2009	Introductory Physics I	UG	Instructor	Missouri S&T
2005-	Classical Optics	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

## **Publications Course Development**

- Co-development of a team-taught graduate course (25%, 12 lectures) “Special Topics in Condensed Matter Physics: Introduction to Mesoscopic Physics” (2010):
- Development of a new undergraduate course “An Introduction to Nanostructures,” which surveys the modern topics in the field of nanotechnology and quantum transport (2009)
- Adopted undergraduate course “An Introduction to Nanostructures,” for online instruction (six campuses state-wide participated) (2011)

## **Course Development Proposals**

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

## **Graduate Advising**

- PhD thesis adviser for Ben Payne (2007-12), Sumudu Herath (2009-2013), Milan Koirala (2014-)
- MS supervisor for Aaron Viets (2012-2014), Pauf Neopane (2013-2014)
- PhD thesis committee member for Nathan Dees (UMSL), Raghuveer 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, 2017), Nikos Fayard (ESPCI, Paris, France, 2017), Wei Wang (S&T/MAE, 2017), Chris Carr (UMSL, 2018), Sebastien Kerherve (University of Manitoba, Canada, 2018), Nathan Roth (UMSL, 2018), Tera Glaze (UMSL, 2018), Matt Wentzel-Long (UMSL, 2018)

## **Undergraduate Advising**

- Supervised research projects for Jeffery Jau (2005-2006), Mark Herrera (2005-09), John Gigax (2008-09), Tom Mahler (2006-09), Laura Siskin (2009-12), Winston Carr (2009-10), Grant MacDonal (2011-12), Dan Franklin (2011-12), Brock Hinton (2012-2013), Tim Golubev (2012-2014), Lawrence Thompson (2016-2017), Jacob Moore (2017-)
- Voted “Favorite teacher of freshman engineering students” (2006)

## Department and University Service

- College of Arts, Sciences and Business (CASB) Faculty Leadership Council (2018-)
- Rules, Procedure, and Agenda (RP&A) committee (2017-)
- Library and Learning Resources Committee Chair (2017-)
- Division of Science Curriculum Committee (2017-)
- Library and Learning Resources Committee (2009-)
- Library liaison (2011-)
- Opportunities for Undergraduate Research Experiences liaison (2012-)
- The Center for Educational Research and Teaching Innovation (CERTI) steering committee member (2016-2017)
- Introductory Physics Teaching Steering Committee (2013-2015)
- AMO Hire Committee (2013-2014)
- Honorary Degree Committee (2013)
- Organizer of the weekly Physics Colloquium series at Missouri S&T (2008-11)
- Physics Qualifying Examination Committee (2011-)
- The Annual Physics Phonathon supervisor (2007,2009-12)
- MST & UMSL joint physics program meeting organizer (2008)
- Physics undergraduate student competition Fuller Committee Chair (2009)
- Research Highlights annual presentation for society of physics students (2007-2012)
- Minority Introduction to Technology & Engineering summer camp presentations (2007-2009)