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Dr. OLGA KOROTKOVA

Department of Physics, University of Miami, FL

Office 306, James L. Knight Physics Building, 1320 Campo Sano Drive, Miami FL, 33126, US
Phone: 1 (305) 284–6866, Fax: 1 (305) 284–4222, E-mail: korotkova@physics.miami.edu
Web-page: www.physics.miami.edu/~korotkova

EDUCATION

B.S. Applied Mathematics, Samara State University (Russia), June 1999, GPA 3.87 (Red Diploma)
M.S. Mathematical Sciences, University of Central Florida (USA), May 2002, GPA 4.0
Ph.D. Applied Mathematics, University of Central Florida (USA), Dec 2003, GPA 4.0

Dissertation: "The model for a partially coherent beam propagating in the turbulent atmosphere with applications for laser communications and laser radars" was defended on 25 August 2003.

EXPERIENCE

UNIV. OF CENTRAL FLORIDA, Dept. of Mathematics Orlando, FL
January 2000 – December 2003, Graduate Teaching Assistant, Classes taught: College Algebra, Trigonometry, Calculus I, II, Finite Math, Calculus for Scientists, Applied Calculus.

FLORIDA SPACE INSTITUTE -CUBIC Co. Orlando, FL
March 2003 – December 2003, Research Assistant, Project: Optimization of optical communication link by means of partial coherence of the source

UNIV. OF CENTRAL FLORIDA, CREOL Orlando, FL
December 2003 – July 2004, Research Scientist, Project: Theoretical analysis of polarization changes in turbulence

UNIV. OF ROCHESTER, Dept. of Physics and Astronomy Rochester, NY
July 2004 – January 2006, Research Associate in Physics January 2006 – June 2007, Research Scientist July 2007 – August 2007, Assistant Professor in Research, Published over 20 papers and gave over 25 talks at conferences; Undergraduate student supervised: N. Farwell

PRINCETON REVIEW INC. (part time) Rochester, NY
March 2007 – August 2007, MCAT Physics Lecturer

UNIV. OF MIAMI, Dept. of Physics Miami, FL
August 2007 – May 2012, Assistant Professor
June 2012 – present, Associate Professor (tenured)

RESEARCH INTERESTS

Theoretical and Experimental Classical Optics, Coherence and Polarization of Light; Wave Propagation and Scattering in Random and Complex Media; Beam Propagation in Atmospheric and Oceanic Turbulence; Laser Communications and LIDAR Systems; Light Propagation and Scattering in Human Tissues; Medical Imaging, Microscopy and Tomography

BOOKS

1. Olga Korotkova, *Partially coherent beam propagation in turbulent atmosphere with applications* (VDM, Saarbrücken, Germany, 2009) ISBN 978-3-639-18490-7
2. Olga Korotkova, *Random beams: theory and applications* (CRC Press, Boca Raton, FL, 2013) ISBN 978-1-439-81950-0
3. Olga Korotkova, *Theoretical Statistical Optics* (World Scientific Publishing Co., Singapore, 2019 expected).

PROCEEDINGS

1. S. Merchelle, O. Korotkova, "Free-Space Laser Communication Technologies XIX and Atmospheric Propagation of Electromagnetic Waves", SPIE 6457 (2007) ISBN 9780819465733
2. O. Korotkova, "Atmospheric Propagation of Electromagnetic Waves III", SPIE 6878 (2008) ISBN 9780819470539.
3. O. Korotkova, "Atmospheric Propagation of Electromagnetic Waves III", SPIE 7200 (2009) ISBN 9780819474469.
4. O. Korotkova, "Atmospheric and Oceanic Propagation of Electromagnetic Waves IV", SPIE 7588 (2010)

ISBN 9780819479846.
5. O. Korotkova, "Atmospheric and Oceanic Propagation of Electromagnetic Waves V", SPIE 7924 (2011) ISBN 9780819484611.
6. S. J. Davis, M. C. Heaven, J. T. Schriempf, O. Korotkova, "High Energy/Average Power Lasers and Intense Beam Applications IV; Atmospheric and Oceanic Propagation of Electromagnetic Waves VI", SPIE Press 8238 (2012) ISBN 9780819488817.

GRANTS

1. PI, AFOSR "Propagation of stochastic electromagnetic beams in turbulent atmosphere with applications to laser communications and laser radars" (Dec 2007 - May 2011) 152K
2. PI, ONR "Modeling of laser beam propagation in the atmosphere" (Oct 2009 - Sept 2010) 50K
3. PI, ONR "Modeling of optical wave propagation in natural environments" (Oct - Dec 2010) 37K
4. PI, ONR "Modeling of optical wave propagation in natural environments" (May - Oct 2011) 38K
5. PI, ONR "Modeling of optical wave propagation in natural environments" (Nov - Dec 2011) 19K
6. PI, ONR "Modeling of optical wave propagation in natural environments" (Apr - Oct 2012) 50K
7. PI, MURI AFOSR "Wave optics of deep atmospheric turbulence: from underlying physics towards predictive modeling, mitigation, and exploitation" (Jan 2013 - Jan 2018) 750K
8. PI, ONR "Mitigation of turbulence with differently correlated random beams" (Sept 2013 - Mar 2014) 48K
9. PI, ONR "Mitigation of turbulence effects with differently correlated random beams" (May -Sept 2014) 50K
10. PI, ONR "Design of random particles and their collections for controlled light scattering" (Jul 2015 - Apr 2016) 50K
11. Leading Scientist, Russian National Science Foundation, "Theoretical and experimental stability analysis of light with structured phase, amplitude and their correlations on interaction with homogeneous optical turbulence," joint proposal with Image Processing Systems Institute of Russian Academy of Sciences (IPSI RAS) (mega-grant submitted, in review).
12. PI, AFOSR, "Angular control of radiation properties from stationary 3D EM sources: mathematical modeling and experimental realization" (submitted June 2017, approved by fund manager).
13. PI, ONR, White paper: "Wave optics of urban and coastal atmosphere: predictive mathematical modeling, on-site measurements and mitigation" (submitted August 2017, approved by fund manager).

PUBLICATIONS IN PEER-REFERREED JOURNALS (KOROTKOVA's STUDENTS ARE UNDERLINED)

1. O. Korotkova, L. C. Andrews, R. L. Phillips, "A Model for a Partially Coherent Gaussian Beam in Atmospheric Turbulence with Application in LaserCom", Opt. Eng. 43, 330-341 (2004).
2. O. Korotkova, M. Salem and E. Wolf, "The far-zone behavior of the degree of polarization of partially coherent beams propagating through atmospheric turbulence", Opt. Comm. 233, 225-230 (2004).
3. O. Korotkova, M. Salem and E. Wolf, "Beam conditions for radiation generated by an electromagnetic Gaussian Schell-model source", Opt. Lett. 29, 1173-1175 (2004).
4. M. Salem, O. Korotkova, A. Dogariu and E. Wolf, "Polarization changes in partially coherent EM beams propagating through turbulent atmosphere", Waves in Random Media 14, 513-523 (2004).
5. O. Korotkova and E. Wolf, "Spectral degree of coherence of a random three-dimensional electromagnetic field" J. Opt. Soc. Am. A 21, 2382-2385 (2004).
6. O. Korotkova and E. Wolf, "Generalized Stokes parameters of random electromagnetic beams" Opt. Lett. 30, 198-200 (2005).
7. O. Korotkova and E. Wolf, "Changes in the state of polarization of a random electromagnetic beam on propagation" Opt. Comm. 246, 35-43 (2005).
8. T. Shirai, O. Korotkova and E. Wolf, "A method of generating electromagnetic Gaussian Schell-model beams" J. Opt. A: Pure Appl. Opt. 7, 232-237 (2005).
9. H. Roychowdhury and O. Korotkova, "Realizability conditions for electromagnetic Gaussian Schell-model sources" Opt. Comm. 249, 379-385 (2005).
10. O. Korotkova, B. G. Hoover, V. L. Gamiz and E. Wolf, "Coherence and polarization properties of far fields generated by quasi-homogeneous planar electromagnetic sources", J. Opt. Soc. Am. A 22, 2547-2556 (2005).
11. O. Korotkova, M. Salem, A. Dogariu and E. Wolf, "Changes in the polarization ellipse of random electromagnetic beams propagating through turbulent atmosphere", Waves in Random and Complex Media 15, 353-364 (2005).
12. O. Korotkova and E. Wolf, "Effects of linear non-image-forming devices on spectra and on coherence and polarization properties of stochastic electromagnetic beams: part I: general theory", J. Mod. Opt. 52, 2659-2671 (2005).
13. O. Korotkova and E. Wolf, "Effects of linear non-image-forming devices on spectra and on coherence and polarization properties of stochastic electromagnetic beams: part II: examples", J. Mod. Opt. 52, 2673-2685 (2005).
14. O. Korotkova, "Changes in the intensity fluctuations of a class of random electromagnetic beams on propagation", J.

Opt. A: Pure Appl. Opt. 8, 30-37 (2006).
15. M. A. Alonso, O. Korotkova and E. Wolf, “Propagation of the electric correlation matrix and the van Cittert-Zernike theorem for random electromagnetic fields”, J. Mod. Opt. 53, 969-978 (2006).
16. O. Korotkova, “Changes in statistics of the instantaneous Stokes parameters of a quasi-monochromatic electromagnetic beam on propagation”, Opt. Comm. 261, 218-224 (2006).
17. J. Pu, O. Korotkova and E. Wolf, “Invariance and non-invariance of the spectra of stochastic electromagnetic beams on propagation”, Opt. Lett. 31, 2097-2099 (2006).
18. M. Salem, O. Korotkova, and E. Wolf, “Can two planar sources with the same sets of Stokes parameters generate beams with different sets of Stokes parameters?” Opt. Lett. 31, 3025-3027 (2006).
19. W. Gao and O. Korotkova, “Changes in the state of polarization of a random electromagnetic beam propagating through tissue”, Opt. Comm. 270, 474-478 (2007).
20. G. Gbur and O. Korotkova, “Angular spectrum representation for propagation of arbitrary coherent and partially coherent beams through atmospheric turbulence”, J. Opt. Soc. Am. A 24, 745-752 (2007).
21. A. Al-Qasiami, O. Korotkova, D.F.V. James, and E. Wolf, “Definitions of the degree of polarization of a light beam”, Opt. Lett. 32, 1015-1016 (2007).
22. O. Korotkova and E. Wolf, “Scattering matrix theory for stochastic scalar fields” Phys. Rev. E 75, 056609 (2007).
23. J. Pu O. Korotkova, and E. Wolf, “Polarization-induced spectral changes on propagation of stochastic electromagnetic beams”, Phys. Rev. E 75, 056610 (2007).
24. O. Korotkova and G. Gbur, “Angular spectrum representation for propagation of random electromagnetic beams in a atmospheric turbulence”, J. Opt. Soc. Am. A 24, 2728-2736 (2007).
25. O. Korotkova and E. Wolf, “Beam criterion for atmospheric propagation”, Opt. Lett. 32, 2137-2139 (2007).
26. D. Zhao, O. Korotkova and E. Wolf, “Application of correlation-induced spectral changes to inverse scattering” Opt. Lett. 32, 3483-3485 (2007).
27. X. Du, D. Zhao, O. Korotkova, “Changes in the statistical properties of stochastic anisotropic electromagnetic beams on propagation in the turbulent atmosphere” Optics Express 15, 16909-16915 (2007).
28. O. Korotkova, T. D. Visser, E. Wolf, “Polarization properties of stochastic electromagnetic beams”, Opt. Comm. 281, 515-520 (2008).
29. O. Korotkova and E. Wolf, “Beam criteria for propagation of electromagnetic beams in the turbulent atmosphere”, Opt. Comm. 281, 948-952 (2008).
30. O. Korotkova, “Conservation laws for stochastic electromagnetic free fields”, J. Opt. A: Pure and Appl. Opt. 10, 025003 (2008).
31. O. Korotkova, “Scintillation index of a stochastic electromagnetic beam propagating in random media” Opt. Comm., 281, 2342-2348 (2008).
32. O. Korotkova, J. Pu and E. Wolf, “Spectral changes in electromagnetic stochastic beams propagating through turbulent atmosphere”, J. Mod. Opt. 55, 1199-1208 (2008).
33. X. Du, D. Zhao, O. Korotkova, “Cross-spectral density matrix of a random electromagnetic beam propagating through an apertured axially nonsymmetrical optical system” Phys. Lett. A 372, 4135-4140 (2008).
34. M. Lahiri, O. Korotkova and E. Wolf, “Polarization and coherence properties of a beam formed by a superposition of a pair of stochastic electromagnetic beams”, Opt. Comm. 281, 5073-5077 (2008).
35. M. Yao, Y. Cai, H. T. Eyyubogllu, Y. Baykal and O. Korotkova, “Evolution of the degree of polarization of an electromagnetic Gaussian Schell-mode beam in a Gaussian cavity”, Opt. Lett. 33, 1-3 (2008).
36. O. Korotkova, M. Yao, Y. Cai, H. T. Eyyuboğlu, and Y. Baykal, "State of polarization of a stochastic electromagnetic beam in an optical resonator," J. Opt. Soc. Am. A 25, 2710-2720 (2008).
37. Y. Cai, O. Korotkova, H. T. Eyyubogllu, Y. Baykal, “Active laser radar systems with stochastic electromagnetic beams in turbulent atmosphere", Opt. Express 16, 15834-15846 (2008).
38. S. Sahin and O. Korotkova, “Scattering of scalar light fields from collections of particles", Phys. Rev. A 78, 063815 (2008).
39. H. T. Eyyuboglu, E. Sermutlu, Y. Baykal, Y. Cai, O. Korotkova, "Intensity fluctuations in J-Bessel-Gaussian beams of all orders propagating in turbulent atmosphere" Appl. Phys. B 93, 605-611 (2008).
40. H. T. Eyyuboglu, Y. Baykal, E. Sermutlu, O. Korotkova and Y. Cai, "Scintillation index of modified Bessel-Gaussian beams propagating in turbulent media", J. Opt. Soc. Am. A 26, 387-394 (2009).
41. Y. Cai, Q. Lin, O. Korotkova, “Ghost imaging with twisted Gaussian Schell-model beam”, Optics Express 17, 2453-2464 (2009).
42. J. Pu and O. Korotkova, “Propagation of the degree of cross-polarization of a stochastic electromagnetic beam through the turbulent atmosphere” Opt. Comm. 282, 1691-1698 (2009).
43. O. Korotkova, Y. Cai, E. Watson, “Stochastic electromagnetic beams for LIDAR systems operating in turbulent atmosphere” Appl. Phys. B 94, 681-690 (2009).
44. S. Sahin, O. Korotkova, G. Zhang, J. Pu, “Free-space propagation of the spectral degree of cross-polarization of stochastic electromagnetic beams", J. Opt. A, Pure and Appl. Opt., 11, 085703 (2009).

44(a). G. Zhang, J. Pu, S. Sahin and O. Korotkova, "The spectral degree of cross-polarization of stochastic electromagnetic beams," Acta Photonica Sinica, 38 2093-2098 (2009) [in Chinese].
45. S. Sahin and O. Korotkova, "Effect of the pair-structure factor of a particulate medium on scalar wave scattering in the first Born approximation", Opt. Lett. 34, 1762-1764 (2009).
46. Y. Gu, O. Korotkova and G. Gbur, "Scintillation of non-uniformly polarized beams in atmospheric turbulence", Opt. Lett. 34, 2261–2263 (2009).
47. Y. Cai and O. Korotkova, "Twist phase-induced polarization changes in stochastic electromagnetic Gaussian Schell-model beam", Appl. Phys. B, 96, 499-507 (2009).
48. Z. Tong, O. Korotkova, Y. Cai, H. T. Eyyuboglu and Y. Baykal, "Correlation properties of random electromagnetic beams in laser resonators", Appl. Phys. B 97, 849-857 (2009)
49. F. Wang, Y. Cai and O. Korotkova, "Experimental observation of focal shifts in focused partially coherent beams" Opt. Comm. 282, 3408-3413 (2009).
50. F. Gori and O. Korotkova, "Modal expansion for spherical homogeneous sources" Opt. Comm. 282, 3859-3861 (2009).
51. Y. Yuan, Y. Cai, J. Qu, H. T. Eyyuboğlu, Y. Baykal, O. Korotkova, "M^2 - factor of coherent and partially coherent dark hollow beams propagating in turbulent atmosphere", Opt. Express 17, 17344-17356 (2009).
52. O. Korotkova, N. Farwell and A. Mahalov, "The effect of the jet-stream on the intensity of laser beams propagating along slanted paths in the upper layers of the turbulent atmosphere" Waves in Random Media, 19, 692 – 702 (2009).
53. C. Zhao, Y. Cai and O. Korotkova, "Radiation force of scalar and electromagnetic twisted Gaussian Schell-model", Opt. Express 17, 21472-21487 (2009).
54. F. Wang, Y. Cai, and O. Korotkova, "Partially coherent standard and elegant Laguerre-Gaussian beams of all orders," Opt. Express, 17, 22366-22379 (2009).
55. C. Z. Çil, H. T. Eyyuboğlu, Y. Baykal, O. Korotkova, Y. Cai, "Beam wander of J_0- and I_0-Bessel Gaussian beams propagating in turbulent atmosphere", Appl. Phys. B 98, 195-202 (2010).
56. Z. Tong and O. Korotkova, "Stochastic electromagnetic beams in negative refractive index materials", Opt. Lett. 35, 175-177 (2010).
57. J. Pu and O. Korotkova, "Spectral and polarization properties of stochastic electromagnetic beams propagating in gain or absorbing media", Opt. Comm. 283, 1693-1706 (2010).
58. E. Shchepakina and O. Korotkova, "Second-order statistics of stochastic electromagnetic beams propagating through non-Kolmogorov turbulence", Opt. Express 18, 10650-10658 (2010).
59. B. Chen, J. Pu and O. Korotkova, "Focusing of a femtosecond vortex light pulse through a high numerical aperture objective", Opt. Express 18, 10822-10827 (2010).
60. F. Wang, Y. Cai, O. Korotkova, "Degree of paraxiality of a partially coherent field", J. Opt. Soc. Am. A 27, 1120-1126 (2010).
61. S. Zhu, Y. Cai and O. Korotkova, "Propagation factor of a stochastic electromagnetic Gaussian Schell-model beam", Opt. Express 18, 12587-12598 (2010).
62. Z. Tong, Y. Cai and O. Korotkova, "Ghost imaging with electromagnetic stochastic beams", Opt. Comm. 283, 3838-3845 (2010).
63. Z. Tong and O. Korotkova, "Spectral shifts and spectral switches in random fields on interaction with negative phase materials", Phys. Rev. A 82, 013829 (2010).
64. Z. Tong and O. Korotkova, "Far-field analysis of spectral shifts in Gaussian Schell-model beams propagating through media with arbitrary refractive properties", J. Opt. 12, 095708 (2010).
65. M. Yao, Y. Cai, O. Korotkova, "Spectral shift of a stochastic electromagnetic Gaussian Schell-model beam in a Gaussian cavity", Opt. Comm. 283, 4505-4511(2010).
66. S. Sahin, Z. Tong and O. Korotkova, "Sensing of semi-rough targets embedded in atmospheric turbulence by means of stochastic electromagnetic beams", Opt. Comm. 283, 4512-4518 (2010).
67. Z. Tong and O. Korotkova, "Theory of weak scattering of stochastic electromagnetic fields from deterministic and random media", Phys. Rev. A 82, 033836 (2010).
68. O. Korotkova and E. Shchepakina, "Color changes in stochastic light fields propagating in non-Kolmogorov turbulence", Opt. Lett. 35, 3772-3774 (2010).
69. M. Yao, Y. Cai, O. Korotkova and Q. Lin, "Spatio-temporal coupling of random electromagnetic pulses interacting with reflecting gratings", Opt. Express 18, 22503-22514 (2010).
70. C. L. Ding, Y. J. Cai, O. Korotkova, Y. T. Zhang, L. Z. Pan, "Scattering-induced changes in the temporal coherence length and the pulse duration of a partially coherent plane-wave pulse", Opt. Lett. 36, 517-519 (2011).
71. O. Korotkova and N. Farwell, "Effect of oceanic turbulence on polarization of stochastic beams", Opt. Commun. 284, 1740-1746 (2011).
72. L. Zhang, F. Wang, Y. Cai and O. Korotkova, "Degree of paraxiality of a stochastic electromagnetic Gaussian Schell-model beam", Opt. Commun. 284, 1111-1117 (2011).
73. H. Jacks and O. Korotkova, "Cross-polarization and intensity fluctuations of stochastic beams on interaction with

devices of polarization optics", Appl. Phys. B 103, 413-419 (2011).

74. Y. Baykal, H.T. Eyyuboglu, C. Z. Celal, Y. Cai, O. Korotkova, "Intensity fluctuations of partially coherent co-Gaussian and cosh-Gaussian beams in atmospheric turbulence", J. Opt. 13, 055709 (2011).
75. H. Jacks and O. Korotkova, "Intensity-intensity fluctuations of stochastic fields produced upon weak scattering", J. Opt. Soc. Am. A 28, 1139-1144 (2011).
76. Z. Tong and O. Korotkova, "Method for tracing the position of an alien object embedded in a random particulate medium", J. Opt. Soc. A 28, 1595-1599 (2011).
77. E. Shchepakina, N. Farwell, and O. Korotkova, "Spectral changes in stochastic light beams propagating in turbulent ocean", Appl. Phys. B, 105, 415-420 (2011).
78. E. Shchepakina and O. Korotkova, "Condition for canard explosion in a semiconductor optical amplifier", J. Opt. Soc. Am. B 28, 1988-1993 (2011).
79. S. Sahin and O. Korotkova, "Crystalline human eye lens' response to stochastic light", Opt. Lett. 36, 2970-2972 (2011).
80. Z. Tong and O. Korotkova, "Technique for interaction of optical fields with turbulent medium containing particles", Opt. Lett. 36, 3157-3159 (2011).
81. O. Korotkova, "Sufficient condition for polarization invariance of beams generated by quasi-homogeneous sources", Opt. Lett. 36, 3768-3770 (2011).
82. O. Korotkova, S. Avramov-Zamurovic, R. Malek-Madani, C. Nelson, "Probability density function of the intensity of a laser beam propagation in maritime environment", Opt. Express 19, 20322-20331 (2011).
83. Z. Tong and O. Korotkova, "Momentum of light scattered from collections of particles", Phys. Rev. A 84, 043835 (2011).
84. S. Sahin, O. Korotkova and G. Gbur, "Scattering of light from particles with semi-soft boundaries", Opt. Lett. 36, 3957-3959 (2011).
85. Z. Tong and O. Korotkova, "Pair-structure matrix of random collections of particles: Implications for light scattering", Opt. Commun. 284, 5598-5612 (2011).
86. N. Farwell and O. Korotkova, "Intensity and coherence properties of light in oceanic turbulence", Opt. Commun. 285, 872-875 (2012).
87. F. Wang, Y. Cai, Y. Dong, and O. Korotkova, "Experimental generation of a radially polarized beam with controllable spatial coherence", Appl. Phys. Lett. 100, 051108 (2012).
88. O. Korotkova, N. Farwell and E. Shchepakina, "Light scintillation in oceanic turbulence", Waves in Random and Complex Media 22, 260-266 (2012).
89. Z. Tong and O. Korotkova, "Contribution of evanescent incident wave to the scattered far field", Phys. Rev. A, 85, 043802 (2012).
90. Z. Tong and O. Korotkova, "Beyond the classical Rayleigh limit with twisted light", Opt. Lett. 37, 2595-2597 (2012).
91. S. Sahin and O. Korotkova, "Light sources generating far fields with tunable flat profiles", Opt. Lett. 37, 2970-2972 (2012).
92. Z. Tong and O. Korotkova, "Nonuniformly correlated beams in uniformly correlated random media", Opt. Lett., 37, 3240-3242 (2012).
93. R. Borghi, F. Gori, O. Korotkova, and M. Santarsiero, "Propagation of cross spectral densities from spherical sources", Opt. Lett. 37, 3183-3185 (2012).
94. Z. Tong and O. Korotkova, "Electromagnetic nonuniformly correlated beams", J. Opt. Soc. Am. A 29, 2154-2158 (2012).
95. O. Korotkova, S. Sahin, E. Shchepakina, "Multi-Gaussian Schell-model beams", J. Opt. Soc. Am. A 29, 2159- 2164 (2012).
96. Z. Mei, Z. Tong and O. Korotkova, "Electromagnetic non-uniformly correlated beams in turbulent atmosphere", Opt. Express 20, 26458-26463 (2012).
97. Z. Mei and O. Korotkova, "Random light scattering by collections of ellipsoids", Opt. Express 20, 29296-29307 (2012).
98. C. L. Zhao, Y. Dong, G. F. Gu, F. Wang, Y. J. Cai, O. Korotkova, "Experimental demonstration of coupling of an electromagnetic Gaussian Schell-model beam into a single-mode optical fiber", Appl. Phys. B 108, 891-895 (2012).
99. Z. Mei and O. Korotkova, "Random sources generating ring-shaped beams", Opt. Lett. 38, 91-93 (2013).
100. E. Shchepakina and O. Korotkova, "Canard explosion in chemical and optical systems," Discrete and Continuous Dynamical Systems B 18, 495-512 (2013).
101. Z. Mei, O. Korotkova, E. Shchepakina, "Electromagnetic multi-Gaussian Schell-model beams", J. Opt. 15, 025705 (2013).
102. Z. Mei, O. Korotkova, "Gradient-index waveguide lens systems for polarization modulation of random electromagnetic beams", Appl. Phys. B 110, 491-496 (2013).
103. E. Shchepakina and O. Korotkova, "Spectral Gaussian Schell-model beams", Opt. Lett. 38, 2233-2236 (2013).
104. O. Korotkova and E. Shchepakina, "Tuning the spectral composition of random beams in free space and in a turbulent

atmosphere", J. Opt. 15, 075714 (2013).
105. Z. Mei and O. Korotkova, "Cosine-Gaussian Schell-model sources", Opt. Lett. 38, 2578-2580 (2013).
106. Z. Mei, E. Shchepakina and O. Korotkova, "Propagation of Cosine-Gaussian Schell-model beams in atmospheric turbulence", Opt. Express 21, 17512-17519 (2013).
107. C. Nelson, S. Avramov-Zamurovic, O. Korotkova, R. Malek-Madani, R. Sova, F. Davidson, "Probability density functions of power-in-bucket and power-in-fiber for an infrared laser beam propagating in the maritime environment", Appl. Opt. 52, 7450-7461 (2013).
108. Z. Mei and O. Korotkova, "Electromagnetic cosine-Gaussian Schell-model beams in free space and atmospheric turbulence," Opt. Express 21, 27246-27259 (2013).
109. O. Korotkova, "Random sources for rectangular far fields", Opt. Lett.. 39, 64-67 (2014).
110. C. Ding, O. Korotkova, Y. Zhang, L. Pan, "Cosine-Gaussian correlated Schell-model pulsed beams," Opt. Express 22, 931-942 (2014).
111. Y. Chen, F. Wang, L. Liu, C. Zhao, Y. Cai and O. Korotkova, "Generation and propagation of a partially coherent vector beam with special correlation functions," Phys. Rev. A, 89, 013801 (2014).
112. C. Liang, X. Liu, F. Wang, Y. Cai and O. Korotkova, "Experimental generation of cosine-Gaussian-correlated Schell-model beams with rectangular symmetry", Opt. Lett. 39, 769-772 (2014).
113. S. Avramov-Zamurovic, O. Korotkova, C. Nelson, O. Korotkova and R. Malek-Madani, "The dependence of the intensity PDF of a random beam propagating in the maritime atmosphere on source coherence," Waves in Complex and Random media 24, 69-82 (2014).
114. Z. Tong and O. Korotkova, "Polarization of random beams scattered from two-dimensional bio-tissue slices," Opt. Commun. 332, 202-204 (2014).
115. O. Korotkova and E. Shchepakina, "Rectangular Multi-Gaussian Schell-Model beams in atmospheric turbulence," J. Opt. 16, 145704 (2014).
116. O. Korotkova, E. Shchepakina, "Random sources for optical frames," Opt. Express 22, 10622-10633 (2014).
117. C. Ding, O. Korotkova, and L. Pan, "The control of pulse profiles with tunable temporal coherence," Opt. Commun. 378, 1687-1690 (2014).
118. M. Yao, O. Korotkova, C. Ding, and L. Pan, "Position modulation with random pulses," Opt. Express 22, 16197-16206 (2014).
119. O. Korotkova, S. Sahin and E. Shchepakina, "Light scattering by three-dimensional objects with semi-hard boundaries," J. Opt. Soc. A 31, 1782-1787 (2014).
120. M. Yao and O. Korotkova, "Random optical frames in atmospheric turbulence," J. Opt. 16, 105713 (2014).
121. S. Avramov-Zamurovic, O. Korotkova, C. Nelson, and R. Malek-Madani, "Polarization-induced reduction in scintillation of optical beams propagating in simulated turbulent atmospheric channels," Waves in Random and Complex Media 24, 452-462 (2014).
122. Z. Mei, O. Korotkova and M. Yao, "Products of Schell-model cross-spectral densities," Opt. Lett. 39, 6879-6882 (2014).
123. M. Yao, I. Toselli and O. Korotkova, "Propagation of electromagnetic stochastic beams in anisotropic turbulence," Opt. Express, 22, 31608-31619 (2014).
124. S. Basu, M. W. Hyde IV, X. Xiao, D. G. Voelz, O. Korotkova, "Computational approaches for generating electromagnetic Gaussian Schell-model sources," Opt. Express 22, 31691-31707 (2014).
125. C. Ding, O. Korotkova and L. Pan, "Sinc Schell-model pulses," Opt. Commun. 339, 115-122 (2015).
126. O. Korotkova, "Design of weak scattering media for controllable light scattering," Opt. Lett. 40, 284-287 (2015).
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128. Z. Mei and O. Korotkova and M. Yao, "Powers of the degree of coherence," Opt. Express 23, 8519-8531 (2015).
129. O. Korotkova, "Can a sphere scatter light producing rectangular intensity patterns?" Opt. Lett. 40, 1709-1712 (2015).
130. I. Toselli and O. Korotkova, "General scale-dependent anisotropic turbulence and its impact on free space optical communication system performance," J. Opt. Soc. Am. A 32, 1017-1025 (2015).
131. I. Toselli, O. Korotkova, X. Xiao and D. G. Voelz, "SLM-based laboratory simulations of Kolmogorov and non-Kolmogorov anisotropic turbulence," Appl. Opt. 54, 4740-4744 (2015).
132. Z. Mei and O. Korotkova, "Alternating series of cross-spectral densities," Opt. Lett. 40, 2473-2476 (2015).
133. O. Korotkova and Z. Mei, "Convolution of degrees of coherence," Opt. Lett. 40, 3073-3076 (2015).
134. O. Korotkova, "Polarization changes in light beams trespassing anisotropic turbulence," Opt. Lett., 40, 3077-3080 (2015).
135. Z. Mei, O. Korotkova and M. Yao, "Source coherence-based far-field intensity filtering," Opt. Express 23, 24748-24758 (2015).
136. O. Korotkova and Z. Mei, "Random electromagnetic model beams with correlations described by two families of functions," Opt. Lett. 40, 5534-5537 (2015).
137. Z. Mei, D. Zhao, O. Korotkova and Y. Mao, "Gaussian Schell-model arrays," Opt. Lett. 40, 5662-5665 (2015).

138. S. Avramov-Zamurovic, C. Nelson, S. Guth, O. Korotkova and R. Malek-Madani, "Experimental study of electromagnetic Bessel-Gaussian Schell Model beams propagating in a turbulent channel," Opt. Commun. 359, 207-215 (2016).
139. C. Nelson, S. Avramov-Zamurovic, O. Korotkova, S. Guth, and R. Malek-Madani, "Scintillation reduction in pseudo Multi-Gaussian Schell-model beams in the maritime environment," Opt. Commun., 364, 145-149 (2016).
140. F. Wang and O. Korotkova, "Random sources for beams with azimuthal intensity variation," Opt. Lett., 41, 516-519 (2016).
141. F. Wang, O. Korotkova and I. Toselli, "Two spatial light modulator system for laboratory simulation of random beam propagation in random media," Appl. Opt. 55, 1112-1117 (2016).
142. Z. Mei and O. Korotkova, "Electromagnetic Schell-model sources generating far fields with stable and flexible concentric rings profiles," Opt. Express, 24, 5572-5583 (2016).
143. F. Wang and O. Korotkova, "Convolution approach for beam propagation in random media," Opt. Lett. 41, 1546-1549 (2016).
144. S. Avramov-Zamurovic, C. Nelson, S. Guth, O. Korotkova, R. Malek-Madani, "Flatness parameter influence on scintillation reduction for multi-Gaussian Schell-model beams propagating in turbulent air," Appl. Opt. 55, 3442-3446 (2016).
145. X. Xiao, D. Voelz, I. Toselli and O. Korotkova, "Gaussian beam propagation in anisotropic turbulence along horizontal links: theory, simulation and laboratory implementation," Appl. Opt. 55, 4079-4084 (2016).
146. J. Li and O. Korotkova, "Scattering of light from a stationary non-uniformly correlated medium," Opt. Lett. 41, 2616-2619 (2016).
147. O. Korotkova, "Propagation of polarized waves in inhomogeneous media: comment," J. Opt. Soc. Am. A 33, 1395 (2016).
148. F. Wang and O. Korotkova, "Random sources for beams with azimuthally varying polarization properties," Opt. Express 24, 15446-15455 (2016).
149. J. Li, F. Wang and O. Korotkova, "Random sources for cusped beams," Opt. Express 24, 17779-17791 (2016).
150. F. Wang and O. Korotkova, "Random optical beam propagation in anisotropic turbulence along horizontal links," Opt. Express 24, 24422-24434 (2016).
151. V. A. Soifer, O. Korotkova, S. N. Khonina, E. A. Shchepakina, "Vortex beams in turbulent media: Review," Comp. Opt. 40, 605-624 (2016).
152. X. Chen and O. Korotkova, "Scattering of light from particles with hollow semi-hard edge potentials," Comp. Opt. 40, 635-641 (2016).
153. Z. Mei and O. Korotkova, "Random sources for rotating spectral densities," Opt. Lett. 42, 255-258 (2017).
154. F. Wang and O. Korotkova, "Circularly symmetric cusped random beams in free space and atmospheric turbulence," Opt. Express 25, 5057-5067 (2017).
155. F. Wang, I. Toselli, J. Li and O. Korotkova, "Measuring anisotropy ellipse of atmospheric turbulence by intensity correlations of laser light," Opt. Lett. 42, 1129-1132 (2017).
156. O. Korotkova, L. Ahad and T. Setälä, "Three-dimensional electromagnetic Gaussian Schell-model sources," Opt. Lett. 42, 1792-1795 (2017).
157. X. Chen and O. Korotkova, "Probability density functions of instantaneous Stokes parameters on weak scattering" Opt. Commun. 400, 1-8 (2017).
158. J. Li and O. Korotkova, "Deterministic mode representation of random stationary media for scattering problems," J. Opt. Soc. Am. A 34, 1021-1028 (2017).
159. J. Li and O. Korotkova, "Random medium model for cusping of plane waves," Opt. Lett. 42, 3251-3254 (2017).
160. F. Wang, J. Li, G. Martinez-Piedra, and O. Korotkova, "Propagation dynamics of partially coherent crescent-like optical beams in free space and turbulent atmosphere," Opt. Express 25, 26055-26066 (2017).

WORK IN PROGRESS (DR KOROTKOVA'S STUDENTS ARE UNDERLINED)

1. M. W. Hyde IV, S. R. Bose-Pillai, and O. Korotkova, "Monte-Carlo simulations of three-dimensional electromagnetic Gaussian Schell-model sources," (Opt. Express, submitted).
2. X. Chen, J. Li, and O. Korotkova, "Scintillation index of light in biological tissue" (Opt. Lett., submitted).
3. O. Korotkova, "Polarization properties of three-dimensional electromagnetic Gaussian Schell-model sources" (Computer Opt. submitted).
4. J. Li, O. Korotkova, "Direct and inverse problems of weak scattering from 3D biological tissue" (J. Opt. submitted).
5. G. Martinez-Piedra, J. Li and O. Korotkova, "The Back-Scatter Enhancement (EBS): jet-stream versus distributed turbulence" (in preparation).
6. J. Li, T. Setälä and O. Korotkova, "Radiation from 3D EM Gaussian Schell-model sources" (Opt. Lett. in preparation).
7. O. Korotkova, "Modeling of novel 3D EM random sources" (in preparation).
8. I. Toselli, F. Wang and O. Korotkova, "Propagation theory of LIDAR systems operating in non-Kolmogorov turbulent

atmosphere" (Waves in Random and Complex Media, submitted).
9. O. Korotkova, "Optical beams in natural random media: atmosphere, oceans and soft bio-tissues" (Progress in Optics, invited).

PUBLICATIONS IN PROCEEDINGS (DR KOROTKOVA'S STUDENTS ARE UNDERLINED)

1. O. Korotkova, L. C. Andrews, "Speckle propagation through atmospheric turbulence: effects of partial coherence of the target", Proc. SPIE 4723, 73-84 (2002).
2. O. Korotkova, L. C. Andrews, R. L. Phillips, "Speckle propagation through atmosphere: effects of a random phase screen at the source", Proc. SPIE 4821, 98-109 (2002).
3. O. Korotkova, L. C. Andrews, R. L. Phillips, "Phase diffuser at the transmitter for the Lasercom link: effect of partial coherence on Bit-Error Rates", Proc. SPIE 4976, 70-77 (2003).
4. O. Korotkova, L. C. Andrews, R. L. Phillips, "Laser radar in turbulent atmosphere: effect of target with arbitrary roughness on second and fourth order statistics of Gaussian beam", Proc. SPIE 5086, 173-183 (2003).
5. O. Korotkova, L. C. Andrews, R. L. Phillips, "The effect of partially coherent quasi-monochromatic Gaussian-beam on the probability of fade", Proc. SPIE 5160, 68-77 (2003).
6. O. Korotkova, L. C. Andrews, R. L. Phillips, "Lidar model for a rough-surface target: Method of partial coherence", Proc. SPIE 5237, 49-60 (2003).
7. O. Korotkova, L. C. Andrews and R. L. Phillips, "A lidar model for a rough-surface target: method of partial coherence," SPIE Proc. 5237, 49-60 (2004).
8. O. Korotkova, "Control of the intensity fluctuations of random electromagnetic beams on propagation in weak atmospheric turbulence", Proc. SPIE 61050V (2006).
9. O. Korotkova and G. Gbur, "Propagation of beams of any spectral, coherence and polarization properties in turbulent atmosphere", Proc. SPIE. 64570J (2007).
10. O. Korotkova, "The effect of the jet-stream on the intensity of laser beams propagating along slanted paths in the upper layers of the turbulent atmosphere", SPIE Proc. 6878, J8780 (2008).
11. S. Sahin and O. Korotkova, "Fluctuations in the instantaneous Stokes parameters of stochastic electromagnetic beams propagating in the turbulent atmosphere" SPIE Proc. 720005 (2009).
12. J. Cordray, E. Watson, I. Anisimov, O. Korotkova, "Speckle-field simulator characterization" SPIE Proc. 72000Q (2009).
13. F. Wang, Y. Cai, O. Korotkova, "Ghost imaging with partially coherent light in turbulent atmosphere", SPIE Proc. 75880F (2010).
14. H.T. Eyyuboglu, Y. Baykal, C. Z. Cil, O. Korotkova, Y. Cai, "Beam wander characteristics of flat-topped, dark hollow, cos and cosh-Gaussian, J-0 and I-0 Bessel Gaussian beams propagating in turbulent atmosphere: a review", SPIE Proc. 75880N (2010).
15. O. Korotkova, N. Farwell, "Polarization changes in stochastic electromagnetic beams propagating in the oceanic turbulence", SPIE Proc. 75880S (2010).
16. C. Nelson, S. Avramov-Zamurovic, O. Korotkova, R. Malek-Madani, "PDF computations for power-in-the-bucket measurements of an IR laser beam propagating in the maritime environment", SPIE Proc. 80380G (2011).
17. Z. Tong, O. Korotkova, "Far-field scattering of random electromagnetic fields from particulate media", SPIE Proc. 8021, 80211Y (2011).
18. Z. Tong and O. Korotkova, "Hybrid technique for propagation and scattering from random medium containing random distribution of particles," SPIE Proc. 79240N (2011).
19. O. Korotkova, S. Avramov-Zamurovic, C. Nelson, R. Malek-Madani, "Probability density function of partially coherent beams propagating in the atmospheric turbulence", Proc. SPIE. 82380J (2012).
20. Z. Tong and O. Korotkova, "Electromagnetic scattering from biological tissue" Proc. SPIE 85531I (2012).
21. C. Nelson, S. Avramov-Zamurovic, R. Malek-Madani, O. Korotkova, R. Sova, F. Davidson, "Measurements and comparison of the probability density and covariance functions of laser beam intensity fluctuations in a hot air turbulence emulator with the maritime environment" Proc. SPIE. 851707 (2012).
22. C. Nelson, S. Avramov-Zamurovic, R. Malek-Madani, O. Korotkova, R. Sova, F. Davidson, "Measurements of partially spatially coherent laser beam intensity fluctuations propagating through a hot-air turbulence emulator and comparison with both terrestrial and maritime environments", Proc. SPIE 86100T (2013).
23. O. Korotkova, S. Avramov-Zamurovic, C. Nelson, Y. Gu, G. Gbur and R. Malek-Madani, "Scintillation reduction in multi-Gaussian Schell-model beams propagating in atmospheric turbulence," Proc. SPIE UNSP 92240M (2014).
24. N. Farwell and O. Korotkova, "Multiple phase-screen simulation of oceanic beam propagation," Proc. SPIE 922416 (2014).
25. X. Xiao, O. Korotkova and D. Voelz, "Laboratory implementation of partially coherent beams with super-Gaussian distribution" Proc. SPIE 922440 (2014).
26. I. Toselli and O. Korotkova, "Optical turbulence with anisotropy at different scales and its effect on laser beam

propagation along vertical paths", Proc. SPIE 9450P (2015).
27. I. Toselli and O. Korotkova, "Spread and wander of a laser beam propagating through anisotropic turbulence" Proc. SPIE 96140B (2015).
28. I. Toselli and O. Korotkova, "Double-passage propagation of laser beams in non-Kolmogorov turbulence," IEEE Aerospace Conference Proc. 25164 (2016).
29. I. Toselli, F. Wang and O. Korotkova, "Controlled simulation of optical turbulence in a temperature gradient air chamber," Proc. SPIE 98330C (2016).
30. F. Wang, I. Toselli, J. Li and O. Korotkova, "Finding Anisotropic Ellipse of Turbulence Fluctuations from Beam Intensity Correlations", IEEE Proc. of Aerospace Conference AERO 2017 (2017).

CONFERENCE PRESENTATIONS AND COLLOQUIUM TALKS

1. AeroSense: SPIE Meeting (April, 2002, Orlando, FL). Contributed talk "Speckle propagation through atmospheric turbulence: effects of partial coherence of the target".
2. 47th SPIE Annual Meeting (July, 2002, Seattle, WA). Contributed talk "Speckle propagation through atmosphere: effects of a random phase screen at the source".
3. Photonics West SPIE Meeting (January, 2003, San Jose, CA). Contributed talk: "Phase diffuser at the transmitter for Lasercom link: effect of partially coherent beam on the Bit-Error Rates".
4. AeroSense SPIE Meeting (April, 2003, Orlando, FL). Contributed talk: "LIDAR in turbulent atmosphere: effect of target with arbitrary roughness on II and IV - order statistics of Gaussian beam"
5. 48th SPIE Annual Meeting (August, 2003, San Diego, CA) Contributed talk: effects of partially coherent quasi-monochromatic Gaussian-beam on probability of fade".
6. AeroSense Europe SPIE Meeting (September, 2003, Barcelona, Spain) Invited talk: "A Lidar model for a rough-surface target: method of partial coherence" (jointly with Prof. L.C. Andrews and Prof. R.L. Phillips).
7. Kirtland Army Research Laboratory (February, 2004, Albuquerque, NM). Invited talk: "Polarization changes in partially coherent electromagnetic beams propagating through atmospheric turbulence".
8. Workshop on Coherence and Polarization (May, 2004, Orlando, FL). Invited talk: "Spectral degree of coherence of three-dimensional random electromagnetic beams", Invited talk: "Electromagnetic beam propagation: effects of source coherence and atmosphere on the degree of polarization".
9. OSA Annual Meeting (October 2004, Rochester, NY). Invited talk: "Electromagnetic beam propagation in free space and in turbulent atmosphere: changes in polarization". Contributed talk "Spectral degree of coherence of a random three-dimensional electromagnetic field".
10. AFOSR/AFRL Electromagnetics Workshop (January 2005, San-Antonio, TX). Invited talk: "Propagation of the state of polarization of a random electromagnetic beam in free space and in turbulent atmosphere" (jointly with Prof. E. Wolf).
11. Defense and Security, SPIE meeting (March 2005, Orlando, FL). Invited talk: "Electromagnetic beam propagation in turbulent atmosphere: changes in polarization" (jointly with Prof. E. Wolf).
12. The Japan Society of Applied Physics, JSAP, (March 2005, Tokyo, Japan). Contributed talk: "A method of generating electromagnetic Gaussian Schell-model beams" (jointly with Dr. T. Shirai and Prof. E. Wolf).
13. Optics Center Seminar, University of Charlotte (April 2005, Charlotte, NC). Invited talk: "Applications of the Unified theory of Coherence and Polarization".
14. OSA COSI (June 2005, Charlotte, NC). Contributed paper: "A method of generating electromagnetic Gaussian Schell-model beams" (jointly with Dr. T. Shirai and Prof. E. Wolf).
15. 50th SPIE Annual Meeting (July 2005, San Diego, CA). Contributed talk: "The Dependence of Far-Field Polarization on Field Correlations of Uniformly-Polarized Quasi-homogeneous Sources" (jointly with Dr. B. Hoover, Dr. V. Gamiz and Prof. E. Wolf).
16. OSA Annual Meeting (October 2005, Tuscon, AZ). Contributed talk: "Realizability conditions and synthesis of electromagnetic Gaussian Schell-model sources" (jointly with H. Roychowdhury, Dr. T. Shirai and Prof. E. Wolf). Contributed talk: "Coherence and polarization of far-fields generated by quasi-homogeneous EM sources", (jointly with Dr. B. Hoover, Dr. V. Gamiz and Prof. Emil Wolf). Contributed talk: "Generalized Jones-Mueller polarization calculus" (jointly with Prof. E. Wolf).
17. AFOSR/AFRL Electromagnetics Workshop (January 2006, San Antonio, TX). Invited poster presentation: "Generalized Jones-Mueller polarization calculus"
18. Photonics West SPIE Meeting (January 2006, San Jose, CA) Contributed paper: "Control of the intensity fluctuations of random electromagnetic beams on propagation in weak atmospheric turbulence"
19. Defense and Security, SPIE meeting (April 2006, Orlando, FL). Contributed paper: "Intensity fluctuations of stochastic electromagnetic beams propagating through the atmosphere"
20. AFOSR/AFRL meeting (May 2006, Tucson, AZ) Invited talk: "Partially coherent light beams and their uses in atmospheric propagation" (jointly with Prof. E. Wolf).

21. OSA Annual Meeting (October 2006, Rochester, NY). Contributed talk: "Scintillation index of a stochastic electromagnetic beam propagating in turbulent atmosphere", Contributed poster: "Angular spectrum representation for beams propagating through atmospheric turbulence" (jointly with Dr. G. Gbur) Contributed talk: "Spectral changes of random electromagnetic beams", (jointly with Prof. J. Pu and Prof. E. Wolf) Contributed talk: "Can two sources with the same Stokes parameters generate beams with different degrees of polarization?" (jointly with M. Salem and Prof. E. Wolf).
22. AFOSR/AFRL Electromagnetics Workshop (January 2007, San Antonio, TX).
    Invited poster presentation: "Fluctuations in the instantaneous Stokes parameters of random electromagnetic beams propagating in free-space".
23. Photonics West SPIE Meeting (January 2007, San Jose, CA) Contributed paper: "Angular spectrum representation for beams propagating through atmospheric turbulence" (jointly with Dr. G. Gbur).
24. PIERS2007 (March, 2007, Beijing, China) Contributed paper: "Spectral Changes of Stochastic Electromagnetic Beams on Propagation in Turbulent Atmosphere" (jointly with J. Pu, L. Shi, Z. Chen, T. Wang, Huaqiao University, China and Prof. E. Wolf).
25. Quantum optics seminar (March 2007, Department of Physics, University of Toronto, Canada). Invited talk: "Stochastic beams: theory and applications".
26. Optics Seminar series (March 2007, Laval University, Quebec, Canada) Invited talk: "Stochastic beams: theory and applications".
27. Seminar Series (April 2007, Department of Aerospace Engineering, Arizona State University, TX) Invited talk: "Stochastic beams: theory and applications".
28. Seminar Series (April 2007, Department of Physics, University of Miami, FL) Invited talk: "Stochastic beams: theory and applications".
29. Coherence and Quantum Optics: OSA topical meeting (June 2007, Rochester, NY) Contributed talk: "Scattering matrix theory for stochastic fields" (jointly with Prof. E. Wolf).
30. Frontiers in Optics: OSA annual meeting (September 2007, San Jose, CA) Contributed talk: "Beam criterion for propagation in atmospheric turbulence" (jointly with Prof. E. Wolf) Contributed talk: "Definitions of the degree of polarization of a light beam" (jointly with A. Al-Qasiami, Dr. D.F.V. James and Prof. E. Wolf)
31. Graduate Student Seminar of the Department of Physics (November 2007, Miami, FL) Talk: "Interaction of random light fields with deterministic and random media".
32. Workshop at Air Force Research Lab (December 2007, Dayton, OH) Invited talk: "Random Electromagnetic Beams for Laser Radars Operating in Atmospheric Turbulence".
33. Electro-magnetics Workshop (January 2008, San-Antonio, TX) Invited poster presentation: "The effect of a jet-stream and gravity waves on characteristics of a Gaussian beam propagating in upper layers of a turbulent atmosphere."
34. Photonics West, SPIE meeting (January 2008, San Jose, CA) Contributed talk: "Spectral changes in EM stochastic beams propagating in the atmosphere" Contributed poster: "The effect of a jet-stream and gravity waves on characteristics of a Gaussian beam propagating in upper layers of a turbulent atmosphere" Contributed poster: "Beam criteria for atmospheric propagation."
35. Seminar Series of the Department of Mathematics (February 2008, Orlando, FL) Invited talk: "Theory and applications of stochastic beams."
36. TCATS: AFOSR workshop (March 2008, Dayton, OH) Invited talk: "Mitigation of atmospheric effects by means of partial polarization."
37. EOS Annual Meeting (September 2008, Paris, France) Contributed talk: "Application of the SLMs for atmospheric propagation problems."
38. OSA Annual Meeting (October 2008, Rochester, NY) Contributed Talk: "Scattering of random fields from random collections of particles" (jointly with S. Sahin) Contributed Talk: "Application of spectral shifts for inverse scattering" (jointly with D. Zhao and E. Wolf).
39. Electromagnetics Workshop (January, 2009, San Antonio, TX) Invited Talk: "Active Laser Radar Systems with EM partially coherent beams"
40. Photonics West (January 2009, San Jose, CA) Contributed Talk: "Fluctuations in Stokes parameters of stochastic EM beams in turbulent atmosphere" (jointly with S. Sahin) Contributed Poster: "Cross-polarization of random beams on propagation in free space and in the atmosphere" (jointly with S. Sahin, G. Zhang, J. Pu) Contributed poster: "Speckle-field simulator characterization" (jointly with J. Cordray, E. Watson and I. Anisimov)
41. Department of Mathematics Seminar Series, US Navy Academy (Annapolis, MD, March 2009) Invited talk: "Atmospheric Applications of Random Electromagnetic fields".
42. Defense and Security SPIE meeting (Orlando, FL, April 2009) Contributed talk: "Coherence and polarization properties of returns in active laser radar systems" (jointly with S. Sahin, Z. Tong).
43. "Partial EM coherence and 3D polarization" Workshop (Koli, Finland, May 2009) Invited talk: "Use of coherence and polarization of light in communications and remote sensing through atmospheric turbulence"
44. "Waves in Complex Media" workshop (University of Irvine, Yontville, CA, June 2009) Invited talk: "Propagation of

stochastic electromagnetic fields in atmospheric turbulence with applications for free space optical communication systems and LIDARs"

45. Department of Physics Seminar Series (University Roma Tre, Rome, Italy, July 2009) Invited talk: "Statistical optics of natural environments"
46. Graduate Student Seminar of the Department of Physics (September 2009, Miami, FL) Talk: "Interaction of random EM fields with natural random media".
47. OSA Annual Meeting (San Jose, CA, October, 2009) Invited talk: "Modulation of polarization properties of beams for LaserCom and LIDAR systems operating in random media"
48. AROSR Electromagnetics Workshop (San Antonio, TX, January, 2010), Invited talk: "Ghost imaging through turbulent atmosphere".
49. SPIE symposium "Photonics West" (San Francisco, CA, January, 2010), Contributed poster: "Polarization changes in random electromagnetic beams propagating in the oceanic turbulence" (jointly with N. Farwell), Contributed talk: "Comparison of fractional powers of several classes of beams" (jointly with S. Sahin, R. Malek-Madani, Y. Cai), Contributed talk: "Spectral changes and spectral switches in stochastic EM beams in negative phase materials" (jointly with Z. Tong), Contributed talk: "Ghost imaging in turbulent atmosphere" (jointly with Y. Cai).
50. Undergraduate Research Atlantic Coast Conference "Meeting of the Minds" (Georgia Institute of Technology, Atlanta, GA, April 2010). Contributed poster: "Polarization and intensity correlations in stochastic electromagnetic beams upon interaction with devices of polarization optics" (jointly with Hilary Jacks).
51. Department of Technical Cybernetics, Samara State Aerospace University, Russia (May 2010). Invited talk: "Interaction of stochastic electromagnetic beams with natural media".
52. Department of Physics, Soochow University, China (July 2010). Invited talk: "Interaction of stochastic electromagnetic beams with natural media".
53. ONR workshop, Annapolis MD (July 2010). Invited paper: "Estimating intensity probability density function for maritime environment at United States Naval Academy" (jointly with S. Avramov-Zamurovic).
54. Department of Physics, Florida Atlantic University (October 2010). Invited talk: Random optical beams in random media"
55. OSA annual meeting, Rochester, NY (October 2010). Contributed paper: "Far-field analysis of Gaussian-Schell-model beams" (jointly with Z. Tong).
56. DEPS annual conference, Bethesda, MD (November 2010). Contributed paper: "Laser beam experiments in maritime environment" (jointly with S. Avramov-Zamurovic and R. Malek-Madani).
57. Southeast Conference for Undergraduate Women in Physics (January 2011). Contributed paper: "Fourth-order moments of the optical field produced upon scattering" (jointly with H. Jacks).
58. SPIE symposium "Photonics West" (San Francisco, CA, January, 2011), Contributed paper: "Hybrid technique for propagation and scattering from random medium containing random distribution of particles" (jointly with Z. Tong), Contributed paper: "Spectral, coherence, and polarization properties of beam-like optical fields propagating in non-Kolmogorov atmospheric turbulence" (jointly with E. Shchepakina), Contributed paper: "Probability density function of fluctuating intensity of laser beam propagating in marine atmospheric turbulence" (jointly with S. Avramov-Zamurovic and R. Malek-Madani).
59. PIERS symposium (Marrakesh, Morocco, March 2011) Contributed paper: "Propagation of Random Electromagnetic Beams in Non-Kolmogorov Atmospheric Turbulence" (jointly with E. Shchepakina).
60. SPIE Defense and Security Symposium (Orlando, FL, April 2011) Contributed poster: Far-field scattering of random electromagnetic fields from particulate media (jointly with Z. Tong); Contributed paper: Interaction of stochastic electromagnetic beams with human eye (jointly with S. Sahin); Contributed paper: "PDF computations for power-in-the-bucket measurements of an IR laser beam propagating in the maritime environment" (jointly with C. Nelson, R. Malek-Madani, S. Avramov-Zamurovic, R. Sova, F. Davidson).
61. DEPS Beam Control Conference, (Orlando, FL, May 2011). Contributed talk: "Experimental study of the probability density function of the intensity of a turbulence-induced fluctuating laser beam" (jointly with R. Malek-Madani, S. Avramov-Zamurovic, J. Watkins, W. Peabody and A. Browning).
62. OSA Topical Meeting on FSO Communications (Toronto, Canada, July 2011). Invited talk: "Stochastic electromagnetic beams for sensing and free-space communications".
63. International Conference "Differential Equations and Related Topics" dedicated to 110-th Anniversary of I. G. Petrovskii (Moscow, Russia, May-June, 2011). Contributed talk: "Control of the canard explosion in a semiconductor optical amplifier" (jointly with E. Shchepakina).
64. OSA Annual Meeting (San Jose, CA, October 2011). Invited talk: "Optical wave propagation through oceanic turbulence", Contributed talk: "Momentum of light scattered from collections of particles" (jointly with Z. Tong), Contributed talk: "Light scattering from deterministic and random media with semi-soft boundaries" (jointly with S. Sahin).
65. SPIE symposium "Photonics West" (San Francisco, CA, January, 2012) Contributed paper: "Laser light propagation in oceanic turbulence" (jointly with N. Farwell), Contributed paper: "Probability density function of partially coherent

beams propagating in the atmospheric turbulence" (jointly with C. Nelson, R. Malek-Madani, S. Avramov-Zamurovic).

66. USNA Directed Energy workshop (Annapolis MD, August 2012) Invited paper: "PDF of random beams in turbulent atmosphere" (jointly with C. Nelson, R. Malek-Madani, S. Avramov-Zamurovic), Invited paper: "Optical beams for atmospheric propagation", Invited paper: "Beam propagation in oceanic turbulence" (jointly with N. Farwell).
67. AFOSR MURI workshop on Deep Atmospheric Optical Turbulence Physics and Predictive Modeling (Univ. of Dayton, October 2012) Invited paper: "Stochastic electromagnetic beams propagation in deep turbulence".
68. Innovative Pedagogy Exchange Workshop (University of Miami, October 12). Invited talk: "Using PhysLets in college physics courses".
69. SPIE Symposium "Photonics West" (San Francisco, CA, Jan 2013): "Measurements of partially spatially coherent laser beam intensity fluctuations propagating through a hot-air turbulence emulator and comparison with both terrestrial and maritime environments" (jointly with C. Nelson, S. Avramov-Zamurovic, R. Malek-Madani, R. Sova and F. Davidson)
70. Luoyang Normal University, China, 10 June, 2013. Invited lecture: "Weak scattering of scalar and electromagnetic random fields".
71. OSA Topical Meeting, "Propagation Through and Characterization of Distributed Volume Turbulence, Arlington, VA June 26, 2013 MURI (PW3F) (jointly with E. Shchepakina), "Manipulation of Spectral Composition of a Random Beam in Turbulent Atmosphere"
72. MURI: Wave Optics of Deep Atmospheric Turbulence, Annual Review Meeting, Arlington, VA June 27, 2013. "Novel Random Light Sources for Long-Distance Atmospheric Propagation",
73. SPIE Symposium "Atmospheric Optics and/or Free-Space Laser Communications conference" (San Diego, CA August 2013): "Propagation of J_0-Bessel Correlated Beams in Weak Atmospheric Turbulence" (jointly with C. Nelson, S. Avramov-Zamurovic, D. Whitsett, R. Malek-Madani).
74. MURI group workshop (Univ. of Miami, FL, November 2013) "Recent advances of the optical propagation theory in deep turbulence".
75. The First Joensuu Conference on Coherence and Polarization (Joensuu, Finland, June 2014) Invited talk: "Correlation shape diversity of random beams;" Contributed poster: "Random optical frames in space and time domains" (jointly with E. Shchepakina).
76. OSA Imaging Congress (Seattle, VA, July 2014), Invited talk: "Intensity and Power Statistics of Laser and Random Beams in Non-Kolmogorov Turbulence"; Contributed talk: "Laboratory Investigation of the Spectral Exponent Effect on Scintillation in Non-Kolmogorov Turbulence" (jointly with X. Xiao and D. Voelz);
77. MURI Workshop, Dayton OH July 2014, Invited talk: "Theoretical and Experimental Studies of Light Propagation in Non-Kolmogorov Turbulence and Scattering from Particles"
78. SPIE Symposium, San Diego, CA, August 2014; Contributed talk: "Laboratory implementation of partially coherent beams with super-Gaussian distribution" (jointly with X. Xiao and D. Voelz); Contributed talk: "Scintillation reduction in multi-Gaussian Schell-model beams propagating in atmospheric turbulence" (jointly with Y. Gu, G. Gbur, S. Avramov-Zamurovic, C. Nelson, R. Malek-Madani); Contributed talk: "Simulation of light propagation in oceanic turbulence" (jointly with N. Farwell).
79. Physics Department, University of Rochester, NY, September 2014, Colloquium Series, Invited talk: "Random Beams: Theory, Simulations, Experiments and Applications".
80. Physics Department, Florida International University, FL, November 2014, Colloquium Series, Invited talk: "Stochastic optical beams: from mathematical modeling to applications".
81. MURI Semiannual Workshop, Miami, FL, March 2015, Invited talk: "Anisotropic turbulence: up/down link analysis of coherent and random beams; Calculus of mutual coherence functions of random sources and fields"
82. Atmospheric Propagation XII, Baltimore, April 2015, Contributed talk: "Optical anisotropy at different scales and its effect on laser beam propagation along vertical paths" (jointly with I. Toselli).
83. OSA Imaging Congress, Arlington, VA, June 2015, Invited Talk: "Deterministic and random beam propagation in anisotropic turbulence", Contributed talk: "SLM-based laboratory investigation of scintillation in anisotropic turbulence" (jointly with I. Toselli, X. Xiao and D. Voelz); Contributed talk: "Modeling the electromagnetic Gaussian Schell-model source" (jointly with D. Voelz, X. Xiao, and M. Hyde).
84. MURI Annual Workshop, Arlington, VA, June 2015, Invited Talk: "Modeling of the correlation functions with anisotropic statistics for random beams, extended media and particles;" Invited talk: "Mitigation of non-Kolmogorov turbulence by specially designed beams".
85. PIERS Symposium, Prague, Czech Republic, July 2015, Contributed Talk: "Modeling of random media for controlled light scattering"
86. USNA, Annapolis, MD, July 2015, Invited Talk: "Modeling of random media for controlled light scattering"
87. SPIE Symposium, San Diego, CA, August 2015, Contributed Talk: "Spread and wander of a laser beam propagating through anisotropic atmospheric turbulence" (jointly with I. Toselli).
88. IEEE Aerospace Conference 2016, Big Sky, MO, March 2016, Contributed Talk: "Double-passage propagation of laser

beams through non-Kolmogorov and anisotropic turbulence" (jointly with I. Toselli).

89. SPIE Symposium, Baltimore, MD, April 2016, Contributed talk: "Controlled simulation of optical turbulence in a temperature gradient air chamber (jointly with F. Wang and I. Toselli).
89. MURI Semiannual Workshop, Dayton, OH, April 2016, Invited talk: "Convolution approach for analytical and numerical calculations of beam propagation in turbulence.
91. Optics & Photonics Days of Finland, Tampere, Finland, May 2016. Invited Talk: "Modeling and generation of random beams with azimuthal symmetry" (jointly with F. Wang).
92. OSA Imaging Congress, Arlington, VA, June 2016, Invited Talk: "Deterministic and random beam propagation in anisotropic turbulence along the horizontal paths."
93. MURI Annual Workshop, Arlington, VA, June 2016, Invited Talk: "Exotic random beam modeling for mitigation of deep turbulence".
94. Samara State Aerospace University, Samara, Russia, July 2016, Invited talk: "Free-space optical communications with source coherence and polarization diversity".
95. University of Maryland, Baltimore, MD, October 2016, Invited lecture: "Human Eye Vision", under NEXUS grant.
96. MURI semiannual workshop, Dayton OH, November 2016, Invited talk: "Measuring Anisotropy Ellipse of Atmospheric Turbulence by Intensity Correlations of Laser Light."
97. 1st European workshop on Biophotonics and Optical Angular Momentum BIOAM-2016, Ecole Polytechnique, Paris, France, November 2016, Invited talk: "Modeling and generation of random optical fields with vortex structures for bio-medical applications."
98. Department of Physics, University of South Florida, Tampa, FL, February 2017, Invited talk: "Structured light coherence"
99. IEEE Aerospace Conference 2017, Big Sky, MO, March 2017, Contributed Talk: "Finding Anisotropic Ellipse of Turbulence Fluctuations from Beam Intensity Correlations" (jointly with F. Wang, J. Li and I. Toselli).
100. OSA Imaging Congress, San Francisco, CA, June 2017, Invited Talk: "LIDAR Systems Operating in Non-Classic Atmospheric Turbulence: Theory and Wave-Optics Simulations" (jointly with F. Wang and I. Toselli).
101. MURI Final Workshop, Washington, DC, October 2017, Invited Talk: "Designing radially accelerating random beams for propagation in deep atmospheric turbulence".
102. Pontificia Universidad Catolica de Valparaiso, Chile, December 2017, Invited course: "Atmospheric Optics".
103. First International Conference on Optics, Photonics and Lasers (OPAL), Barcelona, Spain, May 2018, Keynote talk: "Structured electromagnetic coherence: theory and applications".
104. Workshop on EM Coherence and Polarization, Joensuu, Finland, June 2018, Invited talk: TBA.

PROFESSIONAL MEETINGS ATTENDED

1. Workshop "Inverse problems" (May 2005, University of North Carolina, Charlotte, NC)
2. Workshop "Radar Imaging" (May 2008, Dallas, TX)
3. "New physics and astronomy faculty workshop" (June 2008, Baltimore, MD)
4. Workshop, Mc Graw-Hill, "New generation of physics textbooks" (Feb 2009, Napa Valley, CA).
5. Workshop, AFOSR, "Theory and Applications of Ghost Imaging" (May 2010, Baltimore, MD).
6. NSF Seminar Series, "High-power laser-beam interaction with materials" (June 2010, NWU, Chicago, IL).
7. NEXUS Workshop, "Developing bio-oriented curriculum for premed physics courses" (Jan 2012, University of Maryland, Washington DC).
9. NEXUS Capstone Workshop (Feb 2015, University of Miami, FL).
10. "Experienced physics and astronomy faculty workshop" (March 2016, Baltimore, MD)

SERVICE TO JOURNALS AND PROFESSIONAL SOCIETIES

Topical Editor for: Optics Letters, Optical Society of America (2010-2016) 6 years - max term
Member of Editorial Board for: Journal of Optics, European Optical Society (2014-present)
Member of Editorial Board for: Computer Optics, Samara State Aerospace University (2016-present)
Member of Editorial Board for Electronic Journal of EOS: Rapid Communications (2006-2010)
Member of Organizing Committee for the 2011 OSA Annual Meeting, 2013-2015 Photonics West SPIE Conference
Conference co-chair at SPIE symposium "Photonics West", "Free-Space Laser Communication Technologies XIX and Atmospheric Propagation of Electromagnetic Waves I", (San Jose CA, Jan 2007, jointly with S. Mecherle)
Conference chair (sole) at SPIE symposium "Photonics West":
"Atmospheric propagation of electromagnetic waves II" (San Jose, CA, Jan 2008),
"Atmospheric propagation of electromagnetic waves III" (San Jose, CA, Jan 2009)
"Atmospheric and oceanic propagation of electromagnetic waves IV" (San Francisco, CA, Jan 2010)
"Atmospheric and oceanic propagation of electromagnetic waves V" (San Francisco, CA, Jan 2011)

"Atmospheric and oceanic propagation of electromagnetic waves VI" (San Francisco, CA, Jan 2012)
Host: Technical Session of Atmospheric Propagation and Laser Communication group at "Photonics West" SPIE symposium (San Jose, CA, Jan 2008, Jan 2009; San Francisco, Jan 2010)
Paper Reviewer: Physical Review Letters, Physical Review A, Journal of Optical Society of America A, Applied Optics, Optics Express, Optics Letters, Journal of Biomedical Optics, Optics Communications, Waves in Random and Complex media, Optical Engineering, Photonics Technology Letters, Applied Physics B, Journal of Geophysical Research – Oceans. **Grant Reviewer:** AFOSR, NASA.

SERVICE TO THE UNIVERSITY OF MIAMI

Supervisor of Ph.D. students: S. Sahin (2012), Z. Tong (2013), N. Farwell (2014), X. Chen (exp. 2019), J. Li (exp. 2019)
Dissertation committee member of Ph.D. candidates: P. Bhandari (UM Physics), R. Aryal (UM Physics), R. Delgadillo (UM Physics), J. Guomin (UM Engineering); Supervisor of undergraduate students: H. Jacks (2010), J. Reimers (2011), A. Avramovich (2016); Supervisor of high-school students: G. Martinez-Piedra (2017). Opponent for Ph. D. thesis: L. Mokhtarpour, Dalhousie University, Halifax, Canada (January 2016); L.-P. Leppänen, Eastern University of Finland, Joensuu, Finland (May 2016)
The member of the Graduate Admission Committee (2007-2012)
The organizer of the Optics Seminar (Spring 2009 - Spring 2013)
The organizer of the Department of Physics Colloquium (Fall 2010 - present)
Contributor for the UM NEXUS project (Fall 2011 – present) developed 3 case studies, gave invited lectures at NEXUS participating universities (UM, Spring 2016, University of Maryland, Fall 2016)
Panel contributor for forty 8th graders from Winston Park K-8 Center (April 30, 2013)
Member of UM Independent Major Proposal Committee (Spring 2013)
Panel contributor for the new faculty workshop (August 2013)
A member of the UM major disciplinary committee (Fall 2013 – Spring 2014) 4 panels
The Chair of the Graduate Admissions Committee (Fall 2012-present)
A member of Physics Department faculty search committee (2013-2014, 2015-2016)
A member of Chemistry Department faculty search committee (2014-2015)
A member for Dean of Graduate School search committee (2015-2016)
Chair of the Physics Department Faculty search committee in optics (2016-2017)
CAS committee for Provost Research Awards selection (Fall 2017)

AWARDS and HONORS

Honorary State Assistantship, Samara State University, 1994-1999
Teaching Award, University of Central Florida, 2001
Merit Award, University of Central Florida, 2002
Scholarly and Creative Activities Award, College of Arts and Sciences, Univ. of Miami, May 2010.

CITATION RESULTS (as of 20 September 2017)

Source/Metrics	Web of Science	Scopus	Google Scholar
Times cited/without self citations	4380/3495	5099/4127	5921/NA
Citing articles/without self citations	1423/1267	1721/NA	NA
Average citation per item	23.42	23.28	NA
Number of citations for year 2016	674	749	865
H-index	40	42	45
Highly cited papers (top 1% in physics)	## 91, 99	## 91, 95, 99, 105, 111, 112	N/A

TEACHING EVALUATION RESULTS (Fall 2007 – Summer 2017)

All Courses 4.3	Graduate Courses 4.5	Undergraduate Lectures 4.0	Discussions 4.4