Dr. OLGA KOROTKOVA

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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)