

**ADDRESS**

Department of Physics and the Center for Optical, Molecular and Quantum Science  
University of Oregon, Eugene, OR 97403

**PROFESSIONAL EXPERIENCE**

Knight Professor of Liberal Arts and Sciences, University of Oregon; 2006 – present  
Visiting Fellow, JILA, NIST and Univ. of Colorado, 1998 - 1999.  
Director, Center for Optical, Molecular and Quantum Science, University of Oregon, Eugene, Oregon;  
1997 – 1998; 2002-03.  
Visiting Scientist, Norwegian Defense Research Establishment, Kjeller, Norway, 1996.  
Professor of Physics, Department of Physics, University of Oregon; 1990 – present  
Associate Professor of Physics, Department of Physics, University of Oregon, Eugene, Oregon;  
1988 - 1990.  
Associate Professor of Optics, The Institute of Optics, University of Rochester, Rochester,  
New York; 1983 - 1988.  
Assistant Professor of Optics, The Institute of Optics, University of Rochester, Rochester,  
New York; 1979 - 1983.  
Research Assistant, Joint Institute for Laboratory Astrophysics, University of Colorado and National  
Bureau of Standards; 1975 - 1979.

**EDUCATION**

Ph.D., Chemical Physics, University of Colorado, Boulder, 1979.  
B.A., Chemistry and Physics, University of California, Santa Cruz, 1974.

**RESEARCH INTERESTS**

Quantum optics and optical physics: quantum information; quantum statistics in nonlinear optical  
processes; quantum measurement; quantum coherence in complex networks; light coherence and  
propagation; lasers.

**HONORS AND ACTIVITIES**

Fellow, American Physical Society (APS), 1993.  
Fellow, Optical Society of America (OSA), 1990.  
Knight Professor of Liberal Arts and Sciences, University of Oregon; 2006 – present  
University of Oregon 2015 Outstanding Career Award.  
Visiting Fellow of JILA, University of Colorado, 1998-1999.  
Board of Directors of the Optical Society of America (OSA), Elected term: 2010-2013.  
NSF Committee of Visitors (Physics Divisional Review, 2012).  
APS journals Outstanding Referee (2013).  
Nominating Committee for the APS Division of Laser Science, 2015-2016  
CAMOS–Committee on Atomic, Molecular and Optical Science – National Research Council (2001-04)  
Chair, Joint Council on Quantum Electronics, 2008 – 2011.  
International Council on Quantum Electronics, 2008 – 2011.  
Steering Committee, CLEO/QELS Conference, 2007- 2011.  
Executive Committee, Division of Laser Science, APS (1995- 1998).  
Chair, Distinguished Traveling Lecturers Committee, DLS, APS, 1996-1999.

Co-General Chair, Quantum Electronics & Laser Sciences (QELS) Conference, 2006.  
Chair, Frederick Ives Medal Selection Committee, OSA, 2005.  
Charles Townes Award Committee (OSA), 1992  
Advanced LIGO NSF Annual Review and Site Visits, 2004 and 2009.  
Co-Chair, Program Committee, International Quantum Electronics Conference, 2004.  
Program Sub-Committee Chair, Quantum Optics, QELS Conference, 2002.  
Program Committee, Quantum Information Sciences, CLEO/QELS Conference, 2001.  
Program Committee, Ultrafast Dynamics, CLEO/QELS Conference, 2000.  
Symposium Organizer, "Ultrafast Quantum Optics," Interdisciplinary Laser Science Conference, 1999.  
Program Advisory Committee, International Quantum Electronics Conference, Sydney, Australia, 1996.  
Quantum Optics Program Committee for Quantum Electronics & Laser Sciences Conference (QELS), Baltimore, 1995.  
Program Advisory Committee, International Meeting on Nonlinear Dynamics in Optical Systems, 1990.  
Publications Committee, Division of AMO Physics, APS, 1987-1988.  
Program Committee, International Laser Science Conference, 1985-1986.  
Program Committee, 1985, OSA Annual Meeting  
Co-Chairman of Program Committee for 1985 OSA/NATO Meeting on "Instabilities and Dynamics of Lasers and Nonlinear Optical Systems."  
Program Committee Member, Division of AMO Physics, APS, 1983-1985.

## **EDITORSHIPS**

Divisional Associate Editor for Physical Review Letters, 2006 – Jan. 2012.  
Board of Editors, J. Modern Optics, 1998 – present.  
Topical Editor (Quantum Optics), J. Optical Society of America B, 1989-1995.  
Co-Editor, Special Feature Issue of the J. of Modern Optics on "Preparation and Measurement of Quantum States," 1997.

## **SYNERGISTIC AND EDUCATIONAL ACTIVITIES**

Co-founder and Co-Director of the Science Literacy Program at UO (2010 - 2016), funded by the Howard Hughes Medical Institute.  
Co-founder and first Director of the Oregon Center for Optics at UO (now the Center for Optical, Molecular and Quantum Science).  
Developed new course *Physics Behind the Internet* aimed at non-science university students.  
Authored textbook for above course, *The Silicon Web: Physics for the Internet Age* (2009).  
Developed new course *Quantum Mechanics for Everyone*, aimed at non-science university students.  
Authored textbook for above course, *Quantum Physics: What Everyone Needs to Know* (2009).

## **Ph.D. STUDENTS GRADUATED (23)**

Lynn A. Westling, Ian A. Walmsley, Tod Sizer, Zheng-Wu Li, Ian McMackin, Shi-Jong Kuo, Daniel T. Smithey, Steven E. Hodges, Michael Munroe, Daniel McAlister, Matthew E. Anderson, Chung-Chieh Cheng, Andrew Funk, Ethan L. Blansett, Brian Smith, Wenhai Ji, Guoqiang Cui, Justin Hannigan, Cody Leary, Hayden McGuinness, Roger Smith, Dashiell Vitullo, Erin Mondloch.

## **REFEREED PUBLICATIONS**

1. "Collisional Redistribution and Saturation of Near-Resonant Scattered Light," J.L. Carlsten, A. Szoke and M.G. Raymer, Phys. Rev. A **15**, 1029 (1976).

2. "Simultaneous Observations of Stimulated Raman Scattering and Stimulated Collision-Induced Fluorescence," M.G. Raymer and J.L. Carlsten, *Phys. Rev. Letters* **39**, 1326 (1977).
3. "Comparison of Collisional Redistribution and Emission Line Shapes," M.G. Raymer, J.L. Carlsten and G. Pichler, *J. Phys.* **B12**, L119 (1979).
4. "Theory of Stimulated Raman Scattering with Broadband Lasers," M.G. Raymer, J. Mostowski and J. L. Carlsten, *Phys. Rev.* **A19**, 2304 (1979).
5. "Resonance Fluorescence in a Weak Radiation Field with Arbitrary Spectral Distribution," M.G. Raymer and J. Cooper, *Phys. Rev.* **A20**, 2238 (1979).
6. "The Buildup of Stimulated Raman Scattering from Spontaneous Raman Scattering," J. Mostowski and M.G. Raymer, *Opt. Commun.* **36**, 237 (1981).
7. "Four-Wave Parametric Interactions in a Strongly Driven Two-Level System," R.W. Boyd, M.G. Raymer, P. Narum, and D. Harter, *Phys. Rev.* **A24**, 411 (1981).
8. "Four-Wave Parametric Amplification of Rabi Sidebands in Sodium," D.J. Harter, P. Narum, M.G. Raymer, and R. W. Boyd, *Phys. Rev. Letters* **46**, 1192 (1981).
9. "Stimulated Raman Scattering: Unified Treatment of Spontaneous Initiation and Spatial Propagation," M.G. Raymer and J. Mostowski, *Phys. Rev.* **A24**, 1980 (1981).
10. "Pulse Energy Statistics in Stimulated Raman Scattering," M.G. Raymer, K. Rzazewski, and J. Mostowski, *Optics Letters* **7**, 71 (1982).
11. "Steady-State Quantum Interference in Resonance Fluorescence," D.A. Cardimona, M.G. Raymer, and C.R. Stroud, Jr., *J. Phys.* **B15**, 55 (1982).
12. "Statistics of Stimulated Stokes Pulse Energies in the Steady-State Regime," K. Rzazewski, M. Lewenstein, and M. G. Raymer, *Opt. Commun.* **43**, 451 (1982).
13. "On the Theory of Time-Dependent Intense-Field Collisional Resonance Fluorescence," P.D. Kleiber, J. Cooper, K. Burnett, C. Kunasz, and M.G. Raymer, *Phys. Rev.* **A27**, 291 (1983).
14. "Time-Dependences of Two-, Three-, and Four-Photon Ionization of Atomic Hydrogen in the Ground 12S and Metastable 22S States," C.R. Holt, M.G. Raymer, and W.P. Reinhardt, *Phys. Rev.* **A27**, 2971 (1983).
15. "Observation of Macroscopic Quantum Fluctuations in Stimulated Raman Scattering," I.A. Walmsley and M.G. Raymer, *Phys. Rev. Lett.* **50**, 962 (1983).
16. "Observation of Intensity Fluctuations and Mode Correlations in a Broad-Band CW Dye Laser," L.A. Westling, M.G. Raymer, M.G. Sceats, and D. F. Coker, *Opt. Commun.* **47**, 212 (1983).
17. "Stimulated Raman Scattering of Colored Chaotic Laser Light," M. Trippenbach, K. Rzazewski, and M.G. Raymer, *JOSA* **B1**, 671 (1984).
18. "Single-Shot Spectral Measurements and Mode Correlations in a Pulsed Multimode Dye Laser," L.A. Westling, M.G. Raymer, and J.J. Snyder, *JOSA* **B1**, 150 (1984).

19. "Time-Dependent Semiclassical Theory of Gain-Coupled Distributed Feedback Lasers," I.N. Duling and M.G. Raymer, *IEEE-JQE* **10**, 1202 (1984).
20. "Stabilization of Stokes Pulse Energies in the Nonlinear Regime of Stimulated Raman Scattering," I.A. Walmsley, M.G. Raymer, T. Sizer, I. Duling, and J. Kafka, *Opt. Commun.* **53**, 137 (1985).
21. "Quantum Theory of Stokes Generation with a Multimode Laser," M.G. Raymer and L. A. Westling, *JOSA B***2**, 1417 (1985).
22. "Quantum Theory of Spatial and Temporal Coherence Properties of Stimulated Raman Scattering," M.G. Raymer, I.A. Walmsley, J. Mostowski, and B. Sobolewska, *Phys. Rev.* **A32**, 332 (1985).
23. "Experimental Study of the Macroscopic Quantum Fluctuations of Partially Coherent Stimulated Raman Scattering," I.A. Walmsley and M.G. Raymer, *Phys. Rev.* **A33**, 382 (1986).
24. "Modification of Atomic Collision Dynamics by Intense Ultrashort Laser Pulses," T. Sizer II and M.G. Raymer, *Phys. Rev. Lett.* **56**, 123 (1986).
25. "Intensity Autocorrelation Measurements and Spontaneous FM Phase Locking in a Multimode Pulsed Dye Laser," L.A. Westling and M.G. Raymer, *JOSA B***3**, 911 (1986).
26. "Atomic Collisions in the Presence of Intense, Ultrashort Laser Pulses," T. Sizer II and M.G. Raymer, *Phys. Rev.* **A36**, 2643 (1987).
27. "Temporal Smoothing of Multimode Dye-Laser Pulses," Z.W. Li, C. Radzewicz, and M.G. Raymer, *Opt. Lett.* **12**, 416 (1987).
28. "Intensity Correlation Measurements in Stimulated Raman Generation with a Multimode Laser," L.A. Westling and M.G. Raymer, *Phys. Rev.* **A36**, 4835 (1987).
29. "Amplitude-Stabilized Chaotic Light," C. Radzewicz, Z.W. Li, and M.G. Raymer, *Phys. Rev.* **A37**, 2039 (1988).
30. "Phase Cross Correlation in the Coherent Raman Process," Z.W. Li, C. Radzewicz, and M.G. Raymer, *Opt. Lett.* **13**, 491 (1988).
31. "Strong-Field Theory of a Multimode, Standing-Wave Dye Laser," M.G. Raymer, Z. Deng, and M. Beck, *JOSA B***5**, 1588 (1988).
32. "Instabilities and Chaos in a Multimode, Standing-Wave, CW Dye Laser," I. McMackin, C. Radzewicz, M. Beck, and M.G. Raymer, *Phys. Rev.* **A38**, 820 (1988).
33. "Cancellation of Laser Phase Fluctuations in Stokes, Anti-Stokes Generation," Z.W. Li, C. Radzewicz, and M.G. Raymer, *JOSA B***5**, 2340 (1988).
34. "Coherent Propagation of Stokes Light in a Collisionally Broadened Three-Level Amplifier," B.J. Herman, J.H. Eberly, M.G. Raymer, *Phys. Rev.* **A39**, 3447 (1989).
35. "Temporal Quantum Fluctuations in Stimulated Raman Scattering: Coherent-Modes Description," M.G. Raymer, Z.W. Li, and I.A. Walmsley, *Phys. Rev. Lett.* **63**, 1586 (1989).
36. "Transition from Quantum-Noise-Driven to Deterministic Dynamics in a Multimode Laser," M. Beck, I. McMackin, and M.G. Raymer, *Phys. Rev.* **A40**, 2410 (1989).

37. "Influence of Collisional Dephasing on Superfluorescence," J.J. Maki, M.S. Malcuit, M.G. Raymer, R.W. Boyd, and P.D. Drummond, *Phys. Rev.* **A40**, 5135 (1989).
38. "Delay-Time Statistics of Cooperative Emission in the Presence of Homogeneous Line Broadening," K. Rzazewski, M.G. Raymer, and R.W. Boyd, *Phys. Rev.* **A39**, 5785 (1989).
39. "Spatial Interference of Macroscopic Light Fields from Independent Raman Sources," S.J. Kuo, D.T. Smithey, and M.G. Raymer, *Phys. Rev. A (Rapid Commun.)* **43**, 4083 (1991).
40. "Beam-Pointing Fluctuations in Gain-Guided Amplifiers," S.J. Kuo, D.T. Smithey, and M.G. Raymer, *Phys. Rev. Lett.* **66**, 2605 (1991).
41. "Quantum Theory of Propagation of Non-Classical Radiation in a Near-Resonant Medium," P.D. Drummond and M.G. Raymer, *Phys. Rev.* **A44**, 2072 (1991).
42. "Near Quantum Limited Phase Memory in a Raman Amplifier, D.T. Smithey, M. Belsley, K. Wedding, and M.G. Raymer, *Phys. Rev. Lett.* **67**, 2446 (1991).
43. "Limits to Wide-Band, Pulsed Squeezing in a Traveling-Wave, Parametric Amplifier with Group-Velocity Dispersion," M.G. Raymer, P.D. Drummond and S.J. Carter, *Opt. Lett.* **16**, 1189 (1991).
44. "Beam Pointing Fluctuations in a Gain-Guided Raman Generator, S.J. Kuo, D.T. Smithey, and M.G. Raymer, *Phys. Rev.* **A45**, 2031 (1992).
45. "Information and Complementarity in a Proposed Which-Path Experiment Using Photons, M.G. Raymer and S. Yang, *J. Mod. Optics*, **39** 1221(1992).
46. "Sub-shot-noise correlation of total photon number using macroscopic twin pulses of light," D. T Smithey, M. Beck, M. Belsley, and M. G. Raymer, *Phys. Rev. Lett.* **69**, 2650 (1992).
47. "Turn-on transient statistics and dynamics in a multimode, short-cavity laser," S. E. Hodges, M. Munroe, D. Adkison, W. Gadomski, and M. G. Raymer, *Opt. Lett.* **17**, 931 (1992).
48. "Twin photon beams resulting from interference of independent broadband squeezed vacua," M. Belsley, D. T. Smithey, M. G. Raymer, and J. Mostowski, *Phys. Rev. A*, **46**, 414 (1992).
49. "Measurement of the Wigner distribution and the density matrix of a light mode using optical homodyne tomography: application to squeezed states and the vacuum," D. T Smithey, M. Beck, M. G. Raymer and A. Faridani, *Phys. Rev. Lett.* **70**, 1244 (1993).
50. "Experimental determination of quantum phase distributions using optical homodyne tomography," M. Beck, D. T Smithey, and M. G. Raymer, *Phys. Rev. A* **48**, R890, (1993).
51. "Complete experimental characterization of the quantum state of a light mode via the Wigner function and the density matrix: application to quantum phase distributions of vacuum and squeezed-vacuum states," D. T Smithey, M. Beck, J. Cooper, M. G. Raymer, and A. Faridani, *Physica Scripta*, **T48**, 35 (1993).
52. "Experimental determination of number-phase uncertainty relations," M. Beck, D. T Smithey, J. Cooper, and M. G. Raymer, *Opt. Lett.*, **18**, 1259 (1993).

53. "Compound-cavity laser modes for arbitrary interface reflectivity," S. E. Hodges, M. Munroe, J. Cooper, and M. G. Raymer, *Opt. Lett.* **18**, 1481 (1993).
54. "Observation of extreme sensitivity to induced molecular coherence in stimulated Raman scattering," M. Belsley, D.T. Smithey, K. Wedding, and M.G. Raymer, *Phys. Rev. A* **48**, 1514 (1993).
55. "Measurement of number-phase uncertainty relations of optical fields," D. T Smithey, M. Beck, J. Cooper, and M. G. Raymer, *Phys. Rev.A*, **48**, 3159 (1993).
56. "Many-port homodyne detection of optical phase," M. G. Raymer, J. Cooper, and M. Beck, *Phys. Rev.A*, **48**, 4617 (1993).
57. "Chronocyclic tomography for measuring amplitude and phase structure of optical pulses," M. Beck, M. G. Raymer, I. A. Walmsley and V. Wong, *Opt. Lett.* **18**, 2041 (1993).
58. "Total intensity modulation and mode hopping in a coupled-cavity laser as a result of external-cavity length variations," M. Munroe, S. E. Hodges, J. Cooper, and M. G. Raymer, *Opt. Lett.* **19**, 105 (1993).
59. "Observation of Kastler ring emission from a short-cavity laser," S. E. Hodges, W. Gadomski, and M. G. Raymer, *Appl. Opt.* **32**, 5930 (1993).
60. "Complex wave-field reconstruction using phase-space tomography," M. G. Raymer, M. Beck and D. McAlister, *Phys. Rev. Lett.* **72**, 1137 (1994).
61. "Uncertainty principle for joint measurement of noncommuting variables," M. G. Raymer, *Am. J. Phys.* **62**, 986 (1994).
62. "Demonstration of Boundary Conditions on Sound Impulse Reflections in Pipes," M. G. Raymer and S. Micklavzina, *The Physics Teacher*, **33**, 183 (1995).
63. "Quadrature Squeezing with Ultrashort Pulses in Nonlinear Optical Waveguides," M. E. Anderson, M. Beck, M. G. Raymer, and J. D. Bierlein, *Opt. Lett.* **20**, 620 (1995).
64. "Optical phase retrieval by phase-space tomography and fractional-order Fourier transforms," D. McAlister, M. Beck, L. Clarke, A. Mayer and M. G. Raymer, *Opt. Lett.* **20**, 1181 (1995).
65. "Quantum superpositions of classically distinguishable states of a molecule," I. A. Walmsley and M. G. Raymer, *Phys. Rev. A*. **52**, 681 (1995).
66. "Photon number statistics from phase-averaged quadrature field distribution: theory and ultrafast measurement," M. Munroe, D. Boggavarapu, M. E. Anderson and M. G. Raymer, *Phys. Rev. A, Rapid Commun.* **52**, R924 (1995).
67. "Ultrashort pulsed squeezing by optical parametric amplification," M. J. Werner, M. G. Raymer, M. Beck and P. D. Drummond, *Phys. Rev. A* **52**, 4202 (1995).
68. "Ultrafast measurement of optical-field statistics by dc-balanced homodyne detection," M. G. Raymer, J. Cooper, H. J. Carmichael, M. Beck, and D. T. Smithey, *JOSA B* **12**, 1801 (1995).
69. "Sampling of photon statistics and density matrix using homodyne detection," U. Leonhardt, M. Munroe, T. Kiss, Th. Richter, and M. G. Raymer, *Opt. Commun.*, **127**, 144, (1996); erratum: **137**, 445, (1997).

70. "Observation of moving wave packets reveals their quantum state," U. Leonhardt and M. G. Raymer, *Phys. Rev. Lett.*, **76**, 1985, (1996).
71. "Two-mode quantum-optical state measurement: Sampling the joint density matrix," M. G. Raymer, D. F. McAlister and U. Leonhardt, *Phys. Rev. A*, **54**, 2397, (1996).
72. "Turn-on transient dynamics in a multimode, compound-cavity laser," S. E. Hodges, M. Munroe, W. Gadomski, J. Cooper, and M. G. Raymer, *J. Opt. Soc. Am.* **B 14**, 180 (1997).
73. "Multimode laser model with coupled cavities and quantum noise," S. E. Hodges, M. Munroe, J. Cooper, and M. G. Raymer, *J. Opt. Soc. Am.* **B 14**, 191 (1997).
74. "Ultrafast photon-number correlations from dual-pulse, phase-averaged homodyne detection," D. F. McAlister and M. G. Raymer, *Phys. Rev. A*, **55**, R1609, (1997).
75. "Correlation and joint density matrix of two spatial-temporal modes from balanced-homodyne sampling," D. F. McAlister and M. G. Raymer, *J. Mod. Opt.* **44**, 2359, (1997).
76. "Pulsed squeezed light generation in chi-two nonlinear waveguides," M. A. Anderson, D. F. McAlister, M. G. Raymer, and M. C. Gupta, *J. Opt. Soc. Am.* **B 14**, 3180 (1997).
77. "Whittaker-Shannon sampling theorem for experimental reconstruction of free-space wave packets," M. G. Raymer, *J. Mod. Opt.* **44**, 2565 (1997).
78. "Measuring the quantum mechanical wave function," M. G. Raymer, *Contemp. Physics* **38**, 343 (1997).
79. "Spectral broadening of stochastic light intensity-smoothed by a saturated semiconductor optical amplifier," M. J. Munroe, J. Cooper, and M. G. Raymer, *J. Quant. Electron.* **34**, 548 (1998).
80. "Long-range saturation of spatial decoherence in wave-field transport in multiple-scattering media," C.-C. Cheng and M. G. Raymer, *Phys. Rev. Lett.* **82**, 4807 (1999).
81. "Quantum-state tomography of two-mode light using generalized rotations in phase space," M. G. Raymer and A. Funk, *Phys. Rev. A* **61**, 015801 (1999).
82. "Measuring the quantum polarization state of light," M. G. Raymer, A. C. Funk, and D. F. McAlister, in *Quantum Communication, Computing and Measurement 2*, Ed. by P. Kumar, G. M. D'Ariano, and O. Hirota (Kluwer Academic/Plenum, New York, 2000), p. 147-155.
83. "A variable lateral shearing Sagnac interferometer with high numerical aperture for measuring the complex spatial coherence function of light," Chung-Chieh Cheng, M. G. Raymer, and H. Heier, *J. Mod. Opt.*, **47**, 1237 (2000).
84. "Propagation of Transverse Optical Coherence in Random Multiple-Scattering Media," Chung-Chieh Cheng and M. G. Raymer, *Phys. Rev. A*, **62**, 023811 (2000).
85. "Ultrafast Polarization Dynamics and Noise in Pulsed Vertical-Cavity Surface-Emitting Lasers," E. L. Blansett, M. G. Raymer, G. Khitrova, H. M. Gibbs, D. K. Serkland, A. A. Allerman, K. M. Geib *Optics Express*, **9**, 312-318 (2001).
86. "Quantum key distribution using non-classical photon number correlations in macroscopic light pulses," A.C. Funk and M.G. Raymer, *Phys. Rev. A*, **65**, 042307 (2002).

87. "Quantum cryptography with macroscopic non-classical light," M.G. Raymer and A.C. Funk, *Acta Physica Polonica A*, **101**, 437 (2002).
88. "Theory of optical near-resonant cone emission in atomic vapor," B. D. Paul, J. Cooper, A. Gallagher, and M. G. Raymer, *Phys. Rev. A* **66**, 063816 (2002).
89. "Separability criterion for separate quantum systems," M. G. Raymer, A. Funk, B. C. Sanders, H. de Guise, *Phys. Rev. A* **67**, 052104 (2003).
90. "Linear Optical Sampling," C. Dorrer, D.C. Kilper, H.R. Stuart, G. Raybon and M. G. Raymer (*IEEE Photonics Technology Letters*, **15**, 1746, 2003).
91. "Quantum state entanglement and readout of collective atomic-ensemble modes and optical wavepackets by stimulated Raman scattering," M. G. Raymer, *J. Mod. Optics*, **51**, 1739–1759 (2004).
92. "Quantum noise properties of parametric amplifiers driven by two pump waves," Colin J. McKinstrie, S. Radic, M. G. Raymer," *Optics Express*, **12**, 5037-5066 (2004).
93. "Generation of pure-state single-photon wavepackets by conditional preparation based on spontaneous parametric downconversion," A. B. U'Ren, C. Silberhorn, K. Banaszek, I. A. Walmsley, R. Erdmann, W. P. Grice, and M.G. Raymer, *Laser Physics*, **15**, 146 (2005).
94. "Picosecond Polarization Dynamics and Noise in Pulsed Vertical-Cavity Surface-Emitting Lasers," E. L. Blansett, M. G. Raymer, G. Cui, G. Khitrova, H. M. Gibbs, D. K. Serkland, A. A. Allerman, and K. M. Geib, *IEEE J. Quant. Electron.* **41**, 287-301 (2005).
95. "Quantum noise properties of parametric processes," C. J. McKinstrie, M. Yu, M. G. Raymer and S. Radic, *Opt. Express* **13**, 4986-5012 (2005).
96. "Pure-state, single-photon wave-packet generation by parametric down conversion in a distributed microcavity," M. G. Raymer, Jaewoo Noh, K. Banaszek, I.A. Walmsley, *Phys. Rev. A* **72**, 023825 (2005). quant-ph/0504062
97. "Translation of quantum states by four-wave mixing in fibers," C. J. McKinstrie, J. D. Harvey, S. Radic and M. G. Raymer, *Opt. Express* **13**, 9131-9142 (2005).
98. "Quantum efficiency of single-photon sources in the cavity-QED strong-coupling regime," Guoqiang Cui and M. G. Raymer, *Opt. Express*, **13**, 9660-9665 (2005). quant-ph/0511049
99. "The Maxwell wave function of the photon," M. G. Raymer and Brian J. Smith, *Proceedings of SPIE Volume 5866: The Nature of Light: What Is a Photon?*, C. Roychoudhuri, K. Creath, Editors, pp. 293-297 (2005).
100. "Measurement of the transverse spatial quantum state of light at the single-photon level," Brian J. Smith, Bryan Killett, M.G. Raymer, K. Banaszek, I.A. Walmsley, *Opt. Lett.* **30**, 3365-3367 (2005). quant-ph/0507142
101. "Quantum mechanics of phase-sensitive amplification in a fiber," C. J. McKinstrie, M. G. Raymer, S. Radic and M. V. Vasilyev, *Opt. Commun.* **257**, 146-163 (2006).
102. "Emission spectra and quantum efficiency of single-photon sources in the cavity-QED strong-coupling regime," Guoqiang Cui and M. G. Raymer, *Phys. Rev. A*, **73**, 053807 (2006).



103. "A hemispherical, high-solid-angle optical micro-cavity for cavity-QED studies," Guoqiang Cui, J. M. Hannigan, R. Loeckenhoff, F. M. Matinaga, M. G. Raymer, S. Bhongale, M. Holland, S. Mosor, S. Chatterjee, H. M. Gibbs, G. Khitrova, *Opt. Express*, **14**, 2289 (2006).
104. "Pairwise entanglement and readout of atomic-ensemble and optical wave-packet modes in traveling-wave Raman interactions," Wojciech Wasilewski and M.G. Raymer, *Phys. Rev. A*, **73**, 063816 (2006). quant-ph/0512157
105. "Four-wave mixing cascades near the zero-dispersion frequency," C. J. McKinstrie and M. G. Raymer, *Opt. Express* **14**, 9600 (2006).
106. "Two-photon wave mechanics," Brian J. Smith and M. G. Raymer, *Phys. Rev. A*, **74**, 062104 (2006). quant-ph/0605149
107. "Efficient picosecond pulse shaping by programmable Bragg gratings," Chunbai Wu and M. G. Raymer, *IEEE Journal of Quantum Electronics*, **42**, 873-884 (2006).
108. "Slow light propagation in a linear-response three-level atomic vapor," Wenhai Ji, Chunbai Wu, M. G. Raymer, *JOSAB* **24**, 629-635 (2006). quant-ph/ 0603145
109. "Mapping broadband single-photon wavepackets into an atomic memory," J. Nunn, I. A. Walmsley, M. G. Raymer, K. Surmacz, F. C. Waldermann, Z. Wang, and D. Jaksch, *Phys. Rev. A*, **75**, 011401R (2007). quant-ph/0605149
110. "Unimpaired phase-sensitive amplification by vector four-wave mixing near the zero-dispersion frequency," C. J. McKinstrie, S. Radic, M. G. Raymer, L. Schenato, *Opt. Express*, **15**, 2178-2189 (2007).
111. "Mesoscopic entanglement of atomic ensembles through non-resonant stimulated Raman scattering," Wenhai Ji, Chunbai Wu, S. J. van Enk, M. G. Raymer, *Phys. Rev. A* **75**, 052305 (2007); quant-ph/0612057
112. "Photon wave functions, wave-packet quantization of light, and coherence theory," Brian J. Smith and M. G. Raymer, *New J. Phys.* **9**, 414 (2007)
113. "Generation and novel photonic guidance of multi-octave optical-frequency combs," F. Couny, F. Benabid, P. J. Roberts, P. S. Light and M. G. Raymer, *Science*, **318**, 1118-1121 (2007).
114. "Photon pair-state preparation with tailored spectral properties by spontaneous four-wave mixing in photonic-crystal fiber," K. Garay-Palmett, H. J. McGuinness, Offir Cohen, J. S. Lundeen, R. Rangel-Rojo, M. G. Raymer, C. J. McKinstrie, S. Radic, A. B. U'Ren and I. A. Walmsley, *Opt. Express*, **15**, 14870-14886 (2007); arXiv:0709.3129
115. "Photon Wave Mechanics and the Wolf Equations of Classical Coherence Theory," M. G. Raymer and Brian J. Smith, *Conference on Coherence and Quantum Optics* **9** (2007).
116. "Multicolor multipartite entanglement produced by vector four-wave mixing in a fiber," C. J. McKinstrie, S. J. van Enk, M. G. Raymer, and S. Radic, *Opt. Express* **16**, 2720-2739 (2008).
117. "Self-spin-controlled rotation of spatial states of a Dirac electron in a cylindrical potential via spin-orbit interaction," C. C. Leary, D. Reeb and M. G. Raymer, *New Journal of Physics*, **10**, 103022 (2008).

118. “Stable Mode Sorting by Two-Dimensional Parity of Photonic Transverse Spatial States,” C.C. Leary, L.A. Baumgardner, and M.G. Raymer, arXiv:0810.2447; Optics Express Vol. 17, pp. 2435-2452 (2009)
119. “Continuous-variable optical quantum state tomography,” A.I. Lvovsky and M. G. Raymer, Rev. Mod. Phys., 81, 299 – 332 (2009); (quant-ph/0511044)
120. “Spin and Orbital Rotation of Electrons and Photons via Spin-Orbit Interaction,” C. C. Leary, M. G. Raymer and S. J. van Enk, Phys. Rev. A 80, 061804R (2009).
121. “Continuous-variable optical quantum-state tomography,” A. I. Lvovsky and M. G. Raymer, Reviews of Modern Physics 81, 299 (2009)
122. “Remote preparation of complex spatial states of single photons and verification by two-photon coincidence experiment,” Yoonshik Kang, Kiyoungh Cho, Jaewoo Noh, Dashiell L. P. Vitullo, Cody Leary, and M. G. Raymer, Optics Express Vol. 18, pp. 1217–1233 (2010).
123. “Interference of two photons of different color,” M. G. Raymer, S. J. van Enk, C. J. McKinstrie, and H. J. McGuinness, Opt. Commun. 238, 747 (2010). arXiv:1006.4350v2 [quant-ph]
124. “Quantum frequency translation of single-photon states in photonic crystal fiber,” H.J. McGuinness, M.G. Raymer, C.J. McKinstrie, and S. Radic, Phys. Rev. Lett. 105, 093604 (2010). arXiv:1006.4350v2 [quant-ph]
125. “Quantum-Fluctuation-Initiated Coherence in Multi-Octave Raman Optical Frequency Combs,” Y. Y. Wang, Chunbai Wu, F. Couny, M. G. Raymer and F. Benabid, Phys. Rev. Lett. 105, 123603 (2010). arXiv:1008.1814 [quant-ph]
126. “Wavelength translation across 210 nm in the visible using vector Bragg scattering in a birefringent photonic crystal fiber,” H.J. McGuinness, M.G. Raymer, C.J. McKinstrie and S. Radic, Photonics Technol. Lett., 23, 109-11 (2010)
127. “Quantum theory of phase correlations in optical frequency combs generated by stimulated Raman scattering,” Chunbai Wu, M. G. Raymer, Y.Y. Wang, F. Benabid, Phys. Rev. A 82, 053834 (2010)
128. “Theory of Quantum Frequency Translation of Light in Optical Fiber: Application to Interference of Two Photons of Different Color,” H. J. McGuinness, M. G. Raymer, C. J. McKinstrie, Opt. Express, 19, 17876 (2011)
129. “Quantum frequency translation by four-wave mixing in a fiber: low-conversion regime,” Mejlting, L; McKinstrie, C J; Raymer, M G; Rottwitt, K, Optics Express, Vol. 20, pp.8367-8396 (2012)
130. “Quantum-state-preserving optical frequency conversion and pulse reshaping by four-wave mixing,” C. J. McKinstrie, L. Mejlting, M. G. Raymer, and K. Rottwitt, Phys. Rev. A 85, 053829 (2012)
131. “Manipulating the color and shape of single photons,” Michael G. Raymer and Kartik Srinivasan, *Physics Today* (feature article), 65, 32 (2012)
132. “Temporal mode selectivity by frequency conversion in second-order nonlinear optical waveguides,” D. V. Reddy, M. G. Raymer, C. J. McKinstrie, L. Mejlting, and K. Rottwitt, Optics Express, 21, pp.13840-13863 (2013)

133. "Supercritical Xenon-Filled Hollow-Core Photonic Bandgap Fiber," K. E. Lynch-Klarup, E. D. Mondloch, M. G. Raymer, D. Arrestier, F. Gerome, and F. Benabid, *Optics Express*, 21 Issue 11, pp.13726-13732 (2013)
134. "Quantum Input-Output Theory for Optical Cavities with Arbitrary Coupling Strength: Application to Two-Photon Wave-Packet Shaping," M. G. Raymer and C. J. McKinstrie, *Phys. Rev. A* 88, 043819 (2013)
135. "Entangled Photon-Pair Two-Dimensional Fluorescence Spectroscopy (EPP-2DFS)," M.G. Raymer, A. H. Marcus, J. R. Widom, D. L. P. Vitullo, *J. Phys. Chem. B*, 117, 15559-15575 (2013)
136. "Efficient sorting of quantum-optical wave packets by temporal-mode interferometry," D. V. Reddy, M. G. Raymer, and C. J. McKinstrie, *Optics Letters*, Vol. 39, pp. 2924-2927 (2014)
137. "Sorting photon wave packets using temporal-mode interferometry based on multiple-stage quantum frequency conversion," D. V. Reddy, M. G. Raymer, and C. J. McKinstrie, *Phys. Rev. A* 91, 012323 (2015)
138. "Photon temporal modes: a complete framework for quantum information science," Brecht, B., Dileep V. Reddy, C. Silberhorn, and M. G. Raymer, *Phys. Rev. X*, 5, 041017 (2015)
139. "Temporal mode sorting using dual-stage quantum frequency conversion by asymmetric Bragg scattering," Jesper B. Christensen, Dileep V.Reddy, C. J. McKinstrie, K. Rottwitt, and M. G. Raymer, *OPTICS EXPRESS*, Vol. 23, pages: 23287-23301 (2015)
140. "Double-heralded generation of two-photon-states by spontaneous four-wave-mixing in the presence of noise," R.A. Smith, D.V. Reddy, D.L.P. Vitullo, M.G. Raymer, *Optics Express*, 24, pp. 5809-5821 (2016)
141. "Observation of Interaction of Spin and Intrinsic Orbital Angular Momentum of Light," Dashiell L. P. Vitullo, Cody C. Leary, Patrick Gregg, Roger A. Smith, Dileep V. Reddy, Siddharth Ramachandran, Michael G. Raymer, *Physical Review Letters*, 118, 083601 (2017)
142. "Engineering temporal-mode-selective frequency conversion in nonlinear optical waveguides: from theory to experiment," Dileep V. Reddy and Michael G. Raymer, *Opt. Express*, **25**(11), 12952-12966 (2017)

#### **ACCEPTED FOR PUBLICATION**

#### **SUBMITTED FOR PUBLICATION**

"Theory of noise suppression in  $\Lambda$ -type quantum memories by means of a cavity," J. Nunn, S. Thomas, J.H.D. Munns, K.T. Kaczmarek, C. Qiu, A. Feizpour, E. Poem, B. Brecht, D.J. Saunders, P.M. Ledingham, Dileep V. Reddy, M.G. Raymer, I.A. Walmsley, *Physical Review A*

#### **BOOK CHAPTERS**

1. "The Quantum Coherence Properties of Stimulated Raman Scattering," M.G. Raymer and I.A. Walmsley, in *Progress in Optics*, Vol. 28, pp. 181-270, ed. E. Wolf (North-Holland, Amsterdam, 1990).

2. "Quantum Statistics in Nonlinear Optics," J. Mostowski and M.G. Raymer, Chapter in Contemporary Nonlinear Optics, edited by G.P. Agrawal and R.W. Boyd (Academic, Boston, 1992, pg. 187-234).
3. "Quantum Beam Tomography," S.H. Kienle, M. Freyberger, W.P. Schleich, and M.G. Raymer, in Experimental Metaphysics, edited by R.S. Cohen, et al, pg. 121-133 (1997).
4. "Experimental Quantum State Tomography of Optical Fields and Ultrafast Statistical Sampling," (60 pages) Michael G. Raymer and Mark Beck, in *Quantum State Estimation*, eds. M. Paris and J. Rehacek, Springer Verlag (Berlin, 2004).
5. "Quantum State Tomography of Optical Continuous Variables," with Alex Lvovsky, in *Quantum Information with Continuous Variables of Atoms and Light*, eds. Nicolas Cerf, Gerd Leuchs, and Eugene Polzik (Imperial College Press, London, 2007)
6. "The Maxwell wave function of the photon," M. G. Raymer and Brian J. Smith, in: *The Nature of Light: What Is a Photon?*, C. Roychoudhuri, K. Creath, Editors, (SPIE, 2008).

## BOOKS

*Quantum Physics: What Everyone Needs to Know*, an introduction for the layperson or a college course for non-science students (Oxford University Press, 2017)

*The Silicon Web: Physics for the Internet Age*, a university text for liberal-arts science courses, introducing the principles of information science and technology. (Taylor and Francis, 2009, 570 pages)  
Reviewed by James C. Phillips in: Physics Today / Volume 63 / Issue 4/ April 2010

*Optical Instabilities, Proceedings of the International Meeting on Instabilities and Dynamics of Lasers and Nonlinear Optical Systems*, ed. R.W. Boyd, M.G. Raymer, and L.M. Narducci, (Cambridge, 1986).

## SPECIAL JOURNAL ISSUE

"Quantum State Preparation and Measurement," a special issue of Journal of Modern Optics, edited by Wolfgang P. Schleich and Michael G. Raymer (vol.44, nos.11/12, Nov.-Dec., 1997).

## NONREFEREED PUBLICATIONS

"Radiative and Collisional Effects in Three-Level Atoms," J.L. Carlsten and M.G. Raymer, in Laser Spectroscopy III, ed. by J.L. Hall and J.L. Carlsten, (Springer Verlag, 1977), p. 204.

"Stimulated Collision-Induced Fluorescence Observed," J.L. Carlsten and M.G. Raymer, Dimensions/ National Bureau of Standards **62**, 18 (1978).

"Intensity Fluctuations and Mode Correlations in Broadband Dye Lasers," M.G. Raymer, L.A. Westling, M.G. Sceats and D.F. Coker, in Coherence and Quantum Optics V, ed. by L. Mandel and E. Wolf (Plenum, 1984), p. 149.

"Quantum Statistics of Stimulated Raman Scattering," M.G. Raymer and I.A. Walmsley, in Coherence and Quantum Optics V, ed. by L. Mandel and E. Wolf (Plenum, 1984), p. 63.

"Statistical Behavior of Mode Amplitudes and Phases in Multimode Dye Lasers," M.G. Raymer and L.A. Westling, in *Optical Instabilities*, ed. by R.W. Boyd, M.G. Raymer, and L.M. Narducci (Cambridge, 1986).

"The Coherence Properties of Stimulated Raman Scattering," M.G. Raymer, *Photonics Spectra*, April 1987, pg. 167-172.

"Wave Packets in Vibrational Motion of Sodium Dimer," C. Radzewicz and M.G. Raymer, in *Atomic and Molecular Processes with Short Laser Pulses*, ed. A. Bandrauk (Plenum, 1988), p. 107.

"Toward a Classical Atom: Rydberg-Electron Wave Packets," M.G. Raymer, J.A. Yeazell, and C.R. Stroud, *Physics Today* **42**, S-15 (1989).

"Observations of the Modern Photon," M.G. Raymer, *American J. of Physics*, **58**, 11 (1989).

"Spatial and Temporal Interference in Stimulated Scattering," M.G. Raymer, S.J. Kuo, D.T. Smithey, Z.W. Li, and I.A. Walmsley, *Acta Physica Polonica*, **A78**, 193 (1990).

"Deterministic and Quantum Noise in Dye Lasers," proceedings of the Symposium of Laser Science and Optics applications, SPIE, Nov. 5-6, 1990, published 1991, M.G. Raymer, W. Gadomski, and S. Hodges.

"Proposal for a QND which-path measurement using photons," in Workshop (1991) on Squeezed States and Uncertainty Relations, NASA Conference Publication 3135, 1992, M.G. Raymer and S. Yang.

"Number-phase uncertainty relations," M. Beck, D. T Smithey, and M. G. Raymer, *Optics and Photonics News* (Dec., 1993, pg.40).

"Measurement of the Wigner function in quantum optics," M. G. Raymer, D. T. Smithey, M. Beck, M. Anderson, and D. F. McAlister, *Proceedings of the Third International Wigner Symposium*, Sep., 1993 (to be published 1994).

"Quantum states and number-phase uncertainty relations measured by optical homodyne tomography," M. G. Raymer, D. T. Smithey, M. Beck, and J. Cooper, *Acta Physica Polonica* **86** (1994).

"Spatial and temporal optical field reconstruction using phase-space tomography," M. G. Raymer, M. Beck, and D. F. McAlister, in *Quantum Optics VI*, D. F. Walls and J. D. Harvey (eds.) (Springer, Berlin, 1994).

"Imaging through scattering media using pulsed homodyne detection," M. Beck, M. E. Anderson, and M. G. Raymer, *Proceedings on Advances in Optical Imaging and Photon Migration*, 1994, vol.21, R. Alfano (ed.), pg.257.

"Parametric Amplification and Squeezing in Quasi-Phase-Matched Waveguides," M. E. Anderson, M. Beck, M. G. Raymer, and J. D. Bierlein, *Proceedings of Nonlinear Guided Waves and Their Applications*, OSA Meeting, Feb.23 (1995).

"High-efficiency, ultrafast photon-number statistics from phase-averaged homodyne detection," M. Munroe, D. Boggavarapu, M. E. Anderson, U. Leonhardt, and M. G. Raymer, in *Coherence and Quantum Optics VII*, eds. J. H. Eberly, L. Mandel, and E. Wolf, pg.53-62 (Plenum, New York, 1996).

"Ultrafast Balanced-Homodyne Chronocyclic Spectrometer," M. E. Anderson, M. Munroe, U. Leonhardt, D. Boggavarapu, D. F. McAlister and M. G. Raymer, *Proceedings of Generation, Amplification, and Measurement of Ultrafast Laser Pulses III*, pg 142-151 (SPIE, Vol. 2701, 1996).

"Squeezing in Nonlinear Optical Waveguides," M. E. Anderson and M. G. Raymer, Proceedings of Nonlinear Guided Waves and their Applications, OSA Meeting, Dana Point, Aug.30 (1996).

"High-Efficiency, Ultrafast Photon-Number Statistics from Phase-Averaged Homodyne Detection," M. Munroe, M. E. Anderson, D. Boggavarapu, U. Leonhardt, and M. G. Raymer Proceedings of the Rochester Coherence and Quantum Optics Conference, 1995.

"Ultrafast photon statistics of normal mode coupling in a semiconductor microcavity," D. Boggavarapu, D. McAlister, M. E. Anderson, M. Munroe, M. G. Raymer, G. Khitrova, and H. Gibbs, Proceedings of Quantum Electronics and Laser Science Conference (June 2-7, 1996, Opt. Soc. of Am., Technical Digest Vol.9, 1996), pg.33.

"Photon number statistics in the strong coupling regime of semiconductor cavity QED," D. Boggavarapu, D. McAlister, M. E. Anderson, M. Munroe, M. G. Raymer, G. Khitrova, and H. Gibbs, Proceedings of XX International Quantum Electronics Conference (July 14-19, 1996, Opt. Soc. of Am., 1996), paper ML5.

"Propagation of Wigner coherence functions in multiple scattering media," M. G. Raymer, C. Cheng, D. M. Toloudis, M. Anderson, and M. Beck, in Advances in Optical Imaging and Photon Migration, 1996 Technical Digest (Optical Society of America, Washington, DC, 1996), pp. 236-238.

"Propagation of the optical Wigner function in random multiple-scattering media," M. G. Raymer and Chung-Chieh Cheng, in "Laser-Tissue Interaction XI: Photochemical, Photothermal, and Photomechanical" (SPIE 3914, 2000).

"Ultrafast field-polarization dynamics in an optically pumped semiconductor microcavity laser," Blansett, E.; McAlister, D.; Raymer, M., Technical Digest. Summaries of papers presented at the Quantum Electronics and Laser Science Conference. Conference Edition, p.234 (2001).

"Picosecond polarization noise and dynamics of pulsed VCSELs," Blansett, E.L.; Cui, G.; Raymer, M.G.; Khitrova, G.; Gibbs, H.M.; Serkland, D.K.; Allerman, A.A.; Geib, K.M., Technical Digest. Summaries of papers presented at the Conference on Lasers and Electro-Optics. Conference Edition, p.469 (2002).

"Optical code-division multiplexing: the intelligent optical solution," Mossberg, T.W.; Raymer, M.G., Optics & Photonics News, 12, 50 (2001).

"Measurement of scattered light Wigner functions by phase space tomography and implications for parallel OCT," Anhut, Tiemo; Karamata, Boris; Lasser, Theo; Raymer, Michael G.; Wenke, Lutz, in *Coherence Domain Optical Methods and Optical Coherence Tomography in Biomedicine VII*, edited by Valery V. Tuchin, Joseph A. Izatt, James G. Fujimoto, Proceedings of the SPIE, Vol. 4956, pp. 120-128 (2003).

"Seeing with Bosons," Raymer, M.G., Physics World (UK), pg. 24, Nov., 2003.

"Toward Quantum-Information Processing with Photons," I. Walmsley and M. Raymer, *Science*, Mar. 18, 307, 1733, 2005).

"Quantum Frequency Translation of Single-Photon States," K. Srinivasan and M.G. Raymer, *Optics & Photonics News* 22(12), 39-39 (2011).

## PATENT

**Granted 2009:** "Linear Optical Sampling." A device to measure light pulses used in optical communication systems operating at ultra-high data rates – 100 GHz and beyond, used for testing optical fiber systems.

### **INVITED OR PLENARY TALKS**

"Statistical Behavior of Mode Amplitudes and Phases in Multimode Dye Lasers," International Meeting on Instabilities and Dynamics of Lasers and Nonlinear Optical Systems, Rochester, New York; June 1985.

"Quantum Fluctuations in Stimulated Raman Scattering," Gordon Conference on Nonlinear Optics and Lasers, Wolfeboro, New Hampshire; July 1985.

"Quantum Statistics of Stimulated Raman Scattering," Departmental Colloquium at the Physics Department, Rennselaer Polytechnic Institute, Troy, New York; October 1985.

"Stimulated Raman Scattering: A Tutorial," Industrial Associates Meeting of The Institute of Optics, University of Rochester, Rochester, New York; November 1985.

"Modification of Atomic Collisions by Ultrashort Laser Pulses," Departmental Colloquium at Department of Mechanical and Aerospace Engineering, Princeton University, Princeton, New Jersey; May 1986.

"Modification of Atomic Collisions by Ultrashort Laser Pulses," Annual Meeting of the Division of Atomic, Molecular, and Optical Physics of the APS, Eugene, Oregon; June 1986.

"Multimode and Fluctuation Effects in Stimulated Raman Scattering," International Laser Science Conference, Seattle, Washington; October 1986.

"Statistical Properties of Pulsed Dye Laser Radiation," Department of Physics, Columbia University, New York; February 1987.

"Atomic Collisions in Intense Laser Fields," Departmental Colloquium, Department of Physics, Lehigh University, Allentown, Pennsylvania; March 1987.

"Quantum Statistical Properties of Stimulated Raman Generation," International Quantum Electronics Conference, Baltimore, Maryland; April 1987.

"Instabilities and Chaos in a Multimode, Standing-Wave CW Dye Laser," NATO International Workshop on Instabilities, Dynamics, and Chaos in Nonlinear Optical Systems," Il Ciocco, Italy; July 1987.

"Quantum Statistics of Stimulated Raman Scattering," Departmental Colloquium, Department of Physics, University of Oregon, Eugene, Oregon; November 1987.

"Collisional Redistribution with Intense and/or Ultra-Short Laser Pulses," plenary paper, Ninth International Conference on Spectral Line Shapes, Torun, Poland; July 1988.

"Temporal and Spatial Interference in Stimulated Raman Scattering," plenary paper, Tenth School of Coherent Optics: Quantum Optics II, Ustron, Poland, September 1989.

"Interference of Light from Independent Sources," Departmental Colloquium, presented at the Physics Department, Lewis and Clark College, Portland, Oregon; April 1990.

"Interference of Light from Independent Sources," Foundations of Quantum Mechanics Workshop, Santa Fe, New Mexico; May 1990.

"Deterministic and Quantum Noise in Dye Lasers," SPIE Symposium on Laser Science, Boston, Massachusetts; November 1990.

"Interference of Light from Independent Sources," Departmental Colloquium, Physics Department, University of Texas, Austin, Texas; March 1991.

"Interference of Light from Independent Sources," Departmental Colloquium, Institute of Optics, University of Rochester, Rochester, New York; March 1991.

"Proposal for a QND Which-Path Measurement Using Photons," Workshop on Squeezed States and Uncertainty Relations, University of Maryland, College Park, Maryland; March 1991.

"Beam-Pointing Fluctuations in Stimulated Raman Scattering," Lawrence Livermore National Laboratories, Livermore, California; May 1991.

"Quantum Optics Research at the U of O," Executive's Conference held by ASTI, Eugene, 1991.

"Macroscopic quantum-noise effects in optical Raman amplifiers," Departmental Colloquium, Optical Sciences Center, University of Arizona, Tucson, March, 1992.

"Observation of Kastler ring emission from a short-cavity laser," plenary paper, Workshop on Photonic Bandgap Structures, Park City, Utah, Jan., 1992

"Quantum-limited detection of optical phonons," Materials Science Seminar, Univ. Oregon, May, 1992.

"Measurement of the Wigner function in quantum optics," plenary paper, Third International Wigner Symposium, Oxford, Sep., 1993.

"Quantum states and number-phase uncertainty relations measured by optical homodyne tomography," plenary paper, Quantum Optics III, Szczyrk, Poland, Sep., 1993.

"Complete characterization of the quantum state of a light mode using optical homodyne tomography," Optical Society of America Annual Meeting, Toronto, Oct., 1993.

"Measuring Wavefunctions," Departmental Colloquium, Dept. of Physics, University of Oregon, Eugene, Oregon; Nov. 1993.

"Spatial and temporal optical field reconstruction using phase-space tomography," plenary paper, Quantum Optics Symposium, Rotorua, New Zealand, Jan. 1994.

"State Measurement for One or Two Optical Modes," plenary paper, Ulm Symposium on Quantum Optics, Ulm, Germany; July, 1994.

"Measurement of Optical and Matter Wave Fields using Phase-Space Tomography," Departmental Colloquium, University of Innsbruck, Innsbruck, Austria; July, 1994.

"Measurement of Optical and Matter Wave Fields using Phase-Space Tomography," Departmental Colloquium, University of Konstanz, Konstanz, Germany; July, 1994.



"Measurement of Optical and Matter Wave Fields using Phase-Space Tomography," Max Planck Institute, Munich, Germany; July, 1994.

"Measurement of Optical Phase in Stimulated Raman Scattering," Visiting Professor Lecture, Dept. of Physics, University of Ulm, Ulm, Germany; July, 1994.

"Measurement of Optical and Matter Wave Fields using Phase-Space Tomography," Visiting Professor Lecture, Dept. of Physics, University of Ulm, Ulm, Germany; July, 1994.

"Superluminescent Laser Diodes," Spectra Physics Fellow's Retreat, Cottage Grove, OR, Sep. 1994.

"Measuring the Quantum Wave Function of Optical Fields," Departmental Colloquium, Dept. of Physics, University of British Columbia, Nov. 1994.

"Ultrafast Time-Resolved Photon Number Statistics," plenary paper, Norwegian Optoelectronics Meeting, Ustaoset, Norway, Apr. 1995.

"Measuring the Quantum Wave Function of Optical Fields," Departmental Colloquium, Dept. of Physics, Oregon State University, Apr. 1995.

"Ultrafast Photon Statistics from Phase-Averaged Homodyne Detection," Seventh Rochester Conference on Coherence and Quantum Optics, Rochester NY, June, 1995.

"Ultrafast Photon Number Statistics from Optical Homodyne Detection," plenary paper, European Research Conference on Quantum Optics, Davos, Switzerland, Sep., 1995.

"Measuring the Quantum Wave Function of Optical Fields," Departmental Colloquium, Dept. of Physics, Reed College, Portland, OR, Oct. 1995.

"Ultrafast Measurement of Photon Statistics and Optical Quantum States," Departmental Colloquium, Ginzton laboratory, Stanford University, Nov., 1995.

"Ultrafast Balanced-Homodyne Chronocyclic Spectrometer," Generation, Amplification, and Measurement of Ultrafast Laser Pulses III, OE/LASE, San Jose, Jan. 1996.

"Measuring the Quantum Wave Function of Particles and Fields," Departmental Colloquium, Dept. of Theoretical Physics, University of Helsinki, Helsinki, Finland, May, 1996.

"Measuring the Quantum Wave Function of Particles and Fields," Departmental Colloquium, Dept. of Physics, University of Oslo, Oslo, Norway, June, 1996.

"Squeezing in Quasi-Phase-Matched Waveguides," plenary paper, OSA Meeting on Nonlinear Guided Waves and their Applications, Cambridge University, Cambridge, UK, Aug. 1996.

"Ultrafast Photon Statistics in Semiconductor Microcavities," Meeting on Physics of Quantum Electronics, Snowbird, Utah, Jan. 1997.

"Quantum Optical Noise and State Measurement on Ultrafast Time Scales," plenary paper, U.S.-Japan Symposium on Quantum Measurements with New Experimental Techniques, Stanford University, Stanford, CA, Mar. 1997.

"Phase Space Tomography in Quantum Mechanics," American Mathematical Society Meeting, Corvallis, OR, Apr., 1997.

"Lectures in Quantum Optics," Nordic Summer School in Nonlinear Optics, Gothenburg, Sweden, Aug. 97.

"Propagation and measurement of partially coherent light in free space and in dense random media," plenary paper, Optical Society of America Columbia Section meeting, Portland, OR, Feb. 1998.

"Quantum-state measurement for two entangled optical fields," plenary paper, 4<sup>th</sup> International Conference on Quantum Communication, Measurement, and Computing, Evanston, IL, Aug. 1998.

"Measuring the quantum states of atoms, molecules, and fields," Physics Seminar, Los Alamos National Laboratories, Sep. 1998.

"Long-range saturation of spatial decoherence in wave-field transport in random media," Quantum Seminar, Los Alamos National Laboratories, Sep. 1998.

"Ultrafast photon statistics measurement using balanced-homodyne detection," Ultrafast Seminar, JILA, NIST and Univ. of Colorado, Oct. 1998.

"Ultrafast photon statistics measurement using balanced-homodyne detection," Physics Seminar, NIST, Boulder, Colorado, Dec. 1998.

"Long-range saturation of spatial decoherence in wave-field transport in random media," Seminar, JILA, NIST and Univ. of Colorado, Jan. 1999.

"Measuring the quantum states of atoms, molecules, and fields: A tutorial on quantum tomography," Physics Dept. Colloquium, Univ. of Colorado, Feb. 1999.

"Quantum state tomography for optical fields," M. G. Raymer, presented at 1999 Fundamental Problems in Quantum Theory Workshop, Univ. Md. Baltimore Co. (1999).

"Quantum logic using excitonic quantum dots," DOD Workshop on Quantum Computing, Sep. 1999.

"Measuring the quantum states of atoms, molecules, and fields: A tutorial on quantum tomography," Physics Dept. Colloquium, Univ. of New Mexico, Sep. 1999.

"Propagation of Transverse Optical Coherence in Random Multiple-Scattering Media," Chung-Chieh Cheng and M. G. Raymer, SPIE BIOS Meeting San Jose, Jan. 2000.

"Spatial transport and spatial decoherence of wave fields in random media," Quantum Entanglement Symposium, Stanford University, March 2000.

"Measuring the Quantum States of Light, Atoms, and Molecules: A Tutorial on Quantum Tomography," Norwegian Defense research Establishment, Oslo, Norway, April 2000.

"Transport and spatial decoherence of quantum and classical waves in random media," Norwegian Defense research Establishment, Oslo, Norway, April 2000.

"Transport and spatial decoherence of quantum and classical waves in random media," Norwegian Defense research Establishment, Oslo, Norway, April 2000.

"Propagation of partially coherent light in random media or tissue," Riso National Laboratory, Roskilde, Denmark, April 2000.

“Quantum logic with quantum dots in optical microcavities,” Quantum Computing Program Review Workshop, Army Research Office and National Security Agency, Baltimore, Md, August 2000.

"Reconstructing quantum states and quantum-optics memories," Quantum Control of Atoms and Fields: A Symposium in Honor of J. H. Eberly, University of Rochester, October, 2000.

“Quantum-State Tomography and Quantum Cryptography,” Annual Meeting of the Northwest Section of the American Physical Society, Seattle, WA, May, 2001.

“Quantum cryptography with macroscopic nonclassical light,” Quantum Optics V, Zakopane, Poland, June, 2001.

"Quantum states of polarization," OSA Annual Meeting, Long Beach, CA, Oct. 2001.

“Quantum logic with quantum dots in optical microcavities,” NSA/ARO Workshop on Quantum Information, Nashville, Aug. 2002

“Toward quantum information processing using quantum dots in optical microcavities,” Cambridge University, Nov. 2002

“Toward quantum information processing using quantum dots in optical microcavities,” Oxford University, Nov. 2002

“Toward single-photon wave-packet engineering using nonlinear optical downconversion,” Physics Colloquium, Oregon state University, Nov. 2002

“Toward the Generation of Perfectly Correlated Photon Pairs by Cavity-Modified Spontaneous Down Conversion,” Seminar, University of Southampton, Nov. 2002

"Toward quantum information processing using semiconductor quantum dots in the strong cavity-QED coupling regime," Meeting of the Southwest Quantum Information and Technology (SQuInT) Network, Santa Fe, Feb. 2003

“Single-photon wave-packet engineering using nonlinear optical down conversion,” Oregon State University (Feb., 2003)

“Toward quantum information processing using quantum dots in optical microcavities,” Workshop on Quantum Optics in semiconductors, Bremen, Germany, June 2003

“Toward single-photon wave-packet engineering using nonlinear optical downconversion,” Physics Seminar, University of Rostock, Germany, June 2003

“Entanglement of a wave-packet optical mode and a collective atomic-ensemble mode by stimulated Raman scattering,” Quantum Challenges Meeting, Falenty, Poland (Sep., 2003)

“Toward cavity-QED strong coupling of a semiconductor quantum dot to an external optical microcavity,” Symposium on quantum optics and cavity QED in semiconductor microcavities,” Laser Science Annual Meeting Tucson, Arizona, Oct. 2003.

“Quantum Optical Measurement,” 3-Lecture series at the X Jorge André Swieca School of Quantum and Nonlinear Optics, Belo Horizonte, Brazil (Feb. 2004).

“Locality, Realism, and the Quantum World,” etc, Univ. Oregon Undergraduate Physics Seminar (Apr., 2004)

“Quantum Optical State Measurement and Ultrafast Statistical Sampling,” Lecture series at the Niels Bohr Summer Institute in Quantum Optics, Copenhagen, Denmark, (Aug. 2004).

“The photon wave function and its measurement,” Physics Seminar, Aarhus University, Aarhus, Denmark, (Aug., 2004)

“All Optics is Quantum Optics,” The Institute of Optics' 75th Anniversary Celebration, Rochester, NY (Oct. 2004).

“The Photon Wave Function and its Measurement,” Reed College Physics Department, Portland, OR (Nov. 2004).

“Pure-state, single-photon wave-packet generation by parametric down conversion in a distributed microcavity,” Quantum Optics II, Cozumel, Mexico, (Dec. 2004)

“Engineered Pure-State Single-Photon Wave-Packets,” Meeting of the Southwest Quantum Information and Technology (SQuInT) Network (Tucson, Feb. 2005).

“The Nature of the Photon: Particle and Wave Mechanics,” The Jan Minkowski Memorial Lecture, Johns Hopkins University, Baltimore, 2005.

“Spatial Quantum State Tomography for Photons,” Quantum Optics VI, Krynica, Poland (June, 2005).

“The Maxwell wave function of the photon,” SPIE Conference, Optics and Photonics, Conference number 5866, The Nature of Light: What is a Photon? (San Diego, Aug. 2005)

“Secure Quantum Key Distribution using Squeezed Macroscopic Light Pulses,” SPIE Conference, Optics and Photonics, Conference number 5893, Quantum Communications and Quantum Imaging III (San Diego, Aug. 2005)

“Entanglement of an optical wave-packet mode and a collective atomic-ensemble mode by stimulated Raman scattering,” Quantum Information Processing I R C Seminar, Oxford University (Oct. 2005).

“Entanglement of an optical wave-packet mode and a collective atomic-ensemble mode by stimulated Raman scattering,” Quantum Optics and Laser Science Seminar, Imperial College, London (Oct. 2005).

“Entanglement of an optical wave-packet mode and a collective atomic-ensemble mode by stimulated Raman scattering,” Max Planck Research Group Seminar, Erlangen University (Oct. 2005).

“The bit and the quantum,” Keynote Lecture at the Murdock Trust Partners in Science Conference, for high-school science teachers and their university research mentors, San Diego, (Jan. 2006).

“Photon Wave Mechanics,” 2006 International Workshop on Linear Optical Quantum Information Processing (LoQuIP), Baton Rouge (Apr. 2006)

“Photon Wave Mechanics: How to Think and Teach About Photons,” Physics Dept. Colloquium, Univ. of New Mexico (Sep. 2006)

“Entanglement of optical wave-packet modes and collective atomic-ensembles by stimulated Raman scattering,” Center for Advanced Studies, Univ. of New Mexico (Sep. 2006).

“Controlled photon generation in structured nonlinear optical materials,” Frontiers in Optics, OSA Annual Meeting, Rochester, (October, 2006)

“Entanglement of mesoscopic optical wave-packets and collective atomic ensembles by stimulated Raman scattering,” Meeting of the Southwest Quantum Information and Technology (SQuInT) Network (Pasadena, Feb. 2007).

“Photon Wave Mechanics,” UC Berkeley (April 2007)

“Photon orbital angular momentum and spin-orbit coupling for quantum information,” Meeting of the Quantum Information Processing IRC (Oxford University, UK, June, 2007)

“Photon Wave Mechanics: Thinking and Teaching about Photons,” Bath University UK (June 2007)

“Photon Wave Mechanics and the Wolf Equations of Classical Coherence Theory,” Conference on Coherence and Quantum Optics (Rochester, June 2007)

“Carlos Stroud and the Spectrum of Resonance Fluorescence,” Carlos Stroud Fest (Rochester , June, 2007)

“Photon Wave Mechanics: Thinking and Teaching about Photons,” Western Washington University (Nov. 2007)

“The Bit and the Quantum,” UO & COCC Friday Distinguished Lecture Series, Central Oregon Community College (Bend, Oregon, May 2008).

“Single-Photon Spin-Orbit Interaction in Optical Fiber,” LPHYS, Trondheim, Norway (June 2008)

“Photon Wave Mechanics and Spin-Orbit Interaction in Single Photons,” PRACQSYS - Principles and Applications of Control in Quantum Systems, University of Oregon (Aug. 2008).

“Photon Wave Mechanics and Spin-Orbit Interaction in Single Photons,” Physics Colloquium, University of Virginia (Sep. 2008).

“Spin and Orbital Rotation of Electrons and Photons via Spin-Orbit Interaction,” Quantum Optics VII, Zakopane, Poland, June 2009.

“Stimulated Raman Scattering Revisited,” Quantum Challenges III, Zakopane, Poland, June 2009.

“Living in a Quantum World,” (joint with Steven van Enk) Science Pub Talk, Sponsored by Oregon Museum of Science and Industry, at Cosmic Pizza, Eugene, Oregon (Jan., 2010)

“Frequency Translation of Single-Photon States by Four-Wave Mixing in Photonic Crystal Fiber,” Applied Physics Seminar, Ginzton Laboratory, Stanford University (Jan. 2010).

“Quantum Optical Frequency Comb by Stimulated Raman Scattering,” JILA, University of Colorado, Boulder, (Apr. 2010)

“Frequency Translation of Single-Photon States by Four-Wave Mixing in Photonic Crystal Fiber,” Seminar, Institute for Molecular Science, Okazaki, Japan (Sep. 2010).

“Nonlinear Quantum Optics in Solid-Core and Hollow-Core Photonic Crystal Fiber,” Workshop on Next-Generation Optical Fiber Technology, Cocoa Beach, FL (Oct. 2010)

“Optical Parametric Processes in Quantum Information Technology,” Alcatel-Lucent Bell Laboratories, Crawford Hill, NJ (Oct. 2010)

“Frequency Translation of Quantum States of Light by Four-Wave Mixing in Optical Fiber,” International Workshop on High Dimensional Entanglement Como, Italy (June 2011)

“Frequency Translation of Quantum States of Light by Four-Wave Mixing in Optical Fiber,” IEEE Summer Topical Meeting on “Entanglement Distribution in Quantum Communication and Beyond,” Montreal, Canada (July 2011)

“A Science Literacy Teaching Program Across Physics, Biology, Chemistry, and Geology,” Physics Department Colloquium, Oregon State University (Jan. 2011)

“Quantum Optical Pulse Shaping, Routing, and Frequency Translation by Four-Wave Mixing in Optical Fiber,” Southwestern Quantum Information and Technology Annual Workshop (SQuInT), Albuquerque, NM (February 2012)

“Coherent Triplet-Phonon Generation by Dual-Pumped Multiwave Raman Scattering, Seminar, Oxford University (April, 2013)

“Quantum Frequency Conversion of States of Light,” Quantum Optics VIII, Jachranka, Poland (June 2013)

“Quantum Frequency Conversion and Temporal-Mode Multiplexing of States of Light,” Conference on Quantum Information and Quantum Control V, Fields Institute, Toronto, Canada (August 2013)

“Quantum Frequency Conversion of States of Light,” Materials and Optics Symposium, University of Oregon (Sep. 2013)

“Entangled Photon Pairs and Ultrafast Probing of Molecules,” Physical Chemistry Seminar, University of Oregon (Oct. 2013)

“Whence Quantum Mechanics?” Workshop on Quantum Physics and the Nature of Reality, Traunkirchen, Austria (Nov. 2013)

“Spectrally Entangled Photon Pairs for Ultrafast Probing of Molecular Coherence,” Southwestern Quantum Information and Technology Annual Workshop (SQuInT), Santa Fe, NM (Feb. 2014)

“Ultrafast 2D Fluorescence Spectroscopy using Spectrally Entangled Photon Pairs,” International Coherent Multidimensional Spectroscopy Meeting, Eugene Oregon (July 2014)

“Ultrafast 2D Fluorescence Spectroscopy using Spectrally Entangled Photon Pairs,” Workshop on Nonlinear Spectroscopy Meets Quantum Optics, Freiburg, Germany (Oct. 2014)

“Teaching and Learning Science Literacy,” Science Educator’s Day (EDAY), talk for High-school teachers, at Frontiers in Optics (OSA), (Oct. 2014)

“Ultrafast 2D Fluorescence Spectroscopy using Spectrally Entangled Photon Pairs,” Physics of Quantum Electronics (PQE), Snowbird, Utah (Jan. 2015)

“Ultrafast 2D Fluorescence Spectroscopy using Spectrally Entangled Photon Pairs,” March Meeting of the APS, San Antonio (Mar. 2015)

“Tutorial on Quantum Nonlinear Optics, Parts, 1, 2, and 3,” Summer School on Quantum and Nonlinear Optics (QNLO Sørup Herregaard, Denmark, June 2015)

“Photon Temporal Modes as a Complete Framework for Quantum Information Science,” Forsvarets forskningsinstitutt (Norwegian Defence Research Establishment) Kjeller, Norway (10 Aug 2015)

“Photon Temporal Modes: Encoding Quantum Information using Frequency Conversion Techniques,” Physics Departmental Colloquium (Montana State University, 21 Apr 2016)

“Encoding Quantum Information Using the Colors and Shapes of Photons,” Physics Departmental Colloquium (Pacific University, 2 Dec 2016)

## RECENT CONFERENCE CONTRIBUTIONS

“Single-photon wave-packet engineering using nonlinear optical downconversion,” M. G. Raymer, Brian Smith, Jaewoo Noh, I.A. Walmsley, K. Banaszek, Paper WF3, *Frontiers in Optics/Laser Science XIX Conference*, Tucson, Arizona, USA, (Optical Society of America, Washington, DC, 2003).

“Quantum cryptography key distribution using two-mode squeezed optical pulses,” 2004 Frontiers in Optics/Laser Science Meeting in Rochester, New York (Oct. 2004).

“Quantum cryptography key distribution using macroscopic non-classical optical pulses,” International Quantum Electronics Conference, San Francisco (May, 2004). ITuJ4

“Phase-sensitive amplification produced by degenerate four-wave mixing in a fiber,” C. J. McKinstrie, S. Radic, M. G. Raymer and M. V. Vasilyev, CLEO 2005 Baltimore.

“Pair-Wise Entanglement and Readout of Atomic-Ensemble and Optical Wave-Packet Modes in Traveling-Wave Raman Interactions,” Quantum Electronics and Laser Science, Long Beach (May 2006).

B. J. Smith and M. G. Raymer, “Photon wave mechanics,” presented at Quantum Electronics and Laser Science (QELS) Conference, Long Beach, CA, 23-25 May 2006, paper QThD4.

B. J. Smith and M. G. Raymer, “Photon wave mechanics,” presented at Southwestern Quantum Information and Technology (SQuInT) Annual Workshop, Albuquerque, NM, 17-19 February 2006.

“Cluster State LOQC with Entangled Spatial Modes,” C. C. Leary and M. G. Raymer, in “Coherence and Quantum Optics IX,” eds. N. P. Bigelow, J.H. Eberly, and C.R. Stroud (Optical Society of America) pg.549 (2008).

C. C. Leary and M. G. Raymer, “Single-photon spin-orbit coupling and LOQC,” in Quantum Electronics and Laser Science Conference (QELS), San Jose, CA, May 4-9, 2008.

“Simple Gas Cell used to Fill Hollow-Core Optical Fiber With High-Pressure Gas for Optical Comb Generation by Raman Scattering,” Cade Gledhill, Erin Mondloch, Chunbai Wu, Michael G. Raymer, APS/OSA Symposium on Undergraduate Research (2008, Rochester, NY).

“Creation of Pure-State Photon Pairs and Single Photon Wavelength Translation in Photonic Crystal Fibers,” Hayden McGuinness and M. G. Raymer, Southwest Quantum Information and Technology Network (Squint) Eleventh Annual Meeting, February 2009, Seattle, Washington

“1-D Parity Mode Sorter,” Zachary Bond, Cody Leary, Michael Raymer, APS/OSA Symposium on Undergraduate Research (2009, San Jose, Calif.)

“Spontaneous Phase Anti-correlations in Raman Optical Frequency Comb Generation,” Chunbai Wu, Erin Mondloch, M. G. Raymer, Y.Y. Wang, F. Couny and F. Benabid, in Quantum Electronics and Laser Science Conference, OSA Technical Digest (CD) (Optical Society of America, 2010), paper QTuA5.

“Creation and Translation of Single Photon States in Photonic Crystal Fiber,” Hayden McGuinness and M. G. Raymer, Southwest Quantum Information and Technology Network (Squint) 12th Annual Meeting, February 2010, Santa Fe.

“Frequency Translation of Single-Photon States by Four-Wave Mixing in a Photonic Crystal Fiber,” H.J. McGuinness, M.G. Raymer, C.J. Mckinstrie and S. Radic, QELS (2010, San Jose, Calif.)

“Spontaneous Phase Correlations in Raman Optical Frequency Comb Generation,” Chunbai Wu, Erin Mondloch, M. G. Raymer, Y.Y. Wang, F. Couny and F. Benabid (FiO, Rochester, NY, 2010)

“Frequency Translation of Single-Photon States by Four-Wave Mixing in a Photonic Crystal Fiber,” H.J. McGuinness, M.G. Raymer, C.J. Mckinstrie, and S. Radic (FiO, Rochester, NY, 2010)

“Quantum Key Distribution Using an Eight-Port Interferometer,” Daniel Mulkey, Sven Aeschlimann, M.G. Raymer, and Jaewoo Noh, APS/OSA Symposium on Undergraduate Research (2012, Rochester NY)