

# Publications

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<http://www.natureoflight.org/CP/> ]

## ***I. Books & Book Chapters:***

1. C. Roychoudhuri, "Replacing The Paradigm Shift Model In Physics With Continuous Evolution Of Theories By Frequent Iterations"; Ch.10 in "Death And Anti-Death: Sixty Years After Albert Einstein (1879-1955) ", Vol.13; Ed. Charles Tandy, Ria University Press, 2015.
2. C. Roychoudhuri, "Causal Physics: Photon Model by Non-Interaction of Waves", CRC and Taylor & Francis (2014).
3. C. Roychoudhuri, "Various Ambiguities in Generating and Reconstructing Laser Pulse Parameters", Ch.7 in *Laser Pulse Phenomena and Applications*; Ed. F. J. Duarte; InTech (2010).
4. C. Roychoudhuri, "The consilient epistemology: structuring evolution of logical thinking"; Chap. 16 in *Proc. 1<sup>st</sup> Interdisciplinary CHESS Interactions Conf.*, Eds. C. Rangacharyulu and E. Haven; Imperial College Press, London (2009).
5. *The Nature of Light: What Is a Photon?* CRC/ Taylor & Francis (2008); Editors: C. Roychoudhuri, A. F. Kracklauer & Kathy Creath.
6. C. Roychoudhuri, "Inevitable incompleteness of all theories: an epistemology to continuously refine human logics towards cosmic logics"; Ch.6 in *The Nature of Light: What is a Photon?* by C. Roychoudhuri, A. F. Kracklauer & Kathy Creath; CRC/Taylor & Francis (2008).
7. C. Roychoudhuri, "Multiple beam interferometers", Ch.6 in *Optical Shop Testing*, Ed.- Daniel Malacara, 3<sup>rd</sup> ed. Wiley-Interscience (2007).
8. C. Roychoudhuri, "Manufacturing with High Power Diode Lasers", a chapter in *Encyclopedia of Electrical and Electronic Engineering*, Ed. John Webster, Wiley International (1999).
9. C. Roychoudhuri, "Fiberoptic Beam Delivery System", a chapter in *Laser Material Processing*, Handbook by Laser Institute of America, Eds. J. Ready et al, Magnolia publishing (1999).

10. C. Roychoudhuri; "Multiple Beam Interferometers", Chapter 6 in *Optical Shop Testing*; enhanced for 3<sup>rd</sup> edition, 2007; Ed. D. Malacara; Wiley International, (2<sup>nd</sup> Ed.1992).
11. Jian Dong, Tariq Manzur & Chandra S. Roychoudhuri, "Rapid prototyping using fiber-coupled high power diode lasers", a chapter in *Rapid Response Manufacturing*, Ed. Jian Dong, Chapman & Hall (1998).

## **II. Organizing and/or Guest Editor of Journals and Conf. Proceedings:**

12. C. Roychoudhuri, A. F. Kracklauer and H. De Raedt, Organizing Editors; *The Nature of Light: What Are Photons?-VI*; Proc. SPIE Vol.9570 (2015).
13. C. Roychoudhuri, A. F. Kracklauer and H. De Raedt, Organizing Editors; *The Nature of Light: What Are Photons?-V*; Proc. SPIE Vol.8832 (2013).
14. C. Roychoudhuri, A. F. Kracklauer and A. Khrennikov, Organizing Editors; *The Nature of Light: What Are Photons?-IV*; Proc. SPIE Vol.8121 (2011).
15. C. Roychoudhuri, A. F. Kracklauer and A. Khrennikov, Organizing Editors; *The Nature of Light: What Are Photons?* Proc. SPIE Vol.7421 (2009).
16. C. Roychoudhuri, Katherine Creath and A. F. Kracklauer, Organizing Editors; *The Nature of Light: What Are Photons?* Proc. SPIE Vol.6664 (2007).
17. C. Roychoudhuri, Katherine Creath and A. F. Kracklauer, Organizing Editors; *The Nature of Light: What Is a Photon?* Proc. SPIE Vol.5866 (2005); Year of Einstein Special Conference.
18. C. Roychoudhuri & R. Roy, Organizing Editors, Optics & Photonics News Trends, *The Nature of Light: What is a Photon?* Special issue of OPN, October 2003:  
[https://www.osa-opn.org/home/articles/volume\\_14/issue\\_10/features/opn\\_trends%E2%80%94the\\_nature\\_of\\_light\\_what\\_is\\_a\\_photon/](https://www.osa-opn.org/home/articles/volume_14/issue_10/features/opn_trends%E2%80%94the_nature_of_light_what_is_a_photon/)
19. C. Roychoudhuri, Guest Editor for a special section on *Micro Optics*, Opt. Eng. Vol.33 (1994).
20. C. Roychoudhuri & W. Veldkamp, Organizing Editors., Proc. SPIE Vol.1751 (1992); Conf. Proc. *Miniature and Micro Optics: Devices and Systems Applications*.
21. C. Roychoudhuri & W. Veldkamp, Organizing Editors, Proc. SPIE Vol.1544 (1991); *Miniature and Micro Optics: Devices and Systems Applications*.
22. L. E. Cramer, G.T. Forrest & C. Roychoudhuri; Organizing Editors, Proc. SPIE Vol.898 (1988); *Miniature Optics and Lasers*.

## **III. Articles in refereed journals:**

23. C. Roychoudhuri, "Next frontier in physics – space as a complex tension field", J. Mod. Phys., Volume 3, Number 10 (October 2012).
24. C. Roychoudhuri, "Principle of non-interaction of waves", J. Nanophoton., Vol. 4, 043512 (2010); doi:10.1117/1.3467504.

25. D. Cox, J. O'Brien, R. Mallett and C. Roychoudhuri, Foundations of Physics, Volume **37** (4-5) pp.723-733, May, 2007, "Gravitational Faraday Effect Produced by a Ring Laser". [DOI:10.1007/s10701-007-9114-z]
26. C. Roychoudhuri, Phys. Essays **19** (3), September 2006; "Locality of superposition principle is dictated by detection processes".
27. C. Roychoudhuri and M. Tayahi, "Spectral Super-Resolution by Understanding Superposition Principle & Detection Processes"; manuscript ID# IJMOT-2006-5-46; Intern. J. of Microwave and Optics Tech., July 2006. <http://www.ijmot.com/papers/membercheck.asp?id=IJMOT-2006-5-46>
28. D. Lee and C. Roychoudhuri, Optics Express **11**(8), 944-51, (2003), "Measuring properties of superposed light beams carrying different frequencies"; [<http://www.opticsexpress.org/abstract.cfm?URI=OPEX-11-8-944>].
29. David Young and C. Roychoudhuri, "Results and comparison of a cladding pumped fiber simulation using a decagon-shaped fiber", Optics Express, **11** (7), 830-837 (2003); <http://www.opticsexpress.org/abstract.cfm?URI=OPEX-11-7-830>.
30. N. Stelmakh, J. Lopez, O. Smolski and C. Roychoudhuri "100W 50ps gain switched pulses from vertical-stack laser diode", Electronics Letters, **36**(12), 1022-24, (2000).
31. Xingdong Peng, Chandra Roychoudhuri, Opt. Engineering, Vol.**39** (7) 2000; "Design of High Finesse, Wide-Band Fabry-Perot Filter Based on Chirped Fiber Bragg Grating by Numerical Method".
32. Jun Jiang, O. Smolski, C. Roychoudhuri, E. Portnoi, G. Venus, I. Gadjiev and J. McKillop, Electron. Letts. **35**(21), p.1847 (1999); "Broad tunability of grating coupled surface-emitting laser with external cavity".
33. J. Anderson and C. Roychoudhuri, "Diffraction of an Extremely Short Optical Pulse", J. Opt. Soc. Am., **15** (2), 456-463(1998).
34. W.-Q. Chen, C. Roychoudhuri, & C. Banas; Opt. Eng. **33**, 3662-3669 (1994); "Design Approaches for Laser Diode Material Processing Systems Using Fibers and Micro-Optics".
35. F. X. D'Amato, E. T. Siebart & C. Roychoudhuri; Appl. Phys. Letts. **55** (9), 816-818 (1989); "Coherent Operation of an Array of Diode Lasers Using a Spatial Filter in a Talbot Cavity".
36. G. L. Clark, L. O. Heflinger & C. Roychoudhuri; IEEE **JQE-18**(2), 199 (1982); "Dynamic Wavelength Tuning of Single Mode GaAlAs Lasers".
37. C. Roychoudhuri, Appl. Opt.**19** (12), 1903 (1980); "Multimode Fiber Optic Interferometry".
38. B.J. Thompson & C. Roychoudhuri; Opt. Acta, **26**(1), 21 (1979); "On the Propagation of Coherent and Partially Coherent Light".
39. C. Roychoudhuri & M. Hercher; Appl. Opt. **16**(9), 2514 (1978); "Stable Multipass Fabry-Perot Interferometer: Design and Analysis", (a part of Ph.D. Thesis).
40. C. Roychoudhuri & R. Machorro; Appl. Opt. **17**(6), 848 (1978); "Holographic Nondestructive Testing at the Fourier Plane".
41. C. Roychoudhuri; Foundations of Physics, **8**(11/12), 845 (1978); "Heisenberg's Microscope – A Misleading Illustration".

42. C. Roychoudhuri; Opt. Eng.; **16**(2), 173 (1976); "Passive Pulse Shaping Using Delayed Superposition".
43. C. Roychoudhuri; J. Opt. Soc. Am.; **65**(12), 1418 (1975); "Response of Fabry-Perot Interferometers to Light Pulses of Very Short Duration". (The analysis of this paper is followed and cited in two books: a. "Fabry-Perot Interferometers"; G. Hernandez, Cambridge U., 1986 and b. "The Fabry-Perot Interferometer"; J. M. Vaughan; Adam Hilger, 1989.)
44. C. Roychoudhuri & D. Malacara; Appl. Opt. **14**(7), 1683 (1975); "Spatial Filtering and Image Positive-Negative Reversal".
45. C. Roychoudhuri, J.C. Fouere & A. Cornejo; Appl. Opt. **14**(9), 2051 (1975); "Temporal Coherence Length and Speckle: A Simultaneous Approach to Those Problems in Holography".
46. C. Roychoudhuri & R.H. Noble; Am. J. Phys. **43**(12), 1057 (1975); "Demonstration using a Fabry-Perot. II. Laser Modes Display". (This paper is also reprinted in the book, "Lasers: Selected Reprints", Eds. D.C. O'Shea & D.C. Peckham; Am. Assn. Physics Teachers, 1982.)
47. C. Roychoudhuri; Am. J. Phys. **43**(12), 1054 (1975); "Demonstration Using a Fabry-Perot. I. Multiple-Slit Interference".
48. J. C. Fouere, C. Roychoudhuri, Opt. Com. **12**(1), 29 (1974); "A Holographic Radial and Lateral Shear Interferometer".
49. C. Roychoudhuri, Opt. Com. **10**(2) 160 (1974); "Dynamic and Multiplex Holography with Scanning Fabry-Perot Fringes".
50. C. Roychoudhuri & B.J. Thompson, Opt. Com. **10**(1), 23 (1974); "Infrared Holography with 4-Z Emulsion".
51. C. Roychoudhuri & B.J. Thompson; Opt. Eng. **13**(4), 347 (1974); "Application of Local Reference Beam Holography to the Study of Laser Beam Parameters".
52. E. Brody, C. Roychoudhuri & M. Hercher; Appl. Phys. Lett. **23**(10), 543 (1973); "Brillouin Spectra of CaF<sub>2</sub> Microcrystals Using a Stable 3-Pass Fabry-Perot Interferometer". (A part of Ph.D. Thesis)

**IV. Full papers in Conference Proceedings:**

53. C. Roychoudhuri, "Could space be considered as the inertial rest frame?"; Proc. SPIE Vol.9570-30 (2015).
54. C. Roychoudhuri, "Urgency of evolution process congruent thinking in physics"; Proc. SPIE Vol.9570-07 (2015).
55. C. Roychoudhuri, "Panel discussion on the origin of electron: The next level of unification: Waves and particles as emergent oscillations of the same Complex Tension Field (CTF)"; Proc. SPIE Vol.9570-100 (2015).
56. C. Roychoudhuri and M. Ambroselli, "Modelling superposition of 3- & N-polarized beams on an isotropic photo detector", Proc. SPIE Vol.9570-46 (2015).

57. M. Ambroselli and C. Roychoudhuri, "Did Planck, Einstein and Bose count indivisible photons, or discrete emission and absorption processes in a black-body cavity?"; Proc. SPIE Vol.9570-09 (2015).
58. N. Prasad and C. Roychoudhuri, "Tabletop demonstration of Non-Interaction of Photons and Non- Interference of Waves", Proc. SPIE Vol.9570-47 (2015).
59. N. Tirfessa, M. Ambroselli and C. Roychoudhuri, "Is the natural linewidth an accurate representation spontaneous emission life-times; or due to time-finite envelopes of the emitted wave packets?", Proc. SPIE Vol.9570-31 (2015).
60. C. Roychoudhuri, "Tribute to H. John Caulfield: Hijacking of the 'holographic principle' by cosmologists," Proc. SPIE 8833-15 (2013).
61. C. Roychoudhuri, "How would photons describe natural phenomena based upon their physical experiences?" Proc. SPIE 8832-34 (2013).
62. C. Roychoudhuri and M. Ambroselli, "Can one distinguish between Doppler shifts due to source-only and detector-only velocities?" Proc. SPIE 8832-49 (2013).
63. M. Ambroselli and C. Roychoudhuri, "Resonant energy absorption and the CTF hypothesis," Proc. SPIE 8832-29 (2013).
64. N. Prasad and C. Roychoudhuri, "Does the Coherent Lidar System Corroborate Non-Interaction of Waves (NIW)?", Proc. SPIE 8832-08 (2013).
65. N. Prasad and C. Roychoudhuri, "Understanding beam alignment in a coherent lidar system", Proc. SPIE 8832-09 (2013).
66. C. Roychoudhuri and N. Prasad, "Discerning comb and Fourier mean frequency from a fs laser, based on the principle of non-interaction of waves", Proc. SPIE Vol. **8236**, paper #16 (2012).
67. C. Roychoudhuri, "Exploring light-matter interaction processes to appreciate various successes behind the Fourier theorem!" Conference honoring J. W. Goodman; SPIE. Proc.Vol.8122-15 (2011).
68. C. Roychoudhuri, M. Barootkoob and M. Ambroselli, "The constancy of "c" everywhere requires the cosmic space to be a stationary and complex tension field"; SPIE Conf. Proc. Vol.8121-23 (2011).
69. C. Roychoudhuri, "Appreciation of the nature of light demands enhancement over the prevailing scientific epistemology"; in this volume; Proc. SPIE Vol.8121- 58 (2011).
70. C. Roychoudhuri, "Re-interpreting *coherence* in light of Non-Interaction of Waves, or the NIW-Principle"; SPIE Conf. Proc. Vol.8121-44 (2011).
71. M. Ambroselli and C. Roychoudhuri, "Visualizing superposition process and appreciating the principle of Non-Interaction of Waves"; Proc. SPIE Vol. 8121-49 (2011).
72. M. Ambroselli, P. Poulos and C. Roychoudhuri, "Nature of EM waves as observed & reported by detectors for radio, visible and gamma frequencies", Proc. SPIE Vol.8121-41 (2011)
73. N. Tirfessa and C. Roychoudhuri, "Analysis of spectrometric data and detection processes corroborate photons as diffractively evolving wave packets", Proc. SPIE **Vol.8121-33** (2011).

74. C. Roychoudhuri, "Measurement Epistemology and Time-Frequency Conjugate Spaces", doi:<http://dx.doi.org/10.1063/1.3431483>; AIP Conf. Proc. 1232, pp. 143-152 (2009).
75. C. Roychoudhuri, "Why we need to continue the 'What is a Photon?' conference: To re-vitalize classical and quantum optics"; SPIE Conf. Proc. Vol. **7421**-28 (2009); keynote presentation.
76. C. Roychoudhuri, "Comments on the panel discussions: Is indivisible single photon really essential for quantum communications, computing and encryption?" SPIE Conf. Proc. Vol. **7421**(2009).
77. A. Muthukrishnan and C. Roychoudhuri, "Indivisibility of the Photon." SPIE Proc. Vol.**7421**-4 (2009).
78. N. Prasad and C. Roychoudhuri, "Exploring divisibility & summability of 'photon' wave packets in nonlinear optical phenomena." SPIE Proc. Vol. 7421-8 (2009).
79. Q. Peng, A. M. Barootkoob & C. Roychoudhuri "What can we learn by differentiating between the physical processes behind interference and diffraction phenomena?" SPIE Proc. Vol. 7421-9 (2009).
80. C. Roychoudhuri, "Can photo sensors help us understand the intrinsic difference between quantum and classical statistical behavior?" AIP Conf. Proc. Vol.**1101**, pp. 167-177 (2009); Fifth Conf. on "Foundations of Probability & Physics"; Sweden, Aug.24-27, 2008.
81. C. Roychoudhuri & N. Prasad, "Light-matter interaction processes behind intra-cavity mode locking devices." SPIE Conf. Proc. Vol.**7193**, paper #67 (2009).
82. C. Roychoudhuri, "What is Coherence"; Proceedings of International Photonics Conference, New Delhi, India, December, 2008; **Invited Talk**.
83. C. Roychoudhuri and A. Michael Barootkoob, "Generalized quantitative approach to two-beam fringe visibility (coherence) with different polarizations and frequencies"; SPIE Conf. Proc. Vol. **7063**, paper #4 (2008).
84. C. Roychoudhuri, "Shall we climb on the shoulders of the giants to extend the reality horizon of physics?" AIP Conf. Proc. Vol.**962** (2007), *Quantum Theory: Reconstruction of Foundations – 4*; **Invited Talk**.
85. C. Roychoudhuri, "Bi-centenary of successes of Fourier theorem! Its power and limitations in optical system designs"; SPIE Conf. Proc. Vol. **6667**, paper #18 (2007). **Invited paper**.
86. C. Roychoudhuri, "Can the hypothesis 'photon interferes only with itself' be reconciled with superposition of light from multiple beams or sources?" SPIE. Proc. Vol.**6664** (2007); doi: 10.1117/12.734363.
87. C. Roychoudhuri, "Can a deeper understanding of the measured behavior of light remove wave-particle duality?" SPIE. Proc. Vol.**6664** (2007); doi: 10.1117/12.740189.
88. C. Roychoudhuri and P. Poulos, "Can we get any better information about the nature of light by comparing radio and light wave detection processes?" SPIE. Proc. Vol.**6664** (2007); *The Nature of Light: What Are Photons?* doi: 10.1117/12.740177.
89. C. Roychoudhuri, N. Tirfessa, C. Kelley & R. Crudo; SPIE Proc. Vol.**6468**, paper #53 (2007). "If EM fields do not operate on each other, why do we need many modes and large gain bandwidth to generate short pulses?"

90. C. Roychoudhuri and N. Prasad "Various ambiguities in re-constructing laser pulse parameters", proceedings of the October, 2006 IEEE-LEOS Annual Conference, Montreal, Canada; Invited Talk.
91. C. Roychoudhuri and N. Tirfessa, Proc. SPIE Vol.**6372**-29 (2006), "Do we count indivisible photons or discrete quantum events experienced by detectors?"
92. C. Roychoudhuri, D. Lee and P. Poulos, Proc. SPIE Vol.**6290**-02 (2006); "If EM fields do not operate on each other, how do we generate and manipulate laser pulses?"
93. C. Roychoudhuri and C. V. Seaver, Proc. SPIE Vol. **6285**-01, **Invited**, (2006) in *The nature of light: Light in nature*; "Are dark fringe locations devoid of energy of superposed fields?"
94. C. Roychoudhuri and N. Tirfessa, Proc. SPIE Vol.**6292**-01, **Invited** (2006); "A critical look at the source characteristics used for time varying fringe interferometry".
95. C. Roychoudhuri and V. Lakshminarayanan, Proc. SPIE Vol.**6285**-08 (2006) in *The nature of light: Light in nature*; "Role of the retinal detector array in perceiving the superposition effects of light".
96. C. Roychoudhuri, Proc. SPIE Vol. **6108**-50(2006); "Reality of superposition principle and autocorrelation function for short pulses".
97. C. Roychoudhuri, Proc. SPIE Vol.**5866**-05, pp.26-35 (2005); "If superposed light beams do not re-distribute each other's energy in the absence of detectors (material dipoles), can an indivisible single photon interfere by/with itself?"
98. C. Roychoudhuri, Proc. SPIE Vol.**5866**-16, pp.135-146(2005); "What are the processes behind energy re-direction and re-distribution in interference and diffraction?"
99. C. Roychoudhuri, "Propagating Fourier frequencies vs. carrier frequency of a pulse through spectrometers and other media"; Proc. SPIE Vol.**5531**, 450-461(2004); *Interferometry-XII: Techniques and Analysis*.
100. C. Roychoudhuri and Marc Nantel, "The Global Photonics Education Network: Another Way to Think Globally and Act Locally", Proceedings of ETOP-2003 Conference, paper # EME 6.
101. C. Roychoudhuri, D. Lee, Y. Jiang, S. Kittaka, M. Nara, V. Serikov and M. Oikawa, Proc. SPIE Vol.**5246**, 333-344, (2003) **Invited**; "Limits of DWDM with gratings and Fabry-Perots and alternate solutions".
102. O. V. Smolski, J. Jiang, C. Roychoudhuri, E. L. Portnoi, J. Bullington, Proc. SPIE Vol.**4651**, paper # 09, (2002); "Tunable pico second pulses from gain-switched grating coupled surface emitting lasers".
103. C. Roychoudhuri, Proc. SPIE Vol.**4588**, pp.-xxi-xxxiv, (2001); "Global networking to promote technician education: problems and solutions"; Organizer and Moderator.
104. C. Roychoudhuri, Proc. SPIE, Vol.**3274**-33 (1998); "Desk-Top Manufacturing Using Diode Lasers"; invited paper in *"Laser Applications in Microelectronic and Optoelectronic Manufacturing"*.
105. T. Manzur, C. Roychoudhuri, Puneit Dua, Fahmida Hossain and Harris Marcus, Proc. 8<sup>th</sup> Annual Conference, *Solid Free Form Fabrication* (1997); "Net Shape Functional Parts Using Laser Diodes".

106. T. Manzur, C. Roychoudhuri, Z. M. Bzymek & B.T. Ramkrishnan, Proceedings of *Virtual Vehicle Design Conference*, pp.281-289 (1996), Florence, Italy; "Solid Free-Form Fabrication From Metal/Ceramic Powders Using High Power Laser Diodes".
107. C. Roychoudhuri, T. Manzur, T. DeMaria, W. Chen, Proc. SPIE Vol.**2703**, 490-501 (1996); "Potential Role of High Power Laser Diode in Manufacturing"; in *Lasers as Tools for Manufacturing of Durable Goods and Microelectronics*.
108. C. Roychoudhuri & T. Manzur, Proc. SPIE Vol.**2525**, 28-44 (1995), "Demonstration of the Evolution of Spectral Resolving Power as Superposition of Higher Order Delayed Beams".
109. C. Roychoudhuri and K.R. Lefebvre, Proc. SPIE Vol.**2525**, 148-160 (1995); "Introducing van Cittert-Zernike Theorem to Undergraduates Using the Concept of Fringe Visibility".
110. L.S. Pedrotti, N.J. Massa, E.P. Soulsby, J. Enderle, and C. Roychoudhuri., Proc. SPIE Vol.**2525**, 526-537 (1995); "Comprehensive Approach to Photonics Education for Education for Technicians, Engineers & Scientists in a 4+2+2 Program".
111. V.G. Mutalik, A.V. Srinivasan, H. Canistraro, M. Hodge, & C. Roychoudhuri; Proc. of 2<sup>nd</sup> International Conference on Intelligent Materials (1994); "Twisted and Braided Fiber-Optic Sensors in Smart Structures" in.
112. C. Roychoudhuri and W. Q. Chen, Proc. 4<sup>th</sup> Micro-Optics Conference & 11<sup>th</sup> Topical Meeting on *Gradient-Index Optical Systems* (MOC/GRIN), 1993, Kawasaki, Japan; "New Applications of High Power Laser Diodes". Invited Paper.
113. V.G. Mutalik, A.V. Srinivasan, M. Hodge & C. Roychoudhuri; Proc. CMOC Annual Conference (1993), Connecticut; "Twisted and Braided Fiber-Optic Sensors in Smart Structures Applications".
114. F. X. D'Amato, E. T. Siebart & C. Roychoudhuri ; Proc. SPIE Vol.**1043** (1989); "Mode Control of an Array of AlGaAs Lasers Using a Spatial Filter in a Talbot Cavity".
115. C. Roychoudhuri & R. Yee ; Proc. SPIE Vol.**1044**, 81 (1989); "Spectrally Stable Miniature External Cavity Laser Oscillator".
116. C. Roychoudhuri; Proc. IEEE-LEOS Annual Conf. (1988); "Review of Compact Cavities for Coherent Array Lasers", Invited Paper.
117. P. d'Groot, F.X. D'Amato, G. Gallatin, R.M. Dixon & C. Roychoudhuri; Proc. SPIE Vol.**1103**, 168 (1988); "Backscatter Modulation Semiconductor Laser Radar".
118. C. Roychoudhuri; Proc. SPIE Vol.**740**, 66 (1987); "Laser Beam Combining Technology". Invited Paper.
119. C. Roychoudhuri, J. Siqueiros & E. Landgrave; p.87-94, Proc. Conf. *Optics in Four Dimensions*, Eds. M. A. Machado Gama & L. M. Narducci, American Institute of Physics (1981); "Concepts of spectroscopy of pulsed light".
120. G. L. Clark & C. Roychoudhuri ; Proc. SPIE Vol.**192**, 196 (1979); "Interferometry through single mode optical fiber".



#### **V. Articles in Magazines & Trade Journals :**

121. C. Roychoudhuri, "The nature of light: what are photons?" January 4, 2007, SPIE Web publication [<http://newsroom.spie.org/x5251.xml>].
122. C. Roychoudhuri, W. Chen, T. Manzur and A.J. DeMaria, Laser Focus World, pp.97-102, September, 1996; "Diode Lasers Point to Desktop Manufacturing".
123. E. Landgrave, J. Siqueiros & C. Roychoudhuri; Boletin. Inst. Tonantzintla, **3**(1), 141 (1982); "Fabry-Perot interferograms for amplitude and phase modulated light."
124. C. Roychoudhuri & S. Calixto; Boletin. Inst. Tonantzintla, **2**(3), 187 (1977); "Spectroscopy of Short Pulses".
125. C. Roychoudhuri, Boletin. Inst. Tonantzintla, **2**(3), 165 (1977); "Causality and Classical Interference and Diffraction Phenomena".
126. A. G. Laguna-Alaya & C. Roychoudhuri; Boletin Inst. Tonantzintla, **2**(2),109, (1976); "States of Polarization in a Gas Laser with Internal Mirrors".
127. C. Roychoudhuri; Bol. Inst. Tonantzintla **2**(2), 101 (1976); "Is Fourier Decomposition Interpretation Applicable to Interference Spectroscopy?"
128. C. Roychoudhuri, R. Machorro & M. Cervantes; Bol. Inst. Tonantzintla **2**(1), 55 (1976); "Some Interference Experiments and Quantum Concepts, II".
129. C. Roychoudhuri; "Two Beam Interference Experiments and Some Quantum Concepts"; Bol. Inst. Tonantzintla **1**(5), 259 (1975).

#### **VI. Articles in Industrial and Government Reports (proprietary internal publications):**

130. S. Macomber, E. Siebart, R. Noll, E. Garcia and C. Roychoudhuri (Project manager); Air Force PILOT contract final report (1990) on phase locking of diode arrays by Talbot cavity; Perkin-Elmer. (A major Air Force initiative on phasing high power laser diodes.)
131. P. Mehta, D. Kittel and C. Roychoudhuri (Project manager); RADC Laser Communication contract final report on wave front correcting system (1989) with 30 radially distributed moment actuated deformable mirror. Perkin-Elmer. (Working system delivered to Air Force.)
132. C. Roychoudhuri, TRW IR&D Report (1985); "Phased array diode pumped solid state laser". (A miniature side pumped slab laser; earned TRW IR&D award).
133. C. Roychoudhuri, TRW IR&D Report (1984); "High average power solid state lasers". (Laser cavity system design considerations for high power YAG lasers. Earned TRW IR&D award).
134. C. Roychoudhuri, TRW IR&D Report (1984); "Intracavity wavelength multiplexing of laser diode arrays"; (Solves wavelength stability issues for high speed communication systems).
135. C. Roychoudhuri, TRW IR&D Report (1984); "Single step blue laser using a segmented array of ZnSe pumped by e-beam".
136. C. Roychoudhuri & H. Injeyan, TRW IR&D Report (1983); "Beacon laser performance improvement"; (Optical system design for intra-cavity summing of CW

laser diodes at 0.85 and 1.3 $\mu$  through LiI<sub>3</sub>, Methyl Nitro-Aniline and Meta-Nitro-Aniline crystals to produce blue-green laser beam).

137. C. Roychoudhuri, A.B. Horowitz, G.L. Clark & L.O. Heflinger; TRW IR&D and Navy SLCSAT project report (1982); "Tunable laser diodes". (The first such demonstration of blue-green laser by summing low power CW 0.85 and 1.3 $\mu$  CW laser diodes in a multiplexed and resonant external cavity).
138. G.L. Clark & C. Roychoudhuri; TRW IR&D report (1980); "Spectral control of diode lasers";. (Spectral and thermal control of laser diodes for 1 GHz 20-channel multiplexed communication systems.)
139. G.L. Clark, C. Roychoudhuri & L.O. Heflinger; TRW IR&D Report (1978); "Optical space communications";. (Optical system design and demonstration of wavelength multiplexing of laser diodes for space communication. This IR&D led to a very large multi-year communications system program; this was the first demonstration of a 20-channel 1-Gigahertz wavelength multiplexed laser diode communication demonstration.)
140. M. Hercher and C. Roychoudhuri (Graduate Research Assistant); Final contract report for ARPA (1970); "Thermal distortion of lamp pumped Ruby and YAG laser rods using time resolved interferometry and holography"; U. of Rochester.

**VII. Invited scholarly colloquia, presentations, symposia or workshops by the author (documented only since 2006)**

141. "Nature of light: What are photons?" Yearly workshop at the SPIE-Photonics West Conference; San Francisco, continuing since 2010.
142. "Nature of light: the hybrid photon"; colloquium, The College of Optics and Photonics (CREOL), Orlando, FL, USA; March 2, 2018.
143. "What are the physical processes behind a 50% beam combiner behave as a 0%-100% reflector/transmitter inside an MZ or a Fabry-Perot interferometer?" Colloquium, The Institute of Optics, University of Rochester, NY; April 10, 2017.
144. "Re-interpreting "coherence" in light of Non-Interaction of Waves, or the NIW-Principle"; Warsaw University, Warsaw, Poland; November 24, 2011.
145. OSA-Fellow-Lecturer: three-lecture workshop on the "Basic Classical & Quantum Optics In light of Non-Interaction of Waves": (i) Lecture-1: "Conceptual Contradictions - Identifying existing inconsistencies, paradoxes and contradictions in explaining optical phenomena"; (ii) Lecture-2: "Resolving the Contradictions by focusing on (a) the NIW-principle (Non-Interaction of Waves), and (b) the Interaction Process Mapping Epistemology (IPM-E)"; (iii) Lecture-3: "Sharpening the thinking process - How to think? Developing the Interaction Process Mapping Epistemology (IPM-E)" [a part of an advanced consilient epistemology]; November 26, 2011.
146. "Nature of light: What are photons?" Second annual workshop at the SPIE-Photonics West Conference; San Francisco, January, 2011.
147. OSA-Fellow-Lecturer: "Modern Optical Physics: (i) Lecture-1: Identifying existing contradictions and paradoxes; (ii) Lecture-2: "Resolving paradoxes by focusing on (i)

- NIW-principle and (ii) Interaction process mapping”; (iii) Lecture-3: “How to think: Interaction-Process-Mapping Epistemology (IPM-E) & an advanced consilient epistemology”; IFSC, OSA Student Chapter, University of Sao Paulo, August 4, 2010.
148. “Enhancing optical physics by incorporating the NIW-principle (Non-Interaction of Waves).” Colloquium at the College of Optical Sciences, Tucson, Arizona; May, 2010.
  149. OSA-Fellow-Lecturer: Lecture 1: “Photonics: The most influential & empowering tool for philosophers, scientists and technologists of all times!” Lecture 2: “How to think! A Consilient Epistemology: Structuring Evolution of Scientific Thinking”. OSA Fellow Lecture series at the National Institute of Technology, Tiruchirapalli, India. Feb. 2010.
  150. “Re-vitalizing Classical and Quantum Physics Based on the NIW-Principle [NIW = Non-Interference of Waves]”. Colloquia at the National Institute of Technology, Tiruchirapalli, India. Feb.2010.
  151. “Utilizing the NIW Principle [Non-Interference of Waves] to Re-vitalize Classical and Quantum Optics.” Invited discussions at the Maryland University-Baltimore Campus, Baltimore, MD. Nov. 2009.
  152. “Utilizing the NIW Principle [Non-Interference of Waves] to Re-vitalize Classical and Quantum Optics.” Invited colloquia at the Howard University: Nov. 2009.
  153. “Utilizing the NIW Principle [Non-Interference of Waves] to Re-vitalize Classical and Quantum Optics.” Invited colloquia at NASA, Godard, Baltimore, MD. Nov. 2009.
  154. “How we are becoming Knowledge Age Neanderthal!” Invited Guest Lecture at a fund raising dinner event at the Manchester Community College, Manchester, CT. Oct., 2009.
  155. “A Consilient Epistemology: Structuring Evolution of Scientific Thinking.” Invited Guest Lecture at the CYBER meeting, School of Business, University of Connecticut, Storrs. Oct., 2009.
  156. “Consilient Epistemology: Structuring Evolution of Scientific Thinking.” Invited lecture at the international conference, CHESS [**C**omputer science, **H**umanities, **E**ngineering **E**ducation **E**conomics & **S**ciences], at the University of Saskatchewan, Saskatoon, Canada. Aug. 2009.
  157. “What are the roles of mathematically assigned or transformed spaces, in modeling realities of nature?” Invited talk at the conference “Quantum Theory – Foundation Reconsidered -5”, held in Sweden, June 15-18, 2009.
  158. “Re-vitalizing classical & quantum optics by being faithful to detection processes.” Invited Colloquium at the Department of Optics, University of Calcutta (Kolkata). May, 2009.
  159. “Shall we re-visit “optical coherence” based on physical processes behind measurements?” Seminar-1 at the Latvia University, April 22, 2009, as an OSA-Fellow Lecture.
  160. “How to think like a “photon” & why?” Seminar-2 at the Latvia University, April 24, 2009, as an OSA-Fellow Lecturer.
  161. “Understanding optical phenomena as reported by detecting instruments.” Seminar-3 at the Latvia University, April 25, 2009, as an OSA-Fellow Lecture.
  162. “Two centuries of Fourier theorem: Its successes and enigmatic issues that are holding back the progress of physics!” Invited colloquium at the Rutgers University, NJ. March 2009.
  163. “Space-The Last Scientific Frontier! Exploring Space Properties through Classical and Quantum Optics”; Presidency College, Kolkata, India; Dec.12, 2008.

164. "Process based reality epistemology applied to optical phenomena"; talk at the "International Workshop on Exploring Reality in Physics"; March 5-7, 2008, which was organized by me.
165. "Inevitable incompleteness of all theories: An epistemology to continuously refine human logics towards cosmic logics"; talk at the "International Workshop on Exploring Reality in Physics"; March 5-7, 2008, INAOE, Puebla, Mexico. I was the key organizer of the "educational" component.
166. "Can classical optical superposition principle get us out of non-locality and bring back REALITY in modern physics?" **Invited Talk** at the ETOP Conference at Ottawa, June 3, 2007.
167. "Space – the Final Scientific Frontier", Three River Community College, May 1, 2007.
168. "Cosmic space is the final frontier in science – for everything is some kind of undulation in it!" Central Connecticut State University, April 19, 2007.
169. "Understanding and exploiting the absence of direct interaction between light beams", April 5, 2007, San Yat-Sen University, Guangzhou, China.
170. "Achieving spectral super resolution and finding new engineering applications", April 3, 2007, San Yat-Sen University, Guangzhou, China.
171. "Optical spectroscopy of pulsed light", Penn State University, March 28, 2007.
172. Invited Workshop on Measurements: "Fundamental limits in optical measurements", Dec. 20, 2006.
173. "How to appreciate diverse superposition phenomena when EM fields do not operate on each other?" Invited Talk; Photonics India Conference, December 2006, Hyderabad, India.
174. "If EM fields do not operate on each other, can a single photon interfere with itself?" Department of Physics, University of Connecticut, September 29, 2006.
175. Etc.

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