

CURRICULUM VITAE

ROBERT R. ALFANO

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EXPERIENCE

a. Research

Institution	Dates	Rank
City College of NY New York	2004-	Director of DOD Center for Nanoscale Photonic Emitters and Sensors
City College of NY New York	2003-	Director of NASA Center of Optical Sensing and Imaging
City University of NY New York	1993-	Director of NYS Center for Advanced Technology in Ultrafast Photonics
City College of NY New York	1998-2002	Director of DOE Center for Laser Imaging and Cancer Diagnostics
City University of NY New York	1994-2002	Director of NASA IRA Program on Tunable Solid State Lasers and Optical Imaging
City College of NY New York	1987-	Director of Mediphotonics Laboratory
City College of NY New York	1985-	Director of Photonic Application Laboratory
City College of NY New York	1982-	Director of Institute for Ultrafast Spectroscopy and Lasers
City College of NY New York	1974-1981	Director of Picosecond Laser and Spectroscopy Laboratory
GTE Research Labs Waltham, Mass	1972-1974	Visiting Scientist
GTE Research Labs Bayside, NY	1964-1972	Member Technical Staff Research Physicist
Fairleigh Dickinson Univ. Teaneck, NJ	1963-1964	Honor Research Fellow

b. Teaching

Institution	Dates	Rank	Department
The Graduate School & Univ. Ctr City College of NY	7/2001- 4/1987-	Distinguished Professor Distinguished Professor of Science and Engineering	Psychology Physics and Electrical Engineering
City College of NY	1983-87	Herbert Kayser Prof.	Electrical Engineering
City College of NY	1978-87	Professor	Physics
City College of NY	1974-77	Assoc. Prof.	Physics
City College of NY	1972-74	Asst. Prof.	Physics
Fairleigh Dickinson Univ.	1968-72	Adjunct Lect.	Physics

HIGHER EDUCATION

Institution	Dates Attended	Degrees & Major	Date Conferred
New York University	9/64-10/72	Ph.D. Physics	1972
Fairleigh Dickinson Univ.	6/63-6/64	M.S. Physics	1964
Fairleigh Dickinson Univ.	9/59-6/63	B.S. Physics	1963

ACADEMIC AND PROFESSIONAL HONORS

Chair, Optical Tomography and Spectroscopy of Tissue VII, SPIE Conference on Progress in Biomedical Optics and Imaging, January 23-26, 2005

Chair, Optical Biopsy V, SPIE Conference on Progress in Biomedical Optics and Imaging, January 27-28, 2004

Chair, Optical Tomography and Spectroscopy of Tissue V, SPIE Conference on Progress in Biomedical Optics and Imaging, January 26-29, 2003

Editorial Board of Journal of Biomedical Optics (2003)

Coherent Award for Lifetime Achievement in Biophotonics (2002)

Editorial Board of Technology in Cancer Research & Treatment (2001)

IEEE Fellow – January 1, 2001

Certificate of Completion – The NIH Office of Human Subjects Research, November 1, 2000.

Conference Chairman of SPIE – International Symposium on BiOS 2000, Optical Biopsy III (BO22), January 2000.

Member of Program Committee of SPIE Biomedical Optoacoustics (BO19) Conference, January 2000.

Conference Chairman of OSA - Advances in Optical Imaging and Photon Migration, March 1996.

Conference Chairman of SPIE - Advances in Laser and Light Spectroscopy to Diagnose Cancer and Other Tissues, Optical Biopsy III, January 1996.

Conference Chairman of OSA - Advances in Optical Imaging and Photon Migration, March 1994.

Conference Chairman of SPIE - Advances in Laser and Light Spectroscopy to Diagnose Cancer and Other Tissues, January 1994.

Presider, Symposium on Optical Imaging of Biological Tissues with Photon Density Waves, OSA Annual Meeting, October 1993.

Presider, Lasers in Medicine, OSA Annual Meeting, October 1993

Conference Chairman of SPIE - Photon Migration and Imaging in Random Media and Tissues, January 1993

Leonardo Da Vinci Award (1991)

Editorial Board of Journal of Laser Applications (1991-)

Presider, New Semiconductor Materials Systems, Conference of Quantum Electronics Laser Science, Baltimore, MD, May 12-17, 1991.

Fellow of Optical Society of America (1989 to date)

Senior Member of IEEE (1989 to date)

Member of Board of Directors of Laser Institute of America (1989 to 1992)

Editorial Board of Review of Scientific Instruments (1989-1991)

Conference Organizer of Electrochemical Society - Photonic, Ultrafast Phenomena and Nonlinear Optics at Annual Meeting 1986, 1988, 1989

Conference Organizer of SPIE - Ultrafast Lasers Probe Phenomena in Bulk and Microstructures, March 1987, March 1988, March 1990

Editor of Special Issue on Lasers in Biology and Medicine, Vol. 20, #12 (1984)

Outstanding Italian-American Award for Science (1983)

Program Committee for International Meeting for Picosecond Phenomena 1980, 1984

Research Corporation Award

Advisory Board of Photonic Magazine (1978 to date)

Fellow of American Physical Society (1976 to date)

A. P. Sloan Fellow 1975-80

Phi Beta Kappa Honor Society

Phi Omega Epsilon Honor Society

Who's Who in East
 Who's Who in High Technology
 Who's Who in US
 Who's Who in Frontiers of Science and Technology
 Who's Who of American Inventors

PUBLICATIONS

Citations as of September 9, 2005: 9083

Patents

1. Picosecond Spectrometer Using Picosecond Continuum - Patent 3,782,828 (Jan. 1, 1974).
2. Method and Apparatus for detecting the Presence of Caries in Teeth using Visible Luminescence - R. R. Alfano, Patent #4290 433 (September 22, 1981).
3. Method and Device for Detecting the Threshold of Generation of a Laser Beam - R. R. Alfano and N. H. Schiller, #4,277,669 (July 7, 1981).
4. Stabilized Pulse Producing Mode Locked Laser System, Robert R. Alfano, Bruce H. Green, #4,291,282 (September 22, 1981).
5. Apparatus and Method for use in Calculating the Time Axis and Intensity Linearity of a Streak Camera, N. Schiller and R. R. Alfano, #4,435,727 (March 6, 1984).
6. Picosecond Delay Device, N. Schiller, R. Alfano, #4,438,416 (March 20, 1984).
7. Emerald Laser, Chromium Doped Beryllium Aluminum Silicate Laser Systems - R. R. Alfano and Janusz M. Buchert #4,464,761 (August 7, 1984).
8. Method and Apparatus for Detecting the Presence of Caries in Teeth using Visible Light, R. R. Alfano, #4,479,499 (October 30, 1984).
9. Method and Apparatus for Detecting the Presence of Caries in Teeth using Visible Luminescence - #381,170 (January 29, 1985) revised version of 1981).
10. Compact Temporal Spectral Photometer, N. H. Schiller and R. R. Alfano - #4,630,925 (December 23, 1986).
11. Picosecond Gated Light Detection Tube, R. R. Alfano, #4,682,020 (July 21, 1987).
12. Ultrafast Gated Light Detection, R. R. Alfano, #4659921 (April 21, 1987).
13. Photomultiplier Tube having a Transmission Strip Line Photocathode and System for use therewith, R. R. Alfano, A. D. Walser, #4,853,595 (August 1989).
14. Apparatus for Sensing and Displaying the Temporal Properties of a Plurality Light Signals occurring at Different Locations Simultaneously, R. R. Alfano and N. Schiller #607,600 - **Israel** patent ((July 5, 1984) issued October 2, 1989).
15. Compact Temporal Spectral Photometer, N. Schiller and R. R. Alfano, #1493894 **Japanese** Patent Application No. 204619/1983 (April 20, 1989).
16. Laser Action in Chromium-doped Forsterite, V. Petricevic, S. K. Gayen, R. R. Alfano, #4,932,031 (June 5, 1990).
17. Method for Detecting Cancerous Tissue using Visible Native Luminescence, R. R. Alfano and M. A. Alfano, #4,930,516 (June 5, 1990).
18. Ultrafast Digital Photonic Signal Processing using Optical Noncollinear Second Harmonic Generation, Yao Li, R. R. Alfano, G. Eichmann, #4,918,635 (April 17, 1990).
19. Sensing and Displaying Light Properties, N. H. Schiller, R. R. Alfano, #AU-B-41992/85 - Australian Patent Application No. 41992/85 (February 27, 1986).
20. Ultrafast Sampling Oscilloscope, R. R. Alfano, A. D. Walser, #4,931,704 (June 5, 1990).
21. Ultrafast Oscilloscope, R. R. Alfano, P. P. Ho, #4,956,548 (September 11, 1990).
22. Laser Cavity having an Adjustable Optical Path Length Extender, N. Schiller, R. R. Alfano, #4,969,156 (November 6, 1990).
23. Method and Apparatus for Generating Ultrashort Light Pulses, R. R. Alfano, P. J. Delfyett, R. Dorsinville, #4972423 (November 20, 1990).
24. SHG Autocorrelator, Y. Takiguchi, R. R. Alfano, Y. Budansky, #4973160 (November 27, 1990).
25. Tetravalent Chromium (Cr⁴⁺) as a Laser-Active Ion for Tunable Solid-State Lasers, R. R. Alfano, V. Petricevic, #4987575 (January 22, 1991).

26. Trigger Circuit for a Streak Camera Sweep Drive Circuit, R. R. Alfano, R. Garuthara, #5003168 (March 26, 1991).
27. Apparatus and Method for Measuring the Time Evolution of Carriers Propagating within Submicron and Micron Electronic Devices, R. R. Alfano, P. P. Ho, #5,034,903 (July 23, 1991).
28. Method and Apparatus for Detecting Cancerous Tissue using Luminescence Excitation Spectra, R. R. Alfano, #5,042,494, (August 27, 1991).
29. Optical Method and Apparatus for Diagnosing Human Spermatozoa, R. R. Alfano, George R. Nagamatsu, Nobutoshi Oka, #5,061,075, (October 29, 1991).
30. Method and Apparatus for Creating Transient Optical Elements and Circuits, R. R. Alfano, Yao Li, P. L. Baldeck, #5,126,874, (June 30, 1992).
31. Ultrafast Digital Optical Signal Processing using a Venn Diagram Based Spatial Encoding Technique, Y. Li, R. Dorsinville, R. R. Alfano, #5,136,530, (August 4, 1992).
32. Method and Apparatus for Distinguishing Cancerous Tissue from Benign Tumor Tissue, Benign Tissue or Normal Tissue using Native Fluorescence, R. R. Alfano, B. Das, G. Tang, #5,131,398, (July 21, 1992).
33. Method and Apparatus for improving the Signal to Noise Ratio of an Image formed of an Object hidden in or behind a Semi-opaque Random Media, K. M. Yoo, R. R. Alfano, #5,140,463, (August 18, 1992).
34. Three-dimensional Optical Imaging of Semi-Transparent and Opaque Objects using Ultrashort Light Pulses, a Streak Camera and a Coherent Fiber Bundle, R. R. Alfano, Ping-Pei Ho, #5,142,372, August 25, 1992.
35. Terahertz Repetition Rate Optical Computing Systems, Communications Systems, and Logic Elements using Cross-Phase-Modulation Based Optical Processors, R. R. Alfano, P. Ho, P. Baldeck, #5,150,248, September 22, 1992.
36. Multiple-Stage Optical Kerr Gate System, Ping-Pei Ho, R. R. Alfano, #5,227,912, July 13, 1993.
37. Method for determining if a Tissue is a Malignant Tumor Tissue, a Benign Tumor Tissue, or a Normal Benign Tissue using Raman Spectroscopy, R. R. Alfano, C.-H. Liu, W. S. Glassman, #5,261,410, November 16, 1993.
38. Femtosecond Streak Camera, R. R. Alfano, Y. Takiguchi, K. Kinoshita, #5,278,403, January 11, 1994.
39. Method for Distinguishing between Calcified Atherosclerotic Tissue and Fibrous Atherosclerotic Tissue or Normal Cardiovascular Tissue Using Raman Spectroscopy, R. R. Alfano, C. H. Liu #5,293,872, March 15, 1994.
40. Protective Device for Selectively Reflecting High-Intensity Light over a Broad Spectral Bandwidth, R. R. Alfano, Kwong M. Yoo, #5,315,437, May 24, 1994.
41. Method and System for compressing and amplifying Ultrashort Laser Pulses, R. R. Alfano, P. P. Ho, Q. Z. Wang, #5,323,260, June 21, 1994.
42. Method for determining if Tissue is Malignant as opposed to Non-Malignant using Time-Resolved Fluorescence Spectroscopy, R. R. Alfano, A. Pradhan, G. C. Tang, L. Wang, Y. Budansky, B. B. Das, #5,348,018, September 20, 1994.
43. Noninvasive Method and Apparatus for Characterizing Biological Materials, R. R. Alfano, K. M. Yoo, G. C. Tang, #5,369,496, November 29, 1994.
44. Ultrafast Optical Imaging of Objects in a Scattering Medium, R. R. Alfano, P. P. Ho, L. Wang, #5,371,368, December 6, 1994.
45. Terahertz Repetition Rate Optical Computing Systems, and Communication Systems and Logic Elements Using Cross-Phase Modulation Based Optical Processors, R. R. Alfano, P. P. Ho, P. Baldeck, #5,373,381, December 13, 1994.
46. Method and Apparatus for Mapping a Tissue Sample for and Distinguishing Different Regions thereof based on Luminescence Measurements of Cancer-indicative Native Fluorophor, R. R. Alfano, #5,413,108, May 9, 1995.
47. Terahertz Repetition Rate Optical Computing Systems, and Communication Systems and Logic Elements using Cross-Phase Modulation based Optical Processors, R. R. Alfano, P.-P. Ho, P. Baldeck, #5,463,485, October 31, 1995.
48. Method for Determining if Tissue is Malignant as opposed to Non-Malignant using Time-resolved Fluorescence Spectroscopy, R. R. Alfano, Asima Pradhan, G. C. Tang, L. Wang, Y. Budansky, B. B. Das, #5,467,767, November 21, 1995.
49. Method and Device for Detecting Biological Molecules and/or Microorganisms within a Desired Area or Space, R. R. Alfano, #5,474,910, December 12, 1995.

50. Method and System for Imaging Objects in Turbid Media using Diffusive Fermat Photons, R. R. Alfano, A. Y. Polishchuk, #5,625,458, April 29, 1997.
51. Apparatus using Optical Deflection, R. R. Alfano, P. P. Ho, Lina Yang, Q. Z. Wang, #5,636,050, June 3, 1997.
52. Technique for Determining whether a Cell is Malignant as opposed to Non-malignant using Extrinsic Fluorescence Spectroscopy, R. R. Alfano, Cheng H. Liu, Wei L. Sha, Yury Budansky, #5,635,402, June 3, 1997.
53. 2-Dimensional Imaging of Translucent Objects in Turbid Media, R. R. Alfano, P. P. Ho, X. Liang, #5,644,429, July 1, 1997 (see #5,371,368).
54. Method and Apparatus for Evaluating the Composition of an Oil Sample, R. R. Alfano, C. H. Liu, #5,656,810, August 12, 1997.
55. Ultrafast Optical Imaging of objects in or Behind Scattering Media, R. R. Alfano, Feng Liu, Q. Z. Wang, P. Ho, L. M. Wang, X. Liang, #5,710,429, January 20, 1998.
56. Method for Amplifying Laser Signals and An Amplifier for use in said Method, R. R. Alfano, V. V. Petricevic, P. P. Ho, #5,717,517, February 10, 1998.
57. Imaging and Characterization of Tissue based upon the Preservation of Polarized Light transmitted therethrough, R. R. Alfano, S. G. Demos, #5,719,399, February 17, 1998.
58. Method for Detecting Cancerous Tissue using Optical Spectroscopy and Fourier Analysis, R. R. Alfano, A. Katz, Y. Yang, #5,769,081, June 23, 1998.
59. Method for Detecting Cancerous Tissue using Visible Native Luminescence, R. R. Alfano, M. A. Alfano, #B1 4,930,516, August 4, 1998.
60. Optical Imaging of Breast Tissues to enable the Detection therein of Calcification Regions Suggestive of Cancer, R. R. Alfano, P. P. Ho, L. Wang, X. Liang, P. Galland, #5,799,656, September 1, 1998.
61. Time Resolved Diffusion Tomographic Imaging in Highly Scattering Turbid Media, R. R. Alfano, W. Cai, F. Liu, M. Lax, Bidyut B. Das, #5,813,988, September 29, 1998.
62. Multiple-Stage Optical Kerr Gate System, Ping-Pei Ho, R. R. Alfano, #5,828,484, October 27, 1998.
63. Imaging of Objects Based upon the Polarization or Depolarization of Light, R. R. Alfano, S. G. Demos, #5,847,394, December 8, 1998.
64. Method for Monitoring the Effects of Chemotherapeutic Agents on Neoplastic Media, R. R. Alfano, G. C. Tang, S. P. Schantz, #5,849,595, December 15, 1998.
65. Imaging of objects based upon the polarization or depolarization of light, Robert R. Alfano, Stavros Demos, #5,929,443, July 27, 1999.
66. Time-resolved diffusion tomographic 2D and 3D imaging in highly scattering turbid media, Robert R. Alfano, Wei Cai, Feng Liu, Melvin Lax, #5,931,789, August 3, 1999.
67. System and method for performing selected optical measurements on a sample using a diffraction grating, Iosif Zeylikovich, Robert R. Alfano, #5,943,133, August 24, 1999.
68. Technique for imaging an object in or behind a scattering medium, R. R. Alfano, K. M. Yoo, S. Ahmed, Z. W. Zang, Feng Liu, #5,949,077, September 7, 1999.
69. Method and apparatus for in vivo examination of subcutaneous tissues inside an organ of a body using optical spectroscopy, R. R. Alfano, Y. Budansky, #5,983,125, November 9, 1999.
70. Fiberoptic assembly useful in optical spectroscopy, R. R. Alfano, Stavros Demos, Gang Zhang, #6,006,001, December 21, 1999.
71. Baseball training bat with colored transferable bands, Robert R. Alfano, Scott A. Alfano, #6,045,465, April 4, 2000.
72. Photonic paper product dispenser, Robert R. Alfano, Yury Budansky, jing Cheng Luo, #6,069,354, May 30, 2000.
73. Method and apparatus for detecting the presence of cancerous and precancerous cells in a smear using native fluorescence spectroscopy, Robert R. Alfano, Singaravelu Ganesan, and Yury Budansky, #6,080,584, June 27, 2000.
74. Imaging of objects in turbid media based upon the preservation of polarized luminescence emitted from contrast agents, Robert R. Alfano, Stavros G. Demos, Wubao Wang, #6,091,983, July 18, 2000.
75. Detection of cancer and precancerous conditions in tissues and/or cells using native fluorescence excitation spectroscopy, Robert R. Alfano, Singaravelu Ganesan, Alvin Katz, Yang Yuanlong, #6,091,985, July 18, 2000.
76. Time-resolved diffusion tomographic 2D and 3D imaging in highly scattering turbid media, Robert R. Alfano, Wei Cai, Swapan K. Gayen, #6,108,576, August 22, 2000.

77. Method and system for examining biological materials using low power CW excitation Raman spectroscopy, Robert R. Alfano, Wubao Wang, #6,151,522, November 21, 2000.
78. Time-resolved optical backscattering tomographic image reconstruction in scattering turbid media, R. R. Alfano, Wei Cai, Melvin Lax, #6,205,353 B1, March 20, 2001.
79. Non-linear optical tomography of turbid media, Robert R. Alfano, Yici Guo, Feng Liu, Ping Pei Ho, #6,208,886 B1, March 27, 2001.
80. Microscope imaging inside highly scattering media, Robert R. Alfano, Gordon E. Anderson, Feng Liu, #6,215,587 B1, April 10, 2001.
81. Remote-Controllable, Micro-Scale Device for use in In Vivo Medical Diagnosis and/or Treatment, Robert R. Alfano, Scott Alfano, Quan-Zhen Wang, Ping Pei Ho, #6,240,312, May 29, 2001.
82. Apparatus for Enhancing the Visibility of a Luminous Object inside Tissue and Methods for Same, Robert R. Alfano, Stavros G. Demos, Wubao Wang, Jamal Ali, #6,280,386 B1, Aug. 28, 2001.
83. Photon-Mediated Introduction of Biological Materials into Cells and/or Cellular Components, Robert R. Alfano, Cheng-Hui Liu, #6,346,101 B1, February 12, 2002.
84. Performing Selected Optical Measurements with Optical Coherence Domain Reflectometry, I. Zeylikovich, R. R. Alfano, #6,437,867 B2, August 20, 2002.
85. Sub-Surface Imaging under Paints and Coatings using Early Light Spectroscopy, R. R. Alfano, P. P. Ho, #6,495,833 B1, December 17, 2002.
86. Method and System for Examining Biological Materials using Low Power CW Excitation Raman Spectroscopy, R. R. Alfano, W. B. Wang, #6,560,478 B1, May 6, 2003.
87. Spectral Polarizing Tomographic Dermatoscope, R. R. Alfano, Y. Budansky, J. Luo, #6,587,711 B1, July 1, 2003.
88. Technique for Examining Biological Materials using Diffuse Reflectance Spectroscopy and the Kubelka-Munk Function, R. R. Alfano, Y. Yang, #6,615,068 B1, September 2, 2003.
89. System and Method of Fluorescence Spectroscopic Imaging for Characterization and Monitoring of Tissue Damage, R. R. Alfano, J. Tang, P. P. Ho, #6,631,289 B2, October 7, 2003.
90. Method and Apparatus for Examining a Tissue Using the Spectral Wing Emission Therefrom Induced by Visible to Infrared Photoexcitation, R. R. Alfano, S. G. Demos, G. Zhang, #6,665,556 B1, December 16, 2003.
91. Spectroscopic and Time-resolved Optical Methods and Apparatus for Imaging Objects in Turbid Media, R. R. Alfano, S. K. Gayen, M. E. Zevallos, #6,665,557 B1, December 16, 2003.
92. System and Method for Performing Selected Optical Measurements Utilizing a Position Changeable Aperture, I. Zeylikovich, R. R. Alfano, #6,762,839 B2, July 13, 2004.
93. Systems and Methods for Non-Destructively Detecting Material Abnormalities Beneath a Coated Surface, R. R. Alfano, I. Zeylikovich, W. Wang, J. Ali, V. Benischek, Y. Budansky, #6,853,926, February 8, 2005.

BOOKS AND PROCEEDINGS

- Optical Tomography and Spectroscopy of Tissue IV, R. R. Alfano, chair, SPIE Volume 4250, 2001.
- Optical Sensing, Imaging, and Manipulation for Biomedical and Biological Applications, R. R. Alfano, chair, SPIE Volume 4082, 2000.
- Optical Biopsy III, R. R. Alfano, chair, SPIE Volume 3917, 2000.
- Optical Tomography and Spectroscopy of Tissue III, R. R. Alfano, chair, SPIE Volume 3597, 1999.
- Optical Biopsy II, R. R. Alfano, chair, SPIE Volume 3250, 1998.
- Optical Tomography and Spectroscopy of Tissue: Theory, Instrumentation, Model, and Human Studies II, R. R. Alfano, chair, SPIE Volume 2979, 1997.
- Advances in Laser and Light Spectroscopy to Diagnose Cancer and Other Diseases III, R. R. Alfano, chair, SPIE Volume 2679, 1996.
- Advances in Laser and Light Spectroscopy to Diagnose Cancer and Other Diseases II, R. R. Alfano, chair/editor, Progress in Biomedical Optics, SPIE Volume 2387, February 1995.
- Optical Tomography, Photon Migration, and Spectroscopy of Tissue and Model Media: Theory, Human Studies, and Instrumentation, R. R. Alfano and Britton Chance, chairs/editors, Progress in Biomedical Optics, SPIE Volume 2389 Parts 1&2, February 1995.
- Advances in Optical Imaging and Photon Migration, Topical Meeting Proceedings, R. R. Alfano, editor, chair, OSA Volume 21, March 1994.
- Advances in Laser and Light Spectroscopy to Diagnose Cancer and Other Diseases, R. R. Alfano, chair/editor, Progress in Biomedical Optics, SPIE Volume 2135, January 1994.

- Photon Migration and Imaging in Random Media and Tissues, R. R. Alfano and Britton Chance, chairs/editors, Progress in Biomedical Optics, SPIE Volume 1888, January 1993.
- Ultrafast Lasers Probe Phenomena in Semiconductors, R. R. Alfano, chair/editor, SPIE Volume 1677, March 1992.
- Recent Advances in the Uses of Light in Physics, Chemistry, Engineering, and Medicine, R. R. Alfano and D. L. Akins, chairs/editors, SPIE Volume 1599, June 1991.
- Photonics: Nonlinear Optics and Ultrafast Phenomena, R. R. Alfano and L. Rothberg, editors, Nova Science Publishers, NY 1990.
- Ultrafast Laser Probes Phenomena in Bulk and Microstructure Semiconductor III, R. R. Alfano, editor/chair, SPIE Volume 1282, March 1990.
- The Supercontinuum Laser Source, R. R. Alfano, editor, Springer Verlag, New York (1989).
- Ultrafast Lasers Probe Phenomena in Bulk and Microstructure Semiconductors II, R. R. Alfano, editor, SPIE Volume 942, March 1988.
- Ultrafast Lasers Probe Phenomena in Bulk and Microstructure Semiconductors, R. R. Alfano, editor, SPIE Volume 793, March 1987.
- Semiconductors Probed by Ultrafast Laser Spectroscopy - Volumes 1 and 2, R. R. Alfano, editor, Academic Press, NY (1985).
- Special Issue on "Lasers in Biology and Medicine", R. R. Alfano and A. G. Doukas IEEE QE-20, Dec. 1984.
- Biological Events Probed by Ultrafast Laser Spectroscopy, R. R. Alfano, editor, Academic Press, NY (1982).

Articles in Standard Journals: (*important)

2005

- Three-Dimensional Optical Tomographic Imaging of Scattering Objects in Tissue-Simulating Turbid Media Using Independent Component Analysis, M. Alrubaiee, M. Xu, S. K. Gayen, M. Brito, and R. R. Alfano, Appl. Phys. Lett. 87, 191112 (2005).
- Terahertz Studies of the Dielectric Response and Second-Order Phonons in a GaSe Crystal, B. L. Yu, F. Zeng, V. Kartazayev, R. R. Alfano, and Krishna C. Mandal, Appl. Phys. Lett. 87, 182104 (2005).
- Virus Particles and Receptor Interaction Monitored by Fluorescence Spectroscopy, A. Alimova, A. Katz, R. Podder, G. Minko, H. Wei, J. Berriman, R. R. Alfano, P. Gottlieb, Photochem. & Photobiol. 81, 879 (2005).
- Spectroscopy of Chromium Centers in LiScGeO_4 and LiInGeO_4 Single Crystals, M.Yu. Sharonov, A.B. Bykov, P. Rojas, V. Petricevic, R.R. Alfano, Phys. Rev. B (accepted for publication).
- Spectral and Temporal Near-Infrared Imaging of *Ex Vivo* Cancerous and Normal Human Breast Tissues, M. Alrubaiee, S. K. Gayen, R.R. Alfano, and J. A. Koutcher, Tech. Cancer Research Treatment, 4, 457 (2005).
- Spectral Polarization Imaging of Human Prostate Cancer Tissue Using a Near-infrared Receptor-targeted Contrast Agent, Y. Pu, W.B. Wang, G.C. Tang, F. Zeng, S. Achilefu, J.H. Vitenson, I. Sawczuk, S. Peters, J.M. Lombardo, R.R. Alfano, Tech. Cancer Research Treatment, 4, 429 (2005).
- Spectroscopy and Carrier Dynamics in CdSe Self-assembled Quantum Dots Embedded in $\text{Zn}_x\text{Cd}_y\text{Mg}_{1-x-y}\text{Se}$, G. Comanescu, W. B. Wang, S. Gundry, B. Das, R. R. Alfano, M. N. Perez-Pas, M. C. Tamargo, M. Munoz, I. Popov, L. L. Isaacs, Appl. Phys. Lett. 86, 253113 (2005).
- Native Fluorescence Changes Induced by Bactericidal Agents, A. Alimova, A. Katz, M. Siddique, G. Minko, H. E. Savage, M. K. Shah, R. B. Rosen, R. R. Alfano, *Fellow, IEEE*, IEEE Sensors Journal 5, 704 (2005).
- Wireless Spectroscopic Compact Photonic Explorer for Diagnostic Optical Imaging, L. Wang, G. Zhang, J. C. Luo, F. Zeng, Q. Z. Wang, S. A. Alfano, A. Katz, M. Zevallos, R. R. Alfano, Biomedical Microdevices 7, 111 (2005).
- Comment on "Observation of Optical Precursors in Water," J. L. Birman, X. Ni, M. Alrubaiee, B. B. Das, R. R. Alfano, Phys. Rev. Lett. 94, 239401 (2005).
- Analytical Form of Particle Distribution based on the Cumulant Solution of the Elastic Boltzmann Transport Equation, W. Cai, M. Xu, R. R. Alfano, Phys. Rev. E 71, 041202-1 (2005).
- Backscattering Target Detection in a Turbid Medium by use of Circularly and Linearly Polarized Light, S. A. Kartazayeva, Xiaohui Ni, R. R. Alfano, Opt. Lett. 30, 1168 (2005).

- Near-Infrared Laser Operation of Cr³⁺ Centers in Chromium-doped LiInGeO₄ and LiScGeO₄ Crystals, M. Sharonov, V. Petricevic, A. Bykov, R. R. Alfano, *Opt. Lett.* 30, 851 (2005).
- Three-dimensional Localization and Optical Imaging of Objects in Turbid Media with Independent Component Analysis, M. Xu, M. Alrubaiee, S. K. Gayen, R. R. Alfano, *Appl. Opt.* 44, 1889 (2005).
- Reorientation of the H₂O Cage Studied by Terahertz Time-Domain Spectroscopy, B. L. Yu, Y. Yang, F. Zeng, X. Xin, R. R. Alfano, *APL* 86, 061912 (2005).
- Time-gated Backscattered Ballistic Light Imaging of Objects in Turbid Water, M. E. Zevallos, S. K. Gayen, M. Alrubaiee, R. R. Alfano, *APL* 86, 011115 (2005).
- Flux Growth and Optical Characterization of Cr-doped LiInGeO₄, A. B. Bykov, V. Petricevic, M. Yu. Sharonov, J. Steiner, L. L. Isaacs, T. Avrahami, R. DiBlasi, S. Sengupta, R. R. Alfano, *J. of Cryst. Growth* 274, 149 (2005).
- In Situ Determination of Refractive Index and Size of Bacillus Spores by Light Transmission, A. Katz, A. Alimova, M. Xu, Paul Gottlieb, Elizabeth Rudolph, J. C. Steiner, R. R. Alfano, *Opt. Lett.* 30, 589 (2005).
- Direct Observation of Coherent Rotational Excitation, Dephasing and Depopulation of Methanol and its Isotopes Using THz Pulse Radiation, B. L. Yu, Y. Yang, F. Zeng, X. Xin, R. R. Alfano, *APL* 86, 101108 (2005).

2004

- The Fluorescence of Thyroid Tissue, M. J. Pitman, J. M. Rosenthal, H. E. Savage, G. Yu, S. A. McCormick, A. Katz, R. R. Alfano, S. P. Schantz, *Otolaryngol. Head Neck Surg.* 131, 623 (2004).
- Time-resolved Backscattering of Circularly and Linearly Polarized Light in a Turbid Medium, X. Ni, R. R. Alfano, *Opt. Lett.* 29, 2773 (2004).
- Unusual Transient Photocapacitance in GaN/AlGaN Multi-quantum Wells, S. K. Zhang, W. B. Wang, R. R. Alfano, H. Morkoc, *Superlattices and Microstructures* 35, 77 (2004).
- Polarization Influence of Excited State Absorption on the Performance of Cr⁴⁺:YAG Laser, V. Kartazaev, R. R. Alfano, *Opt. Commun.* 242, 605 (2004).
- Free-Space Supercontinuum Coherence Data Packets Multiplexing and Demultiplexing for Ultrafast Laser Communication, I. Zeylikovich, R. R. Alfano, *IEEE J. of Selected Topics in QE* 10, 1233 (2004).
- Fresnel Diffraction Supercontinuum Generation, X. Ni, C. Wang, X. Liang, M. Al-Rubaiee, R. R. Alfano, *IEEE J. of Selected Topics in QE* 10, 1229 (2004).
- NIR Laser Tissue Welding of In Vitro Porcine Cornea and Sclera Tissue, H. E. Savage, R. K. Halder, U. Kartazayev, R. B. Rosen, T. Gayen, S. A. McCormick, N. S. Patel, A. Katz, H. D. Perry, M. Paul, R. R. Alfano, *Lasers in Surgery and Medicine* 35, 293 (2004).
- Near Infrared Spectroscopy and Imaging to Probe Differences in Water Content in Normal and Cancer Human Prostate Tissues, J. H. Ali, W. B. Wang, M. Zevallos, R. R. Alfano, *Optical Spectroscopy, TCRT* 3, 491 (2004).
- Virus Particles Monitored by Fluorescence Spectroscopy: A Potential Detection Assay for Macromolecular Assembly, A. Alimova, A. Katz, R. Podder, G. Minko, H. Wei, R. R. Alfano, P. Gottlieb, *Photochem. & Photobiol.* 80, 41 (2004).
- Detection of Corrosion and Cracking beneath Paint using Photonic Techniques, J. H. Ali, W. B. Wang, R. R. Alfano, M. K. Kassir, *Theoretical & Appl. Fracture Mechanics* 41, 1 (2004).
- *Torsional Vibrational Modes of Tryptophan Studied by Terahertz Time-Domain Spectroscopy, B. Yu, F. Zeng, Y. Yang, Q. Xing, A. Chechin, X. Xin, I. Zeylikovich, R. R. Alfano, *Biophys. J.* 86, 1649 (2004).
- Cr⁴⁺-doped Li₂CaSiO₄ crystal: Growth and Spectroscopic Properties, M. Yu. Sharonov, A. B. Bykov, V. Petricevic, R. R. Alfano, *Opt. Comm.* 231, 273 (2004).
- Multiple Passages of Light Through an Absorption Inhomogeneity in Optical Imaging of Turbid Media, M. Xu, W. Cai, R. R. Alfano, *Opt. Lett.* 29, 1757 (2004).

2003

- Spectral Analysis to Detect Benign and Invasive Malignant Tumors in Breast Biopsy Specimens using Excitation Spectroscopy, Y. Yang, E. J. Celmer, J. A. Koutcher, R. R. Alfano, *Lasers in the Life Sciences* 10, 1 (2003).

- Bacteria Size Determination by Elastic Light Scattering, A. Katz, Alexandra Alimova, Min Xu, Elizabeth Rudolph, Mahendra k. Shah, Howard E. Savage, Richard B. Rosen, Steven A. McCormick, Robert R. Alfano, *IEEE J. of Sel. Topics in Quantum Electronics* 9, 277 (2003).
- *Free-Space Ballistic Laser Propagation of a Pulse Coded Data Stream Through Fog, X. Ni, R. R. Alfano, *Appl. Opt.* 42, 6980 (2003).
- More on Patterns in Mie Scattering, M. Xu, R. R. Alfano, *Opt. Commun.* 226, 1 (2003).
- *Coherence Properties of the Supercontinuum Source, I. Zeylikovich, R. R. Alfano, *Appl. Phys. B* 77, 265 (2003).
- *Aorta and Skin Tissues Welded by Near-Infrared Cr⁴⁺:YAG Laser, T. K. Gayen, A. Katz, H. E. Savage, S. A. McCormick, M. Al-Rubaiee, Y. Budansky, J. Lee, R. R. Alfano, *J. of Clinical Laser Medicine & Surgery* 21, 259 (2003).
- GaN/AlGa_N Back-illuminated Multiple-quantum-well Schottky Barrier Ultraviolet Photodetectors, A. Teke, S. Dogan, F. Yun, M. A. Reshchikov, H. Le, X. Q. Liu, H. Morkoc, S. K. Zhang, W. B. Wang, R. R. Alfano, *Solid-State Electronics* 47, 1401 (2003).
- p-GaN-I-GaN/AlGa_N Multiple-Quantum Well n-AlGa_N Back-illuminated Ultraviolet Detectors, A. Teke, S. Dogan, L. He, D. Huang, F. Yun, M. Mikkelsen, H. Morkoc, S. K. Zhang, W. B. Wang, R. R. Alfano, *J. of Electronic Materials* 32, 307 (2003).
- Native Fluorescence and Excitation Spectroscopic Changes in *Bacillus subtilis* and *Staphylococcus aureus* Bacteria subjected to Conditions of Starvation, A. Alimova, A. Katz, H. E. Savage, M. Shah, G. Minko, D. V. Will, R. B. Rosen, S. A. McCormick, R. R. Alfano, *Appl. Opt.* 42, 4080 (2003).
- Probing Dielectric Relaxation Properties of Liquid CS₂ with Terahertz Time-domain Spectroscopy, B. L. Yu, F. Zeng, Q. Xing, R. R. Alfano, *APL* 82, 4633 (2003).
- *Spectral Polarization Imaging of Human Rectum-Membrane-Prostate Tissues, W. B. Wang, J. H. Ali, R. R. Alfano, *Fellow*, J. H. Vitenson, J. M. Lombardo, *IEEE J. of Sel. Topics in QE* 9, 288 (2003).
- Three-Dimensional Radiative Transfer Tomography for Turbid Media, W. Cai, M. Xu, R. R. Alfano, *IEEE J. of Sel. Topics in QE* 9, 189 (2003).
- *Stokes Shift Emission Spectroscopy of Human Tissue and Key Biomolecules, R. R. Alfano, *Fellow*, IEEE, Y. Yang, *IEEE J. of Sel. Topics in QE* 9, 148 (2003).
- Detection of Glutamate in the Eye by Raman Spectroscopy, A. Katz, E. F. Kruger, G. Minko, C. H. Liu, R. B. Rosen, R. R. Alfano, *J. Biomed. Opt.* 8, 167 (2003).
- *Time-resolved Polarization to Extract Coded Information from early Ballistic and Snake Signals through Turbid Media, Xiaohui Ni, Qirong Xing, Wei Cai, R. R. Alfano, *Opt. Lett.* 28, 343 (2003).
- Anomalous Diffraction of Light with Geometrical Path Statistics of Rays and a Gaussian Ray Approximation, M. Xu, M. Lax, R. R. Alfano, *Opt. Lett.* 28, 179 (2003).
- Crystal Growth and Optical Properties of Cr⁴⁺:Li₂TiGeO₅, M. Yu. Sharonov, A. B. Bykov, S. Owen, V. Petricevic, R. R. Alfano, *J. Appl. Phys.* 93, 1044 (2003).
- Femtosecond Optical Kerr Shutter using Lead-Bismuth-Gallium Oxide Glass, B. L. Yu, A. B. Bykov, T. Qiu, P. P. Ho, R. R. Alfano, N. Borrelli, *Opt. Commun.* 215, 407 (2003).
- *Mid-IR Transmission Window for Corrosion Detection beneath Paint, I. Zeylikovich, W. Wang, F. Zeng, J. Ali, B. L. Yu, V. Benischek, R. R. Alfano, *Elect. Lett.* 39, 2003.

2002

- Optical Properties of Cunyaite (Cr⁴⁺:Ca₂GeO₄) Crystals Co-doped with Er³⁺ Ions, M. Yu. Sharonov, S. Owen, A. B. Bykov, W. B. Wang, R. R. Alfano, *Opt. Commun.* 209, 209 (2002).
- Backilluminated GaN/ALGa_N Heterojunction Ultraviolet Photodetector with High Internal Gain, S. K. Zhang, W. B. Wang, I. Shtau, F. Yun, L. He, H. Morkoc, X. Zhou, M. Tamargo, R. R. Alfano, *APL* 81, 4862 (2002).
- Backilluminated Ultraviolet Photodetector based on GaN/AlGa_N Multiple Quantum Wells, S. K. Zhang, W. B. Wang, F. Yun, L. He, H. Morkoc, X. Zhou, M. Tamargo, R. R. Alfano, *APL* 81, 4628 (2002).
- Photon Migration in Turbid Media Using a Cumulant Approximation to Radiative Transfer, M. Xu, W. Cai, M. Lax, R. R. Alfano, *Phys. Rev. E*, 65, 066609-1 (2002).
- *DNA and Protein Changes Caused by Disease in Human Breast Tissues Probed by the Kubelka-Munk Spectral Function, Yuanlong Yang, Edward J. Celmer, Jason A. Koutcher, R. R. Alfano, *Photochem. & Photobiol.* 75, 627 (2002).

- Diffusion Coefficient Depends on Time, not on Absorption, W. Cai, M. Xu, M. Lax, R. R. Alfano, *Opt. Lett.* 27, 731 (2002).
- Intensity-dependent Temporal Laser Pulse Shaping and Propagation in ZnSe, Yingxin Bai, P. P. Ho, R. R. Alfano, *Opt. Commun.* 202, 199 (2002).
- Noninvasive Native Fluorescence Imaging of Head and Neck Tumors, A. Katz, H. E. Savage, S. P. Schantz, S. A. McCormick, R. R. Alfano, *Tech. In Cancer Research & Treatment* 1, 9, Adenine Press (2002).

2001

- Parotid Gland Tissues Investigated by Picosecond Time-Gated and Optical Spectroscopic Imaging Techniques, S. K. Gayen, M. Alrubaiee, H. E. Savage, S. P. Schantz, R. R. Alfano, *IEEE J. on Selected Topics in QE* 7, 906 (2001).
- *UV Reflectance Spectroscopy Probes DNA and Protein Changes in Human Breast Tissues, Yuanlong Yang, E. J. Celmer, J. A. Koutcher, R. R. Alfano, *J. of Clinical Laser Medicine & Surgery* 19, 35 (2001)
- Photon-transport forward Model for Imaging in Turbid Media, M. Xu, W. Cai, M. Lax, R. R. Alfano, *Opt. Lett.* 26, 1066 (2001).
- Near-Infrared Photo-Excited Emission from Tissues treated at Different Temperature Levels, J. Tang, G. Zhang, F. Zeng, P. P. Ho, R. R. Alfano, *Lasers in Surgery and Medicine* 29, 18 (2001).
- Time-resolved Fourier Optical Diffuse Tomography, M. Xu, M. Lax, R. R. Alfano, *JOSA* 18, 1535 (2001).
- Carrier Screening Effects in Photoluminescence Spectra of InGaAsP/InP Multiple Quantum Well Photovoltaic Structures, O. Y. Raisky, W. B. Wang, R. R. Alfano, C. L. Reynolds, *APL* 79, 430 (2001).

2000

- Analytical Solution of the Polarized Photon Transport Equation in an Infinite Uniform Medium using Cumulant Expansion, W. Cai, M. Lax, R. R. Alfano, *Phys. Rev. E* 63, 016606-1 (2000).
- Brain Perfusion Monitoring with Frequency-domain and Continuous-wave Near-infrared Spectroscopy: a Cross-correlation Study in Newborn Piglets, G. Zhang, A. Katz, R. R. Alfano, A. D. Kofinas, D. A. Kofinas, P. G. Stubblefield, W. Rosenfeld, D. Beyer, D. Maulik, M. R. Stankovic, *Phys. Med. Biol.* 45, 3143 (2000).
- *Continuous-wave and Passively Mode-locked Operation of a Cunyaite ($\text{Cr}^{4+}:\text{Ca}_2\text{GeO}_4$) Laser, Bing Xu, Jonathan M. Evans, Vladimir Petricevic, S. P. Guo, O. Maksimov, Maria C. Tamargo, R. R. Alfano, *Appl. Opt.* 39, 4975 (2000).
- *Detection of Corrosion beneath a Paint Layer by Use of Spectral Polarization Optical Imaging, J. H. Ali, W. B. Wang, P. P. Ho, R. R. Alfano, *Opt. Lett.* 25, 1303 (2000).
- *Laser Irradiative Tissue Probed In Situ by Collagen 380-nm Fluorescence Imaging, Jing Tang, F. Zeng, H. Savage, P. P. Ho, R. R. Alfano, *Lasers in Surgery and Medicine* 27, 158 (2000).
- *Intracerebral Hemodynamics probed by Near Infrared Spectroscopy in the Transition between Wakefulness and Sleep, Arthur J. Spielman, G. Zhang, C.-M. Yang, P. D'Ambrosio, S. Serizawa, M. Nagata, H. von Gizycki, R. R. Alfano, *Brain Research* 866, 313 (2000).
- *Nondestructive Evaluation of Incipient Corrosion in a Metal Beneath Paint by Second-Harmonic Tomography, J. Ying, F. Liu, P. P. Ho, R. R. Alfano, *Opt. Lett.* 25, 1189 (2000).
- *A Comparison of Cunyaite and Forsterite NIR Tunable Laser Tissue Welding using Native Collagen Fluorescence Imaging, Jing Tang, F. Zeng, J. M. Evans, B. Xu, H. Savage, P. P. Ho, R. R. Alfano, *J. of Clinical Laser Medicine and Surgery* 18, 117 (2000).
- Deep Subsurface Imaging in Tissues using Spectral and Polarization Filtering, S. G. Demos, H. B. Radousky, R. R. Alfano, *Opt. Exp.* 7, 23 (2000).
- Sol-Gel Syntheses and Spectroscopic Characterization of Chromium-Doped Silicates and Germanates, P. Sujatha Devi, H. D. Gafney, V. Petricevic, R. R. Alfano, D. He, K. E. Miyano, *Chem. Matter* 12, 1378 (2000).

Flux Growth and Characterization of Cr⁴⁺:Ca₂GeO₄ Crystals as a new Near Infrared Tunable Laser Material, A. Bykov, V. Petricevic, J. Steiner, Di Yao, L. L. Isaacs, M. R. Kokta, R. R. Alfano, *J. of Crystal Laser Growth* 211, 295 (2000).

*Analytical Solution of the Elastic Boltzmann Transport Equation in an Infinite Uniform Medium using Cumulant Expansion, W. Cai, M. Lax, R. R. Alfano, *J. Phys. Chem. B* 104, 3996, 2000.

*Cumulant Solution of the Elastic Boltzmann Transport Equation in an Infinite Uniform Medium, W. Cai, M. Lax, R. R. Alfano, *Phys. Rev. E* 61, 3871, 2000.

*Fluorescence Spectroscopic Imaging to Detect Changes in Collagen and Elastin following Laser Tissue Welding, J. Tang, F. Zeng, H. Savage, P. P. Ho, R. R. Alfano, *J. of Clinical Laser Medicine & Surgery* 18, 3, 2000.

*Effect of Scattering on Nonlinear Optical Scanning Microscopy Imaging of Highly Scattering Media, J. Ying, F. Liu, R. R. Alfano, *Appl. Opt.* 4, 509, 2000.

1999

*Subsurface Tumor Progression investigated by Noninvasive Optical Second Harmonic Tomography, Y. Guo, H. E. Savage, Feng Liu, S. P. Schantz, P. P. Ho, R. R. Alfano, *Proc. Natl. Acad. Sci.* 96, 10854 (1999).

*Ultrafast Time-gated Approach in Optical Biomedical Imaging, B. B. Das, R. R. Alfano, *Current Science* 77, 885 (1999).

Probing Thermal Damage and Monitoring the Treatment Temperature of Tissues using the Near-Infrared Emission Wing, G. Zhang, P. P. Ho, R. R. Alfano, *Lasers in the Life Sciences* 9, 95 (1999).

Tissue Welding using Near-Infrared Forsterite and Cunyaite Tunable Lasers, Jing Tang, Jonathan M. Evans, Vladimir Petricevic, Ping-Pei Ho, R. R. Alfano, *IEEE J. of Sel. Topics in Quant. Electron.* 5, 1103 (1999).

Picosecond Electronic Time-Gated Imaging of Bones in Tissues, Manuel E. Zevallos, S. K. Gayen, Bidyut Baran Das, Mohammed Alrubaiee, R. R. Alfano, *IEEE J. of Sel. Topics in Quant. Electron.* 5, 916 (1999).

Fluorescence Spectroscopy of Normal, SV40-Transformed Human Keratinocytes, and Carcinoma Cells, A. J. Papadopoulos, N. N. Zhadin, M. L. Steinberg, R. R. Alfano, *Cancer Biochem. Biophys.* 17, 13 (1999).

*Far-red and NIR Spectral Wing Emission from Tissues under 532 and 632 nm Photo-excitation, Gang Zhang, S. G. Demos, R. R. Alfano, *Lasers in the Life Sciences* 9, 1 (1999).

*Optical Tomographic Image Reconstruction from Ultrafast Time-sliced Transmission Measurements, W. Cai, S. K. Gayen, M. Xu, M. Zevallos, M. Alrubaiee, M. Lax, R. R. Alfano, *Appl. Opt.* 38, 4237 (1999).

*Primary Decay Pathway of a Local Mode of a Photoexcited Ion into a Dielectric Crystal Host Lattice, S. G. Demos, D. M. Calistru, S. Owen, A. B. Bykov, V. Petricevic, R. R. Alfano, *Phys. Rev. Lett.* 82, 2556 (1999).

*Sensing Lesions in Tissues with Light, S. K. Gayen, R. R. Alfano, *Opt. Express* 4, 475 (1999).

*Near-Infrared Laser Spectroscopic Imaging: A Step Towards Diagnostic Optical Imaging of Human Tissues, S. K. Gayen, M. E. Zevallos, M. Alrubaiee, R. R. Alfano, *Lasers in the Life Sciences* 8, 187 (1999).

Resonant Enhancement of the Photocurrent in Multiple-quantum-well Photovoltaic Devices, O. Y. Raisky, W. B. Wang, R. R. Alfano, C. L. Reynolds, Jr., D. V. Stampone, M. W. Focht, *Appl. Phys. Lett.* 74, 129 (1999).

Spatial Distribution of Two-photon-excited Fluorescence in Scattering Media, Jinpin Ying, Feng Liu, R. R. Alfano, *Appl. Opt.* 38, 224 (1999).

Characterization of InGaAsP/InP p-i-n Solar Cell Structures using Modulation Spectroscopy and Secondary Ion Mass Spectrometry, A. Jaeger, W. D. Sun, F. H. Pollak, C. L. Reynolds, Jr., M. Geva, D. V. Stampone, M. W. Focht, O. Y. Raisky, W. B. Wang, R. R. Alfano, *J. Appl. Phys.* 85, 1921 (1999).

1998

Absorption Length for Photon Propagation in Highly Dense Colloidal Dispersions, R. Garg, R. K. Prud'homme, I. A. Aksay, F. Liu, R. R. Alfano, *J. Mater. Res.* 13, 3463 (1998).

*Time-Resolved Photon-scattering Measurements from Scattering Media fitted to Non-Euclidean and Conventional Diffusion Models, M. E. Zevallos, A. Ya Polischuk, B. B. Das, Feng Liu, R. R. Alfano, *Phys. Rev. E* 57, 7244 (1998).

- **In Vivo* Native Cellular Fluorescence and Histological Characteristics of Head and Neck Cancer, S. P. Schantz, H. E. Savage, G. Yu, J. P. Shah, D. E. Harris, A. Katz, R. R. Alfano, A. G. Huvos, *Clinical Cancer Research* 4, 1177 (1998).
- Nonmechanical Grating-generated Scanning Coherence Microscopy, I. Zeylikovich, A. Gilerson, R. R. Alfano, *Opt. Lett.* 23, 1797 (1998).
- Native Fluorescence Spectroscopy of Normal and Malignant Epithelial Cells, S. Ganesan, P. G. Sacks, Y. Yang, A. Katz, M. Al-Rawi, H. E. Savage, S. P. Schantz, R. R. Alfano, *Cancer Biochem. Biophys.* 16, 365 (1998).
- $\text{In}_{1-x}\text{Ga}_x\text{As}_{1-y}\text{P}_y/\text{InP}$ Multiple Quantum Well Solar Cell Structures, O. Y. Raisky, W. B. Wang, R. R. Alfano, *J. Appl. Phys.* 84, 5790 (1998).
- Kilohertz Cr:forsterite Regenerative Amplifier, J. M. Evans, V. Petricevic, R. R. Alfano, Qiang Fu, *Opt. Lett.* 23, 1692 (1998).
- Noninvasive Two-photon-excitation Imaging of Tryptophan Distribution in Highly Scattering Biological Tissues, Yici Guo, P. P. Ho, Feng Liu, Q. Z. Wang, R. R. Alfano, *Opt. Comm.* 154, 383 (1998).
- *Two-dimensional Near-infrared Transillumination Imaging of Biomedical Media with a Chromium-doped Forsterite Laser, S. K. Gayen, M. E. Zevallos, M. Alrubaiee, J. M. Evans, R. R. Alfano, *Appl. Opt.* 37, 5327 (1998).
- Time-resolved Photon-scattering Measurements from Scattering Media fitted to Non-Euclidean and Conventional Diffusion Models, M. E. Zevallos, A. Ya Polischuck, B. B. Das, Feng Liu, R. R. Alfano, *Phys. Rev. E* 57, 7244 (1998).
- Time-resolved Optical Backscattering Model in Highly Scattering Media, W. Cai, B. Luo, M. Lax, R. R. Alfano, *Opt. Lett.* 23, 983 (1998).
- Optical Transmission in Highly Concentrated Dispersions, Rajeev Garg, Robert K. Prud'homme, Ilhan A. Aksay, Feng Liu, R. R. Alfano, *J. Opt. Soc. Am. A* 15, 932 (1998).
- Correction of the Internal Absorption Effect in Fluorescence Emission and Excitation Spectra from Absorbing and Highly Scattering Media: Theory and Experiment, N. N. Zhadin, R. R. Alfano, *J. Biomed. Opt.* 3, 171 (1998).
- Second-Harmonic Tomography of Tissues: Errata, Yici Guo, P. P. Ho, H. Savage, D. Harris, P. Sacks, S. Schantz, Feng Liu, N. Zhadin, R. R. Alfano, *Opt. Lett.* 23, 733 (1998).
- Visibility Enhancement of Fluorescent Objects Hidden in Animal Tissues using Spectral Fluorescence Difference Method, W. B. Wang, S. G. Demos, J. Ali, G. Zhang, R. R. Alfano, *Opt. Comm.* 147, 11 (1998).
- *Time-Resolved and Nonlinear Optical Imaging for Medical Applications, R. R. Alfano, S. G. Demos, P. Galland, S. K. Gayen, Y. Guo, P. P. Ho, X. Liang, F. Liu, L. Wang, Q. Z. Wang, W. B. Wang, *NY Acad. Sci.* 838, 14, 1998.
- Ultraviolet-visible Acousto-optic Tunable Spectroscopic Imager for Medical Diagnosis, G. C. Tang, J. T. Chen, A. Katz, E. J. Celmer, R. W. Krumm, R. R. Alfano, *J. of Biomed. Opt.* 3, 80 (1998).
- Imaging Objects hidden in Scattering Media with Fluorescence Polarization Preservation of Contrast Agents, S. G. Demos, W. B. Wang, R. R. Alfano, *Appl. Opt.* 37, 792 (1998).

1997

- Native Cellular Fluorescence and Its Application to Cancer Prevention, S. P. Schantz, H. E. Savage, P. Sacks, R. R. Alfano, *Environmental Health Perspectives* 105, 941 (1997).
- *Optical Fingerprinting using Polarisation Contrast Improvement, S. G. Demos, R. R. Alfano, *Elect. Lett.* 33, 582 (1997).
- *Nonradiative Energy Transfer from the Impurity Ion into the Host Lattice for Cr^{4+} -doped Forsterite Laser Crystal, V. A. Kremnerman, M. Lax, S. G. Demos, Dana M. Calistru, R. R. Alfano, *Phys. Rev. B* 56, 14 391 (1997).
- *Diffuse Optical Tomography based on a WKB Approximation, Fanan Zeng, Gang Zhang, Feng Liu, R. R. Alfano, *J. of Biomed. Opt.* 2, 426 (1997).
- Imaging Fluorescent Objects Embedded inside Animal Tissues using Polarization Difference Technique, W. B. Wang, S. G. Demos, J. Ali, R. R. Alfano, *Opt. Comm.* 142, 161 (1997).
- Fundamental Differences of Excitation Spectrum between Malignant and Benign Breast Tissues, Y. Yang, A. Katz, Edward J. Celmer, M. Zurawska-Szczepaniak, R. R. Alfano, *Photochem. & Photobiol.* 66, 518 (1997).

- Excitation Spectrum of Malignant and Benign Breast Tissues: A Potential Optical Biopsy Approach, Y. Yang, E. J. Celmer, M. Zurawska-Szczepaniak, R. R. Alfano, *Lasers in the Life Sciences* 7, 249 (1997).
- Degenerate-Cross-Phase Modulation of Femtosecond Laser Pulses in a Birefringent Single-Mode Optical Fiber, Q. D. Liu, L. Shi, P. P. Ho, R. R. Alfano, R.-J. Essiambre, G. P. Agrawal, *IEEE Photonics Tech. Lett.* 9, 9, 1107 (1997).
- *Second-harmonic Tomography of Tissues, Y. Guo, P. P. Ho, H. Savage, D. Harris, P. Sacks, S. Schantz, F. Liu, N. Zhadin, R. R. Alfano, *Opt. Lett.* 22, 1323 (1997).
- *Advances in Optical Imaging of Biomedical Media, R. R. Alfano, S. G. Demos, S. K. Gayen, *Annals of the New York Academy of Sciences* 820, 248 (1997).
- Heterodyne Grating-generated Scan Correlation Interferometry for Reflectometry and Signal-processing Applications, I. Zeylikovich, R. R. Alfano, *Opt. Lett.* 22, 1259 (1997).
- Direct Diode-pumped Continuous-wave Near-infrared Tunable Laser Operation of Cr^{4+} :Forsterite and Cr^{4+} : Ca_2GeO_4 , J. M. Evans, V. Petricevic, A. B. Bykov, A. Delgado, R. R. Alfano, *Opt. Lett.* 22, 1171 (1997).
- Ultrafast Optical Pulse Digitization with Unary Spectrally Encoded Cross-Phase Modulation, P. P. Ho, Q. Z. Wang, J. Chen, Q. D. Liu, R. R. Alfano, *Appl. Opt.* 36, 3425 (1997).
- *Time-resolved Polarization Shadowgrams in Turbid Media, X. Liang, L. Wang, P. P. Ho, R. R. Alfano, *Appl. Opt.* 36, 2984 (1997).
- High-average-power kilohertz-repetition-rate sub-100-fs Ti:sapphire Amplifier System, Q. Fu, F. Seier, S. K. Gayen, R. R. Alfano, *Opt. Lett.* 22, 712 (1997).
- *Average and Most-probable Photon Paths in Random Media, A. Ya. Polishchuk, J. Dolne, F. Liu, R. R. Alfano, *Opt. Lett.* 22, 430 (1997).
- *Time-resolved Fluorescence and Photon Migration Studies in Biomedical and Model Random Media, B. B. Das, Feng Liu, R. R. Alfano, *Rep. Prog. Phys.* 60, 227 (1997).
- Photon-density Modes beyond the Diffusion Approximation: Scalar Wave-diffusion Equation, A. Ya. Polishchuk, S. Gutman, M. Lax, R. R. Alfano, *J. Opt. Soc. Am.* 14, 230 (1997).
- *Fluorescence Spectroscopy of Dermal Wounds in Rats, Y. Yang, L. D. Mitchell, R. R. Alfano, *J. Biomed. Opt.* 2, 55 (1997).
- *Dynamics of Local Modes during Nonradiative Relaxation, D. M. Calistru, S. G. Demos, R. R. Alfano, *Phys. Rev. Lett.* 78, 374 (1997).
- Ultrafast Correlation Interferometric Imaging through a Moving Scattering Medium, I. Zeylikovich, R. R. Alfano, *Opt. Comm.* 217 (1997).
- Image-quality Enhancement of Objects in Turbid Media by Use of a Combined Computational-photonics Approach, Yongqing Xiang, Theodore Raphan, X. Liang, L. Wang, P. P. Ho, R. R. Alfano, *Appl. Opt.* 36, 1045 (1997).
- Two-photon Excitation of Fluorescence from Chicken Tissue, Y. Guo, Q. Z. Wang, N. Zhadin, F. Liu, S. Demos, D. Calistru, A. Tirkliunas, A. Katz, Y. Budansky, P. P. Ho, R. R. Alfano, *Appl. Opt.* 36, 968 (1997).
- *Optical Polarization Imaging, S. G. Demos, R. R. Alfano, *Appl. Opt.* 36, 150 (1997).
- Investigation of Photoluminescence and Photocurrent in InGaAsP/InP Strained Multiple Quantum Well Heterostructures, O. Y. Raisky, W. B. Wang, R. R. Alfano, C. L. Reynolds, Jr., V. Swaminathan, *J. Appl. Phys.* 81, 394 (1997).
- Polarization Filter for Biomedical Tissue Optical Imaging, S. G. Demos, A. J. Papadopoulos, H. Savage, A. S. Heerdt, S. Schantz, R. R. Alfano, *Technical Note in Photochem. and Photobiol.* 66, 821 (1997).
- Nonlinear Vector Rotation and Depolarization of Femtosecond Laser Pulses Propagating in Non-birefringent Single-mode Optical Fibers, Q. D. Liu, L. Shi, P. P. Ho, R. R. Alfano, *Opt. Comm.* 138, 45 (1997).
- Innate Cellular Fluorescence Reflects Alterations in Cellular Proliferation, J. C. Zhang, H. E. Savage, P. G. Sacks, T. Delohery, R. R. Alfano, A. Katz, S. P. Schantz, *Lasers in Surgery and Medicine* 20, 319 (1997).

1996

- *Upconverted Hot Luminescence of Cr^{4+} Ions in Mg_2GeO_4 , S. G. Demos, B. Y. Han, V. Petricevic, R. R. Alfano, *J. Opt. Soc. Am.* 13, 2396 (1996).
- Spectral and Time Domain Studies of Accumulated Photon Echo, I. Zeylikovich, G. Bai, A. Gorokhovskiy, R. R. Alfano, *Mol. Cryst. Liq. Cryst.* 291, 277 (1996).

- Picosecond Photoluminescence Decay of Si-doped Chemical-vapor-deposited Diamond Films, A. V. Turukhin, C.-H. Liu, A. A. Gorokhovskiy, R. R. Alfano, W. Phillips, *Phys. Rev. B* 54, 16 448 (1996).
- Optical Harmonic Generation from Animal Tissues by the Use of Picosecond and Femtosecond Laser Pulses, Yici Guo, P. P. Ho, A. Tirkslunas, Feng Liu, R. R. Alfano, *Appl. Opt.* 35, 6810 (1996).
- Laser Action in Condensed Disordered Media of Active Dye-stained Animal Tissues and Sandy Colloidal Scattering Walls, M. Siddique, Q. Z. Wang, R. R. Alfano, *JBO* 1, 442 (1996).
- *Time-resolved Optical Diffusion Tomographic Image Reconstruction in Highly Scattering Turbid Media, W. Cai, B. B. Das, Feng Liu, M. Zavallos, M. Lax, R. R. Alfano, *PNAS* 93, 13561 (1996).
- Optical Spectroscopy of Benign and Malignant Breast Tissues, Y. Yang, A. Katz, E. J. Celmer, M. Zurawska-Szczepaniak, R. R. Alfano, *Lasers in Life Sciences* 7,115 (1996).
- *Room-temperature Near-infrared Tunable Laser Operation of $\text{Cr}^{4+}:\text{Ca}_2\text{GeO}_4$, V. Petricevic, A. B. Bykov, J. M. Evans, R. R. Alfano, *Opt. Lett.* 21, 1750 (1996).
- Ultrafast Dark-field Interferometric Microscopic Reflectometry, I. Zeylikovich, R. R. Alfano, *Opt. Lett.* 21, 1682 (1996).
- Competition between two Lasing Modes of Sulforhodamine 640 in Highly Scattering Media, W. L. Sha, C.-H. Liu, Feng Liu, R. R. Alfano, *Opt. Lett.* 21, 1277 (1996).
- *Photon Diffusion on the Velocity Sphere, A. Ya Polishchuk and R. R. Alfano, *Opt. Lett.* 21, 916 (1996).
- Native Cellular Fluorescence identifies Terminal Squamous Differentiation of Normal Oral Epithelial Cells in Culture: A Potential Chemoprevention Biomarker, Peter G. Sacks, Howard E. Savage, Jennifer Levine, Venkateswara R. Kolli, R. R. Alfano, Stimson P. Schantz, *Cancer Letters* 104, 171 (1996).
- *Direct Observation of Second Neighbor Interactions for Cr^{4+} -doped Forsterite by Resonance Raman Scattering, Dana M. Calistru, S. G. Demos, R. R. Alfano, *Appl. Phys. Lett.* 68, 2207 (1996).
- *Generalization of Fermat's Principle for Photons in Random Media: The Least Mean Square Curvature of Paths and Photon Diffusion on the Velocity Sphere, A. Ya. Polishchuk, M. Zavallos, F. Liu, R. R. Alfano, *Phys Rev E* 53, 5523 (1996).
- Intensity-dependent Polarization twisting within the Temporal Profiles of Optical Pulses in a Nonbirefringent Single-mode Optical Fiber, Q. D. Liu, W. L. Sha, P. P. Ho, R. R. Alfano, *JOSA B* 13, 916 (1996).
- Time-resolved degree of polarization for human breast tissue, S. G. Demos, H. Savage, Alexandra S. Heerdt, S. Schantz, R. R. Alfano, *Opt. Commun.* 124, 439 (1996).
- Time-resolved Studies of Stimulated Emission from Colloidal Dye Solutions, Masood Siddique, R. R. Alfano, G. A. Berger, M. Kempe, A. Z. Genack, *Opt. Lett.* 21, 450 (1996).
- *Criterion for selecting Phonons and Local Vibrations involved in the Nonradiative Relaxation of Photoexcited Cr^{4+} Ions in Forsterite, S. G. Demos, Dana M. Calistru, R. R. Alfano, *Appl. Phys. Lett.* 68, 1195 (1996).
- Terabit Speed Retrieval of Femtosecond accumulated Photon Echoes, I. Zeylikovich, G. Bai, A. Gorokhovskiy, R. R. Alfano, *Opt. Lett.* 20, 749 (1996).
- Optical Biopsy - Detecting Cancer with Light, A. Katz, R. R. Alfano, *LEOS Newsletter*, February 1996.
- Temporal Gating in Highly Scattering Media by the Degree of Optical Polarization, S. G. Demos, R. R. Alfano, *Opt. Lett.* 21, 161 (1996).
- Time-Resolved Optical Imaging of Jet Sprays and Droplets in Highly Scattering Medium, P. A. Galland, X. Liang, L. Wang, K. Breisacher, L. Liou, P. P. Ho, R. R. Alfano, *ASME, HTD-Vol. 321*, 585 (1996).
- Emerging Optical Biomedical Imaging Techniques, S. K. Gayen, R. R. Alfano, *Optics & Photonics News*, p. 17, March (1996).

1995

- *Anharmonic Effects and Second-neighbor Interactions of Local Modes in Cr^{4+} -doped Forsterite probed by Higher-order Resonance Raman Scattering, D. M. Calistru, S. G. Demos, R. R. Alfano, *Phys. Rev. B* 52, 15 253 (1995).
- *Mirrorless Laser Action from Optically Pumped Dye-treated Animal Tissues, M. Siddique, Li Yang, Q. Z. Wang, R. R. Alfano, *Opt. Comm.* 117, 475 (1995).
- *Fermat Photons in Turbid Media: An Exact Analytic Solution for most favorable Paths - A Step toward Optical Tomography, A. Ya. Polishchuk, R. R. Alfano, *Opt. Lett.* 20, 1937 (1995).
- *Ultraviolet Excitation Fluorescence Spectroscopy: A Noninvasive Method for the Measurement of Redox Changes in Ischemic Myocutaneous Flaps, P. G. Cordeiro, R. E. Kirschner, Q.-Y. Hu, J. J. C. Chial, H. Savage, R. R. Alfano, L. A. Hoffman, D. Hidalgo, *Plastic and Reconstructive Surgery* 96, 673 (1995).

- Fluorescence Spectroscopy as a Photonic Pathology Method for Detecting Colon Cancer, Y. Yang, G. C. Tang, M. Bessler, R. R. Alfano, *Lasers in Life Sciences* 6, 259 (1995).
- *Fourier Spatial Filter acts as a Temporal Gate for Light Propagating through a Turbid Medium, Q. Z. Wang, X. Liang, L. Wang, P. P. Ho, R. R. Alfano, *Opt. Lett.* 20, 1498 (1995).
- Phonon Mode and Electronic Bottleneck Associated with the Nonradiative Relaxation in Ni²⁺-doped MgO, S. G. Demos, B. Y. Han, R. R. Alfano, *App. Phys. Lett.* 67, 635 (1995).
- Up-converted Luminescence and Excited-state Excitation Spectroscopy of Cr⁴⁺ Ions in Forsterite, S. G. Demos, V. Petricevic, R. R. Alfano, *Phys. Rev. B* 52, 1544 (1995).
- Subpicosecond Time-resolved Raman Investigation of Optical Phonon Modes in Cr-Doped Forsterite, S. G. Demos, R. R. Alfano, *Phys. Rev. B* 52, 987 (1995).
- Two-dimensional Kerr-Fourier Imaging of Translucent Phantoms in Thick Turbid Media, X. Liang, L. Wang, P. P. Ho, R. R. Alfano, *Appl. Opt.* 34, 3463 (1995).
- Resonance Raman Scattering in Cr⁴⁺-doped Forsterite, Dana M. Calistru, W. B. Wang, V. Petricevic, R. R. Alfano, *Phys. Rev. B* 51, 14 980 (1995).
- Observation of Light Diffraction by Time-resolved Femtosecond Correlation Interferometry, I. Zeylikovich, G. Bai, R. R. Alfano, *Opt. Lett.* 20, 1580 (1995).
- True Scattering Coefficients of Turbid Matter measured by Early-time Gating, L. Wang, X. Liang, P. Galland, P. P. Ho, R. R. Alfano, *Opt. Lett.* 20, 913 (1995).
- Polarization Stability of Circularly Polarized Laser Pulses Propagating in Non-Birefringent Single-mode Optical Fibers, Q. D. Liu, J. T. Chen, Q. Z. Wang, P. P. Ho, R. R. Alfano, *IEEE Photonics Tech. Lett.* 7, 517 (1995).
- Time-resolved IR-absorption Spectroscopy of Hot-electron Dynamics in Satellite and Upper Conduction Bands in GaP, M. A. Cavicchia, R. R. Alfano, *Phys. Rev. B* 51, 9629 (1995).
- Terabit Speed Retrieval of Femtosecond Accumulated Photon Echoes, I. Zeylikovich, G. Bai, A. Gorokhovskiy, R. R. Alfano, *Opt. Lett.* 20, 749 (1995).
- Interferometric 2D Imaging Amplitude Correlator for Ultrashort Pulses, I. Zeylikovich, Q. D. Liu, G. Bai, N. Zhadin, A. Gorokhovskiy, R. R. Alfano, *Opt. Comm.* 115, 485 (1995).
- Single-pulse Degenerate-cross-phase Modulation in a Single-mode Optical Fiber, Q. D. Liu, J. T. Chen, Q. Z. Wang, P. P. Ho, R. R. Alfano, *Opt. Lett.* 20, 542 (1995).

1994

- *High-resolution Spectra of Cross-phase Modulation in Optical Fibers, Q. Z. Wang, Q. D. Liu, P. P. Ho, E. K. Walge, R. R. Alfano, *Opt. Lett.* 19, 1636 (1994).
- High-Power Picosecond Pulse Amplification and Generation in Field-Effect GaAs-AlGaAs Laser Diodes with Saturable Absorption, K. Sutkus, K. Shum, R. R. Alfano, *IEEE J. Quantum Electron* 30, 2688 (1994).
- Effect of Carrier Heating on the Wavelength Chirp of Ultrashort laser Pulses in Semiconductor Traveling Wave Amplifiers, K. Sutkus, K. Shum, R. R. Alfano, P. Delfyett, *IEEE Photonics Tech. Lett.* 6, 372 (1994).
- *Spectral and Temporal Measurements of Laser Action of Rhodamine 640 Dye in Strongly Scattering Media, W. L. Sha, C.-H. Liu, R. R. Alfano, *Opt. Lett.* 19, 1922 (1994).
- Barrier Potential Design Criteria in Multiple-Quantum-Well-Based Solar Cell Structures, Jihad Mohaidat, Kai Shum, W. B. Wang, R. R. Alfano, *J. Appl. Phys.* 76, 5533 (1994).
- Effects of Uniaxial Stress on the Optical Properties of GaAs and GaAs/Ga_{1-x}Al_xAs Single Quantum Wells grown on Si(001) Substrates, H. Qiang, F. H. Pollak, K. Shum, Y. Takiguchi, R. R. Alfano, S. F. Fang, H. Morkoc, *Philosoph. Mag. B* Vol. 70, 381 (1994).
- Effect of Multiple Light Scattering and Self-absorption on the Fluorescence and Excitation Spectra of Dyes in Random Media, S. A. Ahmed, Z.-W. Zang, K. M. Yoo, M. A. Ali, R. R. Alfano, *Appl. Opt.* 33, 2746 (1994).
- Photorefectance Study of GaAs and GaAs/GaAlAs Single Quantum Wells grown on (001) Si Substrates, H. Qiang, E. Look, Fred H. Pollak, Kai Shum, Y. Takiguchi, R. R. Alfano, S. F. Fang, H. Morkoc, *Solar Energy Materials and Solar Cells* 32, 405 (1994).
- In Vivo* Fast Fourier Transform Analysis of the Autofluorescence of Normal and Neoplastic upper Aerodigestive Mucosa, D. Franceschi, M.D., J. Haldar, M.D., R. R. Alfano, Ph.D., H. E. Savage, Ph.D., S. Schantz, M.D., *Surgical Oncology XLV*, 488-492 (1994).

- Tissue Autofluorescence as an intermediate endpoint in NMBA-induced Esophageal Carcinogenesis, Robert Glasgold, Mark Glasgold, H. Savage, J. Pinto, R. R. Alfano, S. Schantz, *Cancer Letters* 82, 33-41 (1994).
- Exciton Formation and Decay Dynamics in Electroluminescent Polymers observed by Subpicosecond Stimulated Emission, M. Yan, L. Rothberg, B. R. Hsieh, R. R. Alfano, *Phys. Rev. B* 49, 9419 (1994).
- Time Dependence of the Electron-phonon Coupling Parameter of Niobium, Margarita Mihailidi, R. R. Alfano, *Appl. Phys. Lett.* 65, 106 (1994).
- *Microscope Imaging through Highly Scattering Media, G. E. Anderson, Feng Liu, R. R. Alfano, *Opt. Lett.* 19, 981 (1994).
- Nonlinear Optical Properties of Metal-quantum-dot Composites Synthesized by Ion Implantation, R. F. Haglund, Jr., Li Yang, R. H. Magruder, III, C. W. White, R. A. Zuhr, Lina Yang, R. Dorsinville, R. R. Alfano, *NIM B* 91, 493 (1994).
- Size Dependence of the Third-order Susceptibility of Copper Nanoclusters investigated by Four-wave Mixing, Li Yang, K. Becker, F. M. Smith, R. H. Magruder, III, R. F. Haglund, Jr., Lina Yang, R. Dorsinville, R. R. Alfano, R. A. Zuhr, *JOSA B* 11, 457 (1994).
- *Time-resolved Imaging of Translucent Droplets in Highly Scattering Turbid Media, R. R. Alfano, X. Liang, L. Wang, P. P. Ho, *Science* 264, 1913 (1994).
- *Transmitted Photon Intensity through Biological Tissues within Various Time Windows, Feng Liu, K. M. Yoo, R. R. Alfano, *Opt. Lett.* 19, 740 (1994).
- IR Fourier Space Gate and Absorption Imaging through Random Media, J. J. Dolne, K. M. Yoo, F. Liu, R. R. Alfano, *Lasers in the Life Sciences* 6(2), 131 (1994).
- Time Resolved and Steady State Fluorescence Spectroscopy from Normal and Malignant Cultured Human Breast Cell Lines, W. S. Glassman, M. Steinberg, R. R. Alfano, *Lasers in the Life Sciences* 6(2), 91 (1994).
- Excitation Spectroscopy of Malignant and Non-malignant Gynecological Tissues, W. Glassman, C.-H. Liu, S. Lubicz, R. R. Alfano, *Lasers in the Life Sciences* 6(2), 99 (1994).
- Detecting Retinoic Acid-Induced Biochemical Alterations in Squamous Cell Carcinoma Using Intrinsic Fluorescence Spectroscopy, M. B. Silberberg, M.D., H. E. Savage, Ph.D., G. C. Tang, P. G. Sacks, Ph.D., R. R. Alfano, Ph.D., S. P. Schantz, *Laryngoscope* 104, 278 (1994).
- Electron-phonon Relaxation Dynamics of Niobium Metal as a Function of Temperature, M. Mihailidi, Qirong Xing, K. M. Yoo, R. R. Alfano, *Phys. Rev. B* 49, 3207 (1994).
- Self-bending of Light: Reply to Comment, Qirong Xing, K. M. Yoo, R. R. Alfano, *Opt. Lett.* 19, 72 (1994).
- Size Dependence of the Third-order Susceptibility of Copper Nanoclusters investigated by Four-wave Mixing, Li Yang, K. Becker, F. M. Smith, R. H. Magruder III, R. F. Haglund, Jr., Lina Yang, R. Dorsinville, R. R. Alfano, R. A. Zuhr, *JOSA B* 11, 1 (1994).

1993

- Tissue Autofluorescence as an Intermediate Endpoint in Cancer Chemoprevention Trials, S. P. Schantz, R. R. Alfano, *J. of Cellular Biochem. Supp* 17F, 199 (1993).
- Ultrafast Time-gated Snake Light 2D & 3D Images of Objects in Biomedical Media, P. P. Ho, L. Wang, X. Liang, P. Galland, L. L. Kalpaxis, R. R. Alfano, *Optics & Photonics News*, p. 23, October (1993).
- Optical Nonlinearity of Iron Ions in Glass Matrices, Lina Yang, R. Dorsinville, R. R. Alfano, *Opt. Comm.* 104, 107 (1993).
- Optical Properties of Gold Nanocluster Composites formed by Deep Ion Implantation in Silica, R. H. Magruder, III, Li Yang, R. F. Haglund, Jr., C. W. White, Lina Yang, R. Dorsinville, R. R. Alfano, *Appl. Phys. Lett.* 62, 1730 (1993).
- Electron-tunneling Dynamics through a Double-barrier Structure in the Presence of Phonons, J. M. Mohaidat, K. Shum, R. R. Alfano, *Phys. Rev. B* 48, 8809 (1993).
- *Energy-band Renormalization and Energy-relaxation Dynamics of the χ_6 and χ_7 Satellite Valleys in GaAs, M. A. Cavicchia, R. R. Alfano, *Phys. Rev. B* 48, 5696 (1993).
- Should the Photon Flux or the Photon Density be used to Describe the Temporal Profiles of Scattered Ultrashort Laser Pulses in Random Media?, Feng Liu, K. M. Yoo, R. R. Alfano, *Opt. Lett.* 18, 432 (1993).
- Determination of the Critical Value of x_c for the Direct-to-Indirect Band-gap Transition in $Al_xGa_{1-x}As$ by measuring hot-carrier dynamics in the X valley, W. B. Wang, R. R. Alfano, D. Szmyd, A. J. Nozik, *Phys. Rev. B* 46, 828 (1992).

- Hole Lifetimes in [100] Uniaxial Stressed GaAs, S. Lee, K. M. Yoo, R. R. Alfano, H. Qiang, F. H. Pollak, Phys. Rev. B 47, 7036 (1993).
- Conical Emission by Four-photon Parametric Generation by using Femtosecond Laser Pulses, Qirong Xing, Kwong Mow Yoo, R. R. Alfano, Appl. Opt. 32, 2087 (1993).
- *Self-mode-locked Chromium-doped Forsterite Laser Generates 50-fs Pulses, A. Seas, V. Petricevic, R. R. Alfano, Opt. Lett. 18, 891 (1993).
- *Ultrafast Time-gated Imaging in Thick Tissues: A Step Toward Optical Mammography, B. B. Das, K. M. Yoo, R. R. Alfano, Opt. Lett. 18, 1092 (1993).
- Ultrahigh Repetition Rate Picosecond Pulses from a Passively Mode-locked Neodymium Glass Laser by Solid-state Saturable Dye Films, Victor P. Mikhailov, Quan Z. Wang, Mona Chu, Janusz M. Buchert, R. R. Alfano, Appl. Opt. 32, 3944 (1993).
- Upconverted Hot-Luminescence Spectroscopy Investigation of Nonradiative Relaxation in Forsterite, S. G. Demos, Y. Takiguchi, R. R. Alfano, Opt. Lett. 18, 522 (1993).
- Self-bending of Light, Qirong Xing, K. M. Yoo, R. R. Alfano, Opt. Lett. 18, 480 (1993).
- Kerr-Fourier Imaging of Hidden Objects in Thick Turbid Media, L. Wang, P. P. Ho, X. Liang, H. Dai, R. R. Alfano, Opt. Lett. 18, 241 (1993).
- Laser Fluorescence Spectroscopy from Human Spermatozoa, G. C. Tang, Nobutoshi Oka, G. R. Nagamatsu, R. R. Alfano, Appl. Opt. 32, 464 (1993).
- Double-stage Picosecond Kerr Gate for Ballistic Time-gated Optical Imaging in Turbid Media, L. M. Wang, P. P. Ho, R. R. Alfano, Appl. Opt. 32, 535 (1993).
- Ultrafast Laser-pulse Transmission and Imaging through Biological Tissues, Feng Liu, K. M. Yoo, R. R. Alfano, Appl. Opt. 32, 554 (1993).
- Spectral Optical-density Measurements of Small Particles and Breast Tissues, B. B. Das, K. M. Yoo, Feng Liu, J. Cleary, R. Prudente, E. Celmer, R. R. Alfano, Appl. Opt. 32, 549 (1993).

1992

- *Raman, Fluorescence, and Time-resolved Light Scattering as Optical Diagnostic Techniques to Separate Diseased and Normal Biomedical Media, C.-H. Liu, B. B. Das, W. L. Sha Glassman, G. C. Tang, K. M. Yoo, H. R. Zhu, D. L. Akins, S. S. Lubicz, J. Cleary, R. Prudente, E. Celmer, A. Caron, R. R. Alfano, J. Photochem. Photobiol. B: Biol., 16 (1992) 187-209.
- Observation of the $1P$ Excitonic States in Cd(S,Se)-Glass Quantum Dots, Kai Shum, W. B. Wang, R. R. Alfano, Kim Jones, Phys. Rev. Lett. 68, 3904 (1992).
- Upconverted Luminescence from Nonequilibrium Vibronic States of Cr Ions in Forsterite, S. G. Demos, R. R. Alfano, Phys. Rev. B 46, 8811 (1992).
- A Field-Effect GaAs Laser Diode with Controlled Carrier Distribution in Central and Satellite Valleys, Kestutis Sutkus, Kai Shum, R. R. Alfano, IEEE Photonics Technology Letters 4, 982 (1992).
- Time Resolved Nonequilibrium Phonon Dynamics in the Nonradiative Decay of Photoexcited Forsterite, S. G. Demos, J. M. Buchert, R. R. Alfano, Appl. Phys. Lett. 61, 660 (1992).
- *Imaging of a Translucent Object hidden in a Highly Scattering Medium from the Early Portion of the Diffuse component of a Transmitted Ultrafast Laser Pulse, K. M. Yoo, B. B. Das, and R. R. Alfano, Opt. Lett. 17, 958 (1992).
- *Generation of sub-100-fs Pulses from a CW Mode-locked Chromium-doped Forsterite Laser, A. Seas, V. Petricevic, R. R. Alfano, Opt. Lett. 17, 937 (1992).
- *Observation of the $1P$ Excitonic States in Cd(S₉Se)-Glass Quantum Dots, K. Shum, W. B. Wang, R. R. Alfano, K. M. Jones, Phys. Rev. Lett. 68, 3904 (1992).
- Near-IR Fourier Transform Raman Spectroscopy of Normal and Atherosclerotic Human Aorta, C. H. Liu, W. L. Sha Glassman, H. R. Zhu, D. L. Akins, L. I. Deckelbaum, M. L. Stetz, K. O'Brien, J. Scott, R. R. Alfano, Lasers in the Life Sciences 4, 257 (1992).
- Time-resolved UV Photoexcited Fluorescence Kinetics from Malignant and Non-Malignant Human Breast Tissues, A. Pradhan, B. B. Das, K. M. Yoo, J. Cleary, R. Prudente, E. Celmer, R. R. Alfano, Lasers in the Life Sciences 4, 225 (1992).
- Transient Stimulated Hyper-Raman Scattering in an Organic Crystal, Q. Z. Wang, P. P. Ho, R. R. Alfano, R. Kashyap, Phys. Rev. A 45, 1951 (1992).
- Excitonic Effects on Coherent Oscillations of a Photoexcited Wave Packet in Double Quantum Wells, Jihad M. Mohaidat, Kai Shum, R. R. Alfano, Phys. Rev. B 45, 3822 (1992).

- Ultraviolet Excited Fluorescence Spectra from Non-Malignant and Malignant Tissues of the Gynecological Tract, W. L. Sha Glassman, C. H. Liu, G. C. Tang, S. Lubicz, R. R. Alfano, *Lasers in the Life Sciences* 5, 49 (1992).
- Determination of χ_6 Valley Hot Electron Dynamics and the Intervalley χ_6 to Γ_6 Scattering Times in GaAs, W. B. Wang, N. Ockman, M. Yan, R. R. Alfano, *Journal of Luminescence* 50, 347 (1992).
- * L_6 to χ_6 Intervalley Scattering Time and Deformation Potential for $Al_{0.6}Ga_{0.4}As$ Determined by Femtosecond Time-Resolved Infrared Absorption Spectroscopy, W. B. Wang, K. Shum, R. R. Alfano, D. Szymd, A. J. Nozik, *Phys. Rev. Lett.* 68, 662 (1992).
- Excited-State Nonlinearity in Polythiophene Thin Films investigated by the Z-Scan Technique, L. Yang, R. Dorsinville, Q. Z. Wang, P. X. Ye, R. R. Alfano, R. Zamboni, C. Taliani, *Opt. Lett.* 17, 323 (1992).
- Exciton Trapping in Strained GaAsP Quantum Wells, Y. Takiguchi, K. Shum, R. R. Alfano, E. S. Koteles, D. C. Bertolet, J. K. Hsu, K. M. Lau, *Semicond. Sci. Technol.* 7, 170 (1992).
- Investigation of the $L_6 \rightarrow \chi_6$ Intervalley Scattering in $Al_xGa_{1-x}As$ by Measuring Hot Carrier Dynamics in a $K \neq 0$ Satellite Valley, W. B. Wang, K. Shum, R. R. Alfano, D. Szymd, A. J. Nozik, *Semicond. Sci. Technol.* 7, B173 (1992).
- Hot Carrier Dynamics in GaAs Epilayer Structures grown on Si, K. Shum, Y. Takiguchi, J. M. Mohaidat, R. R. Alfano, K. Adomi, H. Morkoc, *Semicond. Sci. Technol.* 7, B195 (1992).
- Optical Imaging vs X-rays for Breast Cancer Screening, R. R. Alfano, P. P. Ho, K. Yoo, *Photonics Spectra*, pp109-114, Oct (1992).
- Photons for Prompt Tumor Detection, R. R. Alfano, P. P. Ho, K. Yoo, *Physics World* 5, 37-40 (1992).

1991

- Applications of Ultrafast Laser Spectroscopy to the Study of Semiconductor Physics, N. Ockman, W. Wang, R. R. Alfano, *Internat'l J. of Mod. Phys.* 5, 3165 (1991).
- Picosecond Excite-and-probe Absorption Measurement of Nonradiative Transition Dynamics in Emerald, S. K. Gayen, W. B. Wang, V. Petricevic, S. G. Demos, R. R. Alfano, *J. of Luminescence* 47, 181 (1991).
- Nonlinear Photon Localization for High-Intensity Laser Protection Systems for Photodetectors and Eyes, K. M. Yoo, R. R. Alfano, *Opt. Lett.* 16, 1823-1825 (1991).
- Ultrafast Spectroscopy of the Visual Pigment Rhodopsin, Ming Yan, D. Manor, G. Weng, H. Chao, L. Rothberg, T. M. Jedju, R. R. Alfano, R. H. Callender, *Proc. Natl. Acad. Sci.* 88, 9809-9812 (1991).
- Continuous-Wave Mode-Locked Operation of a Chromium-Doped Forsterite Laser, A. Seas, V. Petricevic, R. R. Alfano, *Opt. Lett.* 16, 1668 (1991).
- *Ballistic 2-D Imaging Through Scattering Walls Using an Ultrafast Optical Kerr Gate, L. Wang, P. P. Ho, C. Liu, G. Zhang, R. R. Alfano, *Science* 253, 769 (1991).
- Spontaneous Photon-Emission Spectrum of Tunneling Electrons in a Double-Barrier Structure, Guang Bai, Kai Shum, R. R. Alfano, *J. Appl. Phys.* 70, 1025 (1991).
- Effect of Valence-subband Structure on the Energy Relaxation Dynamics of Electrons in GaAs Quantum Wells grown on Si, Kai Shum, Y. Takiguchi, J. M. Mohaidat, R. R. Alfano, *Phys. Rev. B* 44, 4044 (1991).
- *Human Breast Tissues Studied by IR Fourier Transform Raman Spectroscopy, R. R. Alfano, C. H. Liu, W. L. Sha, H. R. Zhu, D. L. Akins, J. Cleary, R. Prudente, E. Cellmer, *Lasers in the Life Sciences* Vol. 4, 23 (1991).
- Temperature Dependence of the Transient Photoconductive Response in Stretched Trans-polyacetylene Films with Below-gap Excitation, A. D. Walser, R. Dorsinville, R. R. Alfano, R. Tubino, *J. Appl. Phys.* 69, 1116 (1991).
- Laser-Induced Binding of Precured Rubber Compounds, P. L. Baldeck, S. Y. Yang, R. R. Alfano, R. H. Callender, C. Bennet, Jr., S. K. Mowdood, W. H. Waddell, *Optical Engineering* 30, 312 (1991).
- *Speed of the coherent component of the Femtosecond Laser Pulses Propagating through Random Scattering Media, Feng Liu, K. M. Yoo, R. R. Alfano, *Opt. Lett.* 16, 351 (1991).
- *Ultrafast All-optical Deflection Based on an Induced Area Modulation in Nonlinear Materials, Yao Li, Daoyang Chen, Lina Yang, R. R. Alfano, *Opt. Lett.* 16, 438 (1991).
- *Light Sheds Light on Cancer - Distinguishing Malignant Tumors from Benign Tissues and Tumors, R. R. Alfano, B. Das, J. Cleary, R. Prudente, E. Celmer, *Bull. of the NY Academy of Medicine, Second Series, Vol. 67*, 143 (1991).

- Effect of Degenerate Four-Wave Mixing on Pulse Amplification and Compression in the Degenerate Cross-Phase-Modulation Process, Q. Z. Wang, P. P. Ho, R. R. Alfano, *Opt. Lett.* 16, 496 (1991).
- Sign of $\chi(3)$ in Polysilane Polymers, Lina Yang, R. Dorsinville, R. R. Alfano, W. K. Zou, N. L. Yang, *Optics Lett.* 16, 758 (1991).
- Anisotropy of the Picosecond Photocurrent in Stretched trans-Polyacetylene for Above- and Below-Gap Excitation, A. D. Walser, R. Dorsinville, R. Tubino, R. R. Alfano, *Phys. Rev. B* 43, 7194 (1991).
- Slope Efficiency Measurements of a Chromium-Doped Forsterite Laser, V. Petricevic, A. Seas, R. R. Alfano, *Opt. Lett.* 16, 811 (1991).
- Imaging Objects Hidden in Highly Scattering Media using Femtosecond Second-Harmonic-Generation Cross-Correlation Time Gating, K. M. Yoo, Qirong Xing, R. R. Alfano, *Opt. Lett.* 16, 1019 (1991).
- *Imaging through a Scattering Wall using Absorption, K. M. Yoo, Feng Liu, R. R. Alfano, *Opt. Lett.* 16, 1068 (1991).
- Imaging Objects Hidden in Scattering Media using a Fluorescence-Absorption Technique, K. M. Yoo, Zhi-Wei Zang, S. A. Ahmed, R. R. Alfano, *Opt. Lett.* 16, 1252 (1991).
- Second-Harmonic Generation of Femtosecond Pulses: Observation of Phase-mismatch Effects: Comment, P. P. Ho, Q. Z. Wang, R. R. Alfano, *Opt. Lett.*, 970 (1991).

1990

- Femtosecond Thermal Modulation Measurements of Electron-Phonon Relaxation in Niobium, K. M. Yoo, X. N. Zhao, M. Siddique, R. R. Alfano, D. P. Osterman, M. Radparvar, J. Cunniff, *Appl. Phys. Lett.* 56 (19), 1908 May (1990).
- *When does the Diffusion Approximation Fail to Describe Photon Transport in Random Media?, K. M. Yoo, Feng Liu, R. R. Alfano, *Phys. Rev. Lett.* 65, 2210 Oct. (1990).
- *When does the Diffusion Approximation Fail to Describe Photon Transport in Random Media?, K. M. Yoo, Feng Liu, R. R. Alfano, *Phys. Rev. Lett.* 64, 2647 May (1990).
- Effects of Self-Absorption by Hemoglobins on the Fluorescence Spectra from Normal and Cancerous Tissues, C. H. Liu, G. C. Tang, A. Pradhan, W. L. Sha, R. R. Alfano, *Lasers in Life Sciences Vol. 3*, 167 (1990).
- Picosecond Hole Dynamics in GaAs grown on Si, Kai Shum, Y. Takiguchi, J. M. Mohaidat, Feng Liu, R. R. Alfano, H. Morkoc, *Appl. Phys. Lett.* 56, 2328 (1990).
- *Coherent Backscattering of Light from Biological Tissues, K. M. Yoo, G. C. Tang, R. R. Alfano, *Appl. Opt.* 29, 3237 (1990).
- Degenerate Cross-Phase Modulation for Pulse Compression and Amplification of Ultrashort Laser Pulses, Q. Z. Wang, P. P. Ho, R. R. Alfano, *Opt. Lett.* 15, 1023 (1990).
- Determination of the Density of States Effective Mass and the Energy Minimum of the X_7 Satellite Conduction Band in GaAs from the $X_6 \rightarrow X_7$ Absorption Spectrum, W. B. Wang, N. Ockman, M. A. Cavicchia, and R. R. Alfano, *Appl. Phys. Lett.* 57, 395 (1990).
- Nonlinear-Optical Response in Polythiophene Films using Four-Wave Mixing Techniques, R. Dorsinville, Lina Yang, R. R. Alfano, R. Zamboni, R. Daniell, G. Ruani, and C. Taliani, *Optics Lett.* 14, 1321 (1990).
- Determination of the Scattering and Absorption Lengths from the Temporal Profile of a Backscattered Pulse, K. M. Yoo and R. R. Alfano, *Opt. Lett.* 15, 276 (1990).
- *Time Resolved Backscattering to Monitor Different Stages of Eye Cataract, R. Ahmed, K. M. Yoo, R. M. Klapper, R. R. Alfano, *Appl. Opt.* 29, 7 (1990).
- *Time Resolved Coherent and Incoherent Components of Forward Light Scattering in Random Media, K. M. Yoo, R. R. Alfano, *Opt. Lett.* 15, 320 (1990).
- Temporal Behavior of Cross-Phase Modulated Second-Harmonic Generation of Ultrashort Laser Pulses on Nonlinear-Optical Media, P. P. Ho, D. Ji, Q. Z. Wang, R. R. Alfano, *JOSA B* 7, 276 (1990).

1989

- The Intervalley $X_6 \rightarrow \Gamma_6$, L_6 Scattering Time in GaAs measured by Ultrafast Pump-Probe Infrared Absorption Spectroscopy, W. B. Wang, N. Ockman, M. Yan, and R. R. Alfano, *Solid State Electron.* 32, 1337 (1989).
- Dynamic Effect of Weak Localization on the Light Scattering from Random Media using Ultrafast Laser Technology, K. M. Yoo, Y. Takiguchi, and R. R. Alfano, *Appl. Opt.* 28, 2343 (1989).

- Time-Resolved Depolarization of Light Scattering in Random Media, K. M. Yoo, and R. R. Alfano, *Phys. Lett. A* 142, 531 (1989).
- *Self- and Coupled-Phase Modulations of Ultrashort Laser Pulses, R. R. Alfano and P. P. Ho, *Optics News* 15, p. 13 August (1989).
- *Weak Localization of Photons: Contributions from Different Scattering Pathlengths, K. M. Yoo, Y. Takiguchi, and R. R. Alfano, *Photonics Technology Lett.* 1, 94 (1989).
- *Pulsed and cw Laser Fluorescence Spectra from Cancerous, Normal, and Chemically Treated Normal Human Breast and Lung Tissues, G. C. Tang, A. Pradhan, W. Sha, J. Chen, C. H. Liu, S. J. Wahl, and R. R. Alfano, *Appl. Opt.* 28, 2337 (1989).
- Spectroscopic Differences between Human Cancer and Normal Lung and Breast Tissues, G. C. Tang, A. Pradhan, R. R. Alfano, *Lasers in Surgery and Medicine* 9, 290 (1989).
- Time Dynamics of Photon Migration in Semi-Opaque Random Media, P. P. Ho, P. L. Baldeck, K. S. Wong, K. Yoo, D. Lee, R. R. Alfano, *Appl. Opt.* 28, 2304 (1989).
- Spectral and Temporal Measurements of the Third-Order Nonlinear Susceptibility of LiNbO₃ using Picosecond Raman-induced Phase-Conjugation Spectroscopy, P. J. Delfyett, R. Dorsinville, R. R. Alfano, *Phys. Rev. B* 40, 1885 (1989).
- *Broad Bandwidth Mirror with Random Layer Thickness, K. M. Yoo, R. R. Alfano, *Appl. Opt.* 28, 2456 (1989).
- Implementation of a Binary Optical Full Adder using a Venn Diagram and Optical Phase Conjugation, Y. Li, M. Turner, P. Neos, R. Dorsinville, R. R. Alfano, *Opt. Lett.* 14, 773 (1989).
- Search for the Effect of Weak Photon Localization in Second-Harmonic Waves Generated in a Disordered Anisotropic Nonlinear Medium, K. M. Yoo, S. Lee, Yoshihiro Takiguchi, R. R. Alfano, *Opt. Lett.* 14, 801 (1989).
- Alkali *D*-line Absorption in the Luminescence Spectrum of Solid-Fluid Interfaces under High-intensity Laser Excitation, K. M. Yoo, R. R. Alfano, *Opt. Lett.* 14, 725 (1989).
- *Continuous-wave Laser Operation of Chromium-Doped Forsterite, V. Petricevic, S. K. Gayen, R. R. Alfano, *Opt. Lett.* 14, 612 (1989).
- *Optical Spectroscopic Diagnosis of Cancer and Normal Breast Tissues, R. R. Alfano, Asima Pradhan, G. C. Tang, S. J. Wahl, *J. Opt. Soc. Am. B* 6, 1015 (1989).
- 15-THz-Pulse Generation arising from Modulation Instability Oscillation in a Colliding-Pulse Mode-Locking Dye Laser, Ching-Yue Wang, P. L. Baldeck, Y. Budansky, R. R. Alfano, *Opt. Lett.* 14, 497 (1989).
- *Near Infrared Tunable Operation of Chromium Doped Forsterite Laser, V. Petricevic, S. K. Gayen, R. R. Alfano, *Appl. Opt.* 28, 1609 (1989).
- Third-Order Optical Nonlinearity in Polycondensed Thiophene-Based Polymers and Polysilane Polymers, Lina Yang, R. Dorsinville, Q. Z. Wang, W. K. Zou, P. P. Ho, N.-L. Yang, R. R. Alfano, R. Zamboni, R. Danieli, G. Rauni, C. Taliani, *J. Opt. Soc. Am. B* 6, 753 (1989).
- *Cross-Phase Modulation and Induced Focusing due to Optical Nonlinearities in Optical Fibers and Bulk Materials, R. R. Alfano, P. L. Baldeck, P. P. Ho, and Govind P. Agrawal, *J. Opt. Soc. Am. B* 6, 824 (1989).
- *Modulation Instability Induced by Cross-Phase Modulation in Optical Fibers, G. P. Agrawal, P. L. Baldeck, and R. R. Alfano, *Phys. Rev. A* 39, 3406 (1989).
- Temporal and Spectral Effects of Cross-Phase Modulation on Copropagating Ultrashort Pulses in Optical Fibers, G. P. Agrawal, P. L. Baldeck, R. R. Alfano, *Phys. Rev. A* 40, 5063 (1989).
- Phase Modulation of Ultrashort Laser Pulses, Takashi Jimbo, P. P. Ho, R. R. Alfano, *The Review of Laser Engineering* 17, 165 (1989). Japanese
- *Coherent Backscattering of a Picosecond Pulse from a Disordered Medium: Analysis of the Pulse Shape in the Time Domain, K. M. Yoo, K. Arya, G. C. Tang, J. L. Birman, R. R. Alfano, *Phys. Rev. A* 39, 3728 (1989).
- Ultrafast Noncollinear Second-Harmonic-Generation-Based 4x4 Optical Switching Array, Yao Li, Leming Wang, Perry Neos, Gang Zhang, X. C. Liang, R. R. Alfano, *Opt. Lett.* 14, 347 (1989).
- Time-resolved Emission Spectroscopy of the High T_c Superconductor YBa₂Cu₃O_{7-x} Under Laser Ablation, K. M. Yoo, R. R. Alfano, X. Guo, M. P. Sarachik, L. L. Isaacs, *Appl. Phys. Lett.* 54, 1278 (1989).
- Photon Localization in a Disordered Multilayered System, K. M. Yoo, R. R. Alfano, *Phys. Rev. B* 15, 5806 (1989).
- Compact Picosecond Nd:Glass Mode-locked Laser with Variable Cavity Length from 5 to 21 μ, N. H. Schiller, X. M. Zhao, X. C. Liang, L. M. Wang, R. R. Alfano, *Appl. Opt.* 28, 946 (1989).

- Multiphonon Dephasing of the 1086 cm^{-1} Mode in Calcite, P. Delfyett, R. Dorsinville, R. R. Alfano, *Phys. Rev. B* 39, 3845 (1989).
- Harmonic Cross-Phase Modulation in ZnSe, P. P. Ho, Q. Z. Wang, D. Ji, T. Jimbo, R. R. Alfano, *Appl. Phys. Lett.* 54, 111 (1989).
- Optical Wave Breaking and Pulse Compression due to Cross-Phase Modulation in Optical Fibers, Govind P. Agrawal, P. L. Baldeck, R. R. Alfano, *Opt. Lett.* 14, 137 (1989).

1988

- Quasi-Linear Ring Colliding-Pulse Mode-Locked Femtosecond Laser using Binary Energy-Transfer gain Dye Mixture, M. Mihailidi, Y. Budansky, X. M. Zhao, Y. Takiguchi, R. R. Alfano, *Opt. Lett.* 13, 987 (1988).
- Self-focusing, Self-phase Modulation and Diffraction in Bulk Homogeneous Material, J. T. Manassah, P. L. Baldeck, R. R. Alfano, *Opt. Lett.* 13, 1090 (1988).
- Thermal Focusing Effects on the Supercontinuum, J. T. Manassah, P. L. Baldeck, R. R. Alfano, *Appl. Opt.* 27, 3586 (1988).
- *Laser Action in Chromium-Activated Forsterite for Near Infrared Excitation, V. Petricevic, S. K. Gayen, R. R. Alfano, *Appl. Opt.* 27, 4162 (1988).
- *Laser Action in Cr-activated Forsterite for Near Infrared Excitation: Is Cr^{4+} the Lasing Ion?, V. Petricevic, S. K. Gayen, R. R. Alfano, *Appl. Phys. Lett.* 53, 2590 (1988).
- Ultrafast Time Response of Optical Nonlinearity in Polysilane Polymers, Lina Yang, Q. Z. Wang, P. P. Ho, R. Dorsinville, R. R. Alfano, W. K. Zou, N.-L. Yang, *Appl. Phys. Lett.* 53, 1245 (1988).
- Intervalley Scattering Rates in GaAs Measured by Time-Resolved Four-Wave Mixing Spectroscopy, A. Katz and R. R. Alfano, *Appl. Phys. Lett.* 53, 1065 (1988).
- Ultrafast Parallel Digital and Symbolic Computation via Optical Phase Conjugation, Yao Li, George Eichmann, Roger Dorsinville, R. R. Alfano, *Appl. Opt.* 27, 2025 (1988).
- Self-focusing, Self-phase Modulation and Diffraction in Bulk Homogeneous Material, J. T. Manassah, P. L. Baldeck, and R. R. Alfano, *Opt. Lett.* 13, 1090 (1988).
- Intensity Dependence of Picosecond Nonlinear Response Time of Polydiacetylene, Lina Yang, R. Dorsinville, P. P. Ho, W. K. Zou, N. L. Yang, and R. R. Alfano, *Appl. Phys. Lett.* 53, 2008 (1988).
- *Steady State and Time-Resolved Laser Fluorescence from Normal and Tumor Lung and Breast Tissues, R. R. Alfano, G. C. Tang, Asima Pradhan, M. Bleich, D. S. J. Choy and Elana Opher, *J. of Tumor Marker Oncology* 3, 165 (1988).
- Self-focusing and Self-phase Modulation in a Parabolic Graded-Index Optical Fiber, Jamal T. Manassah, P. L. Baldeck, R. R. Alfano, *Opt. Lett.* 13, 589 (1988).
- Induced-Frequency Shift of Copropagating Ultrafast Optical Pulses, P. L. Baldeck, R. R. Alfano, Govind P. Agrawal, *Appl. Phys. Lett.* 52, 1939 (1988).
- Effects of Nonequilibrium Phonons on the Energy Relaxation and Recombination Lifetime of Photogenerated Carriers in Undoped GaAs Quantum Wells, Kai Shum, M. R. Junnarkar, H. S. Chao, R. R. Alfano, H. Morkoc, *Phys. Rev. B* 37, 8923 (1988).
- Reply to "Comment on 'Determination of Valence-Band Discontinuity Via Optical Transitions in Ultrathin Quantum Wells'", Kai Shum, C. Zhang, P. P. Ho, R. R. Alfano, *Phys. Rev. B* 37, 1408 (1988).
- Demonstration of a Picosecond Optical-Phase-Conjugation-Based Residue-Arithmetic Computation, Y. Li, G. Eichmann, R. Dorsinville, R. R. Alfano, *Opt. Lett.* 13, 178 (1988).
- Nonequilibrium Phonon Effects on the Time-Dependent Relaxation of Hot Carriers in GaAs MQW, Kai Shum, M. R. Junnarkar, H. S. Chao, R. R. Alfano, H. Morkoc, *Solid-State Electronics* 31, 451 (1988).
- *Self-, Cross-, and Induced-Phase Modulations of Ultrashort Laser Pulse Propagation, R. R. Alfano, P. P. Ho, *IEEE J. Quant. Electron.* 24, 351 (1988).
- *High-Density Photogenerated Free-Carrier Spin Relaxation Processes in Wurtzite Semiconductors: CdSe and Semimagnetic Semiconductor $\text{Cd}_{1-x}\text{Mn}_x\text{Se}$, M. R. Junnarkar, R. R. Alfano, J. K. Furdyna, *IEEE J. of Quant. Electron.* 24, 315 (1988).
- An Automated Data Collection System for Ultrafast Spectroscopy, B. Willman, S. Lee, A. G. Doukas, R. R. Alfano, *American Laboratory*, 23, February (1988).
- A New Tunable Solid-State Laser, V. Petricevic, S. K. Gayen, R. R. Alfano, *Photonics Spectra*, 95 (1988).
- *Laser Action in Chromium-doped Forsterite, V. Petricevic, S. K. Gayen, R. R. Alfano, K. Yamagishi, and K. Moriya, *Appl. Phys. Lett.* 52, 1040 (1988).

- Generation of 3-ps Pulses by Spectral Selection of the Continuum Generated by a 25-ps Second Harmonic Nd:YAG Laser Pulse in a Liquid, R. Dorsinville, P. J. Delfyett, and R. R. Alfano, *Appl. Opt.* 27, 16 (1988).
- Gallium Arsenide Photoluminescence under Picosecond-laser-driven Shock Compression, X. Z. Lu, R. Garuthara, S. Lee, and R. R. Alfano, *Appl. Phys. Lett.* 52, 93 (1988).
- Ultrafast Optoelectronic Ferromagnetic Semiconductor CdCr₂Se₄ Switch, Ardie Walser and R. R. Alfano, *Appl. Phys. Lett.* 52, 592 (1988).
- Transient Photoconductivity in the Ferromagnetic Semiconductor CdCr₂Se₄, Ardie Walser, R. R. Alfano, *Appl. Phys. B* 47, 273 (1988).

1987

- Effects of Self, Induced and Cross Phase Modulations on the Generation of Picosecond and Femtosecond White Light Supercontinua, P. L. Baldeck, P. P. Ho, R. R. Alfano, *Revue Phys. Appl.* 22, 1677 (1987).
- An And Operation-Based Optical Symbolic Substitution Pattern Recognizer, Y. Li, G. Eichmann, R. Dorsinville, and R. R. Alfano, *Opt. Comm.* 63, 375 (1987).
- Noncollinear Second-Harmonic-Generation-Based Ultrafast Optical Signal Processing for Optical Digital Computing, Y. Li, G. Eichmann, X. Luo, P. P. Ho, R. R. Alfano, *Revue Phys. Appl.* 22, 1677 (1987).
- Supercontinuum Pulse Generation and Propagation in a Liquid Carbontetrachloride, P. P. Ho, Q. X. Li, T. Jimbo, Y. L. Ku, and R. R. Alfano, *Appl. Opt.* 26, 2700 (1987).
- Real-Time Measurements of Phonon Lifetime using a Streak-Camera-Raman-Induced Phase-Conjugation Method, P. J. Delfyett, R. Dorsinville, and R. R. Alfano, *Opt. Lett.* 12, 1002 (1987).
- Electron-Hole Recombination Lifetimes in a Quasi-Zero-Dimensional Electron System in CdS_xSe_{1-x}, K. Shum, G. C. Tang, M. R. Junnarkar, R. R. Alfano, *Appl. Phys. Lett.* 51, 1839 (1987).
- Time-Resolved Picosecond Infrared Absorption Induced by High-Density Photogenerated Carriers in Ge and CdSe, N. Ockman, R. Dorsinville, W. Wang, R. R. Alfano, *IEEE J. Quant. Electron.* QE 23, 2008 (1987).
- Shock Wave Induced Collision Broadening of the Photoluminescence Spectra in GaSe, X. Z. Lu, S. Lee, R. Garuthara, and R. R. Alfano, *Appl. Phys. Lett.* 51, 1789 (1987).
- *Fluorescence Spectra from Cancerous and Normal Human Breast and Lung Tissues, R. R. Alfano, G. C. Tang, Asima Pradhan, W. Lam, Daniel S. J. Choy, Elana Opher, *IEEE J. of Quant. Electron* QE 23, 1806 (1987).
- Photoluminescence due to Exciton-Exciton Scattering in GaSe under Picosecond Laser Excitations, X. Z. Lu, R. Rao, B. Willman, S. Lee, A. G. Doukas, and R. R. Alfano, *Phys. Rev. B* 36, 1140 (1987).
- Picosecond Raman-Induced Phase Conjugation in Liquids and Solids, R. Dorsinville, P. Delfyett, and R. R. Alfano, *Appl. Opt.* 26, 3655 (1987).
- *Cross Phase Modulation Measured in Optical Fibers, R. R. Alfano, P. L. Baldeck, F. Raccach, and P. P. Ho, *Appl. Opt.* 26, 3491 (1987).
- Fast Parallel Optical Digital Multiplication, Yao Li, George Eichmann, and R. R. Alfano, *Opt. Comm.* 64, 99 (1987).
- Digital Optical Isochronous Array Processing, George Eichmann, Yao Li, Ping Pei Ho, and R. R. Alfano, *Appl. Opt.* 26, 2726 (1987).
- Physics of New Laser Sources, R. R. Alfano, Plenum Press, New York, p. 460 (1987).
- *Observation of Self-Focusing in Optical Fibers with Picosecond Pulses, P. L. Baldeck, F. Raccach, and R. R. Alfano, *Opt. Lett.* 12, 588 (1987).
- Ultrafast Resonant Optical Kerr Effect in 4-Butoxycarbonylmethylurethane Polydiacetylene, P. P. Ho, N. L. Yang, T. Jimbo, Q. Z. Wang, and R. R. Alfano, *J. Opt. Soc. of Am. B* 4, 1025 (1987).
- Degenerate Stimulated Parametric Scattering in LiNbO₃:Fe, G. Zhang, Q. X. Li, P. P. Ho, R. R. Alfano, S. Liu, and Z. Wu, *J. Opt. Soc. Am. B* 4, 882 (1987).
- Enhancement of Ultrafast Supercontinuum Generation in Water by the Addition of Zn²⁺ and K⁺ Cations, T. Jimbo, V. L. Caplan, Q. X. Li, Q. Z. Wang, P. P. Ho, and R. R. Alfano, *Opt. Lett.* 12, 477 (1987).
- Effect of Picosecond-laser-driven Shock Waves on Spontaneous and Stimulated Emissions in GaSe, X. Z. Lu, R. Rao, B. Willman, S. Lee, A. G. Doukas, and R. R. Alfano, *Phys. Rev. B* 35, (1987).
- Picosecond Excite-and-Probe Absorption Measurement of the intra-²E_gE_{3/2}-state Vibrational Relaxation Time in Ti³⁺:Al₂O₃, S. K. Gayen, W. B. Wang, V. Petricevic, K. M. Yoo, and R. R. Alfano, *Appl. Phys. Lett.* 50, 1494 (1987).

- *New Techniques and Ideas in Quantum Measurement Theory, R. R. Alfano, Annals of the New York Academy of Sciences 480, 118 (1987).
- Photoexcitations and Photoconductive Response in Highly Oriented Trans Polyacetylene, R. Dorsinville, M. Szalkiewicz, R. Tubino, J. L. Birman, R. R. Alfano, G. Dellepiane, U. Pedrette, Synthetic Metals 17, 509 (1987).
- Parallel Optical Logic using Optical Phase Conjugation, G. Eichmann, Y. Li, R. R. Alfano, Appl. Opt. 26, 194 (1987).
- Induced Spectral Broadening about a Second Harmonic Generated by an Intense Primary Ultrashort Laser Pulse in ZnSe Crystals, R. R. Alfano, Q. Z. Wang, T. Jimbo, P. P. Ho, R. N. Bhargava and B. J. Fitzpatrick, Phys. Rev. A 35, 459 (1987).
- Multistable Fabry-Perot Resonator with an Active Sagnac Interferometer as its Retro-reflector, Y. Li, G. Eichmann, R. R. Alfano, Opt. Comm. 61, 75 (1987).
- Intensity Effects on the Stimulated Four Photon Spectra Generated by Picosecond Pulses in Optical Fibers, P. L. Baldeck, R. R. Alfano, J. of Lightwave Technology LT5, 1712 (1987)

1986

- Optical Computing using Hybrid Encoded Shadow Casting, Y. Li, G. Eichmann, and R. R. Alfano, Appl. Opt. 25, 2636 (1986).
- Calibrating a Picosecond Streak Camera, R. Dorsinville, R. R. Alfano, N. Schiller, Photonics Design and Applications Handbook, Photonics Spectra Magazine, H-23, (1986).
- Photogenerated High-Density Electron-Hole Plasma Energy Relaxation and Experimental Evidence for Rapid Expansion of the Electron-Hole Plasma in CdSe, M. R. Junnarkar, R. R. Alfano, Phys. Rev. B 34, 7045 (1986).
- Optical Binary Coded Ternary Arithmetic and Logic, G. Eichmann, Y. Li, R. R. Alfano, Appl. Opt. 25, 3113 (1986).
- *Induced Spectral Broadening of a Weak Picosecond Pulse in Glass Produced by an Intense Picosecond Pulse, R. R. Alfano, Q. X. Li, T. Jimbo, J. T. Manassah, and P. P. Ho, Opt. Lett. 11, 626 (1986).
- *Fluorescence Polarization Spectroscopy and Time-Resolved Fluorescence Kinetics of Native Cancerous and Normal Rat Kidney Tissues, D. B. Tata, M. Foresti, J. Cordero, P. Tomashefsky, M. A. Alfano, and R. R. Alfano, Biophys. J. 50, 463 (1986).
- Dependence of Speckle Size on the Laser Beam Size Via Photoinduced Light Scattering in LiNbO₃:Fe, G. Zhang, Q. X. Li, P. P. Ho, S. Liu, Z. K. Wu, and R. R. Alfano, Appl. Opt. 25, 2955 (1986).
- *Nonradiative Transition Dynamics in Alexandrite, S. K. Gayen, W. B. Wang, V. Petricevic, and R. R. Alfano, Appl. Phys. Lett. 49, 437 (1986).
- Determination of Valence-Band Discontinuity via Optical Transitions in Ultrathin Quantum Wells, K. Shum, P. P. Ho, R. R. Alfano, Phys. Rev. B 33, 7259 (1986).
- Temporal Distribution of Picosecond Supercontinuum Generated in a Liquid Measured by a Streak Camera, Q. X. Li, T. Jimbo, P. P. Ho, R. R. Alfano, Appl. Opt. 25, 1869 (1986).
- Second Harmonic Generation in Birefringent Optical Fibers, J. T. Manassah, R. R. Alfano, and S. A. Ahmed, Phys. Lett. A115, 135 (1986).
- Digital Optical Logic Using a Pulsed Sagnac Interferometer Switch, G. Eichmann, Y. Li, R. R. Alfano, Optical Engr. 25, 91 (1986).
- Pulsed-mode Laser Sagnac Interferometry with Applications in Nonlinear Optics and Optical Switching, Y. Li, G. Eichmann, and R. R. Alfano, Appl. Opt. 25, 209 (1986).
- Spectral Extent and Pulse Shape of the Supercontinuum for Ultrashort Laser Pulse, J. T. Manassah, M. A. Mustafa, R. R. Alfano, and P. P. Ho, IEEE J. of Quant. Electron. QE-22, 197 (1986).
- Temperature Dependence of the Ultrafast Photoluminescence Kinetics from the Magnetic Semiconductors CdCr₂Se₄ Excited by Femtosecond Laser Pulse, P. P. Ho, W. Lam, A. Katz, S. S. Yao and R. R. Alfano, IEEE J. of Quant. Electron. QE-22, 205 (1986).
- Dependence of the Electron Temperature on Well Width in the Al_{0.48}In_{0.52}As/Ga_{0.47}In_{0.53}As Single Quantum Well, P. Ho, K. Shum, R. R. Alfano, D. F. Welch, L. F. Eastman, IEEE J. Quant. Elec. QE-22, 1811 (1986).
- Analysis of Fluorescence Kinetics and Energy Transfer in Isolated a Subunits of Phycoerythrin from Nostoc sp., A. J. Dagen, R. R. Alfano, B. A. Zilinskas, C. E. Swenberg, Photochem. & Photobiol. 43, 71 (1986).

1985

- *Generation of Infrared Supercontinuum covering 3-14 μm in Dielectrics and Semiconductors, P. B. Corkum, P. P. Ho, R. R. Alfano, J. T. Manassah, *Opt. Lett.* 10, 624 (1985).
- *Induced Supercontinuum and Steepening of an Ultrafast Laser Pulse, J. T. Manassah, M. a. Mustafa, R. R. Alfano, P. P. Ho, *Phys. Lett.* 113A, 242 (1985).
- *Medical Diagnostics: A New Optical Frontier, R. R. Alfano and M. A. Alfano, *Photonics Spectra*, 55 (1985).
- Spectral Distribution of an Ultrafast Supercontinuum Laser Source, J. T. Manassah, R. R. Alfano and M. Mustafa, *Physics Lett.* 107A, 305 (1985).
- Calibrating a Streak Camera, R. Dorsinville, R. R. Alfano, N. Schiller, *The Photonics Design & Applications Handbook* 31, H-18 (1985).
- Femtosecond Laser Pulse Compression using Volume Phase Transmission Holograms, P. Ho, R. R. Alfano, T. Yang, A. Katz, R. Ferrante, *Appl. Opt.* 24, 2021 (1985).
- The Use of Short Lived Fluorescent Dyes to Correct for Artifacts in the Measurement of Fluorescence Lifetime, P. Ho, D. Mauzerall, R. R. Alfano, *Photochem. & Photobiol.* 42, 183 (1985).
- Time Response of Ultrafast Streak Camera System using Femtosecond Laser Pulses, P. Ho, A. Katz, R. R. Alfano, N. Schiller, *Opt. Comm.* 54, 57 (1985).
- *The Primary Event in Vision Investigated by Time Resolved Fluorescence Spectroscopy, A. G. Doukas, M. R. Junnarkar, R. R. Alfano, R. H. Callender, V. Balogh-Nair, *Biophys. J.* 47, 795 (1985).
- Photoluminescence Determination of Well Depth of the $\text{Ga}_{0.47}\text{In}_{0.53}\text{As}/\text{Al}_{0.48}\text{In}_{0.52}\text{As}$ Single Quantum Well, K. Shum, P. P. Ho, R. R. Alfano, D. F. Welch, L. F. Eastman, *Phys. Rev. B* 32, 3806 (1985).
- Shock Front Stimulated Optical Scattering in Water, K. Leung, A. G. Doukas, R. R. Alfano, P. Jones, D. Papadimitriou, P. Harris, *Phys. Rev. B* 31, 8329 (1985).
- Determination of Temporal Correlation of Ultrafast Laser Pulses using Phase Conjugation, J. Buchert, R. Dorsinville, P. Delfyett, S. Krimchansky, R. R. Alfano, *Opt. Comm.* 52, 433 (1985).
- Infrared Photoinduced Absorption Studies in Soluble Trans-Polyacetylene, R. Dorsinville, R. Tubino, S. Krimchansky, R. R. Alfano, J. L. Birman, A. Bolognesi, S. Destri, M. Catellani, W. Porzio, *Phys. Rev. B* 32, 3377 (1985).
- Picosecond Excite-and-Probe Absorption Measurement of the $^4\text{T}_2$ State Nonradiative Lifetime in Ruby, R. K. Gayen, W. B. Wang, V. Petricevic, R. Dorsinville, R. R. Alfano, *Appl. Phys. Lett.* 47, 455 (1985).
- Native Defects in Semi-insulating CdSe Studied by Photoluminescence and Absorption, D. L. Rosen, Q. X. Li, R. R. Alfano, *Phys. Rev. B* 4, 2396 (1985).
- Fluorescence Kinetics of Emission from a Small Finite Volume of a Biological System, A. J. Dagen, R. R. Alfano, B. A. Zilinskas, C. E. Swenberg, *Chem. Phys.* 96, 483 (1985).
- Picosecond Pulses Produced by Mode Locking an Nd:Glass Laser with Kodak Dye #26, N. H. Schiller, M. Foresti, R. R. Alfano, *J. Opt. Society Physics B* 2, 729 (1985).
- Time Resolved Photoluminescence Spectra of $\text{Ga}_x\text{In}_{1-x}\text{P}$ under Picosecond Laser Excitation measured by a Streak Camera, H. Zarrabi, R. R. Alfano, *Phys. Rev. B* 32, 3947 (1985).
- Time Resolved Kinetics of e-h Plasmas in GaAsP under Intense Picosecond Laser Pulse Excitation, H. Zarrabi, W. B. Wang, R. R. Alfano, *Appl. Phys. Lett.* 46, 513 (1985).
- Photoluminescence Determination of the Pressure and Temperature of the Shock Wave Induced by a Picosecond Laser Pulse in the Layered Semiconductor GaSe, K. P. Leung, S. S. Yao, A. G. Doukas, R. R. Alfano, P. Harris, *Phys. Rev. B* 31, 942 (1985).

1984

- *Human Teeth with and without Caries studied by Laser Scattering, Fluorescence, and Absorption Spectroscopy, R. R. Alfano, W. Lam, H. J. Zarrabi, M. A. Alfano, J. Cordero, D. B. Tata and C. E. Swenberg, *IEEE J. Quant. Elec.* QE-20, 1512 (1984).
- *Laser Induced Fluorescence Spectroscopy from Native Cancerous and Normal Tissue, R. R. Alfano, D.B. Tata, J. Cordero, P. Tomashefsky, F. W. Longo, and M. A. Alfano, *IEEE J. Quant. Elec.* QE-20, 1507 (1984).
- High Intensity Effects in Biological and Medical Samples, A. J. Dagen, R. R. Alfano and C. E. Swenberg, *IEEE J. Quant. Elec.* QE-20, 1496 (1984).

- Fluorescence Spectroscopy of Eumelanins, S. D. Kozikowski, L. J. Wolfram, and R. R. Alfano, *IEEE J. Quant. Elec.* QE-20, 1379 (1984).
- Introduction to the Special Issue on Lasers in Biology and Medicine, R. R. Alfano and A. G. Doukas, *IEEE J. Quant. Elec.* QE-20, 1379 (1984).
- Ultrafast Supercontinuum Laser Source, J. T. Manassah, P. P. Ho, A. Katz, and R. R. Alfano, *Photonics*, 53-59, Nov. (1984).
- Photon Echo in Direct Gap Semiconductors, J. T. Manassah, R. R. Alfano, M. Conner, and P. Ho, *Phys. Lett.* 106A, 65-71 (1984).
- Optical Properties and Photoexcitation of a Novel Liquid Form of Soluble Polyacetylene, R. Tubino, R. Dorsinville, W. Lam, R. R. Alfano, J. L. Birman, A. Bolognesi, S. Destri, M. Catellani, and W. Porzio, *Phys. Rev. B* 30, 6601 (1984).
- *Fluorescence Quantum Yield of Visual Pigments: Evidence for Subpicosecond Isomerization Rates, A. G. Doukas, M. R. Junnarkar, R. R. Alfano, R. H. Callender, T. Kakitani, B. Honig, *Proc. Nat. Acad. Sci. USA* 81, 4790 (1984).
- Colliding Pulse Mode Locking for an Antiresonant Cavity of a Nd:Glass Laser, J. M. Buchert, D. K. Basa, C. Tzu, and R. R. Alfano, *J. Appl. Phys.* 55, 683 (1984).

1983

- Picosecond Kinetic Absorption and Fluorescence Studies of Bovine Rhodopsin with a fixed 11-Ene, J. Buchert, V. Stefancic, A. G. Doukas, R. R. Alfano, R. H. Callender, J. Pande, H. Akita, V. Balogh-Nair, and K. Nakanishi, *Biophys. J.* 43, 279-283 (1983).
- Picosecond Fluorescence Relaxation Kinetics from All-Trans Retinal, A. G. Doukas, M. R. Junnarkar, D. Chandra, R. R. Alfano and R. H. Callender, *Chem. Phys. Letts.* 100, 420 (1983).
- Temperature Dependence of the 735 nm Fluorescence Kinetics from Spinach Measured by Picosecond Laser Streak Camera System, F. Pellegrino, A. Dagen, P. Sekuler and R. R. Alfano, *Photobiochem. & Photobiophys.* 6, 15-23 (1983).
- Temperature Dependence of J-Band Aggregate of the Dye 1,1'-Diethyl-2,2'-Cyanine Bromide Studied by Steady State and Time Resolved Picosecond Fluorescence Spectroscopy, Z. X. Yu, P. Y. Lu and R. R. Alfano, *Chem. Phys.* 79, 289-296 (1983).
- *Laser Action in Emerald, J. Buchert, A. Katz and R. R. Alfano, *IEEE J. Quant. Elec.* QE-19, 1477 (1983).
- Emerald - A New Gem Laser Material, J. Buchert and R. R. Alfano, *Laser Focus/Electro-Optics*, 117 (1983).
- Temperature Dependence of the Relaxation Decay Time and the Integrated Intensity of the Photoluminescence from the Magnetic Semiconductor CdCr_2Se_4 , S. S. Yao, R. R. Alfano, W. J. Miniscalco, *IEEE J. Quant. Elect.* QE-19, 711 (1983).
- Picosecond Studies of Energy Transfer of Donor and Acceptor Dye Molecules in Solution.II. A Concentration Dependence, P. Y. Lu, Z. X. Yu, R. R. Alfano, J. I. Gersten, *Phys. Rev. A* 27, 2100 (1983).
- Photoluminescence Spectra of the Layered Semiconductor Gallium Selenide under Intense Picosecond Laser-Pulse Excitations, S. S. Yao and R. R. Alfano, *Phys. Rev. B* 27, 2439 (1983).
- Changes in the Photoluminescence Spectra of the Magnetic Semiconductor CdCr_2Se_4 under High-Power Picosecond Laser Excitation which Determine that the Fundamental Gap is Direct, S. S. Yao, R. R. Alfano, *Phys. Rev. B* 27, 1180 (1983).

1982

- Evidence from Photoluminescence for the Splitting of the s-Conduction Band of the Ferromagnetic Semiconductor CdCr_2Se_4 , S. S. Yao and R. R. Alfano, *Phys. Rev. Lett.* 49, 69 (1982).
- Picosecond Studies of Energy Transfer of Donor and Acceptor Dye Molecules in Solution, P. Y. Lu, Z. X. Yu, R. R. Alfano and J. I. Gersten, *Phys. Rev. A* 26, 3610 (1982).
- Picosecond Streak Cameras: Step by Step Calibration, N. H. Schiller, A. Dagen, and R. R. Alfano, *Photonics Spectra*, March 1982.
- A New Era in Fast Spectroscopy, A. G. Doukas and R. R. Alfano, *Photonics* 16, 54 (1982).
- The Streak Camera, N. H. Schiller and R. R. Alfano, *Laser Focus* 18, 43-45 (1982).
- Effect of Hydrogen Bonding on Vibrational Dephasing Time in Glycerol, R. Dorsinville, W. M. Franklin, N. Ockman and R. R. Alfano, *Chem. Phys. Lett.* 92, 100 (1982).
- Pulse Propagation in an Absorbing Medium, A. Katz and R. R. Alfano, *Phys. Rev. Lett.* 49, 1292 (1982).

- Screening of Optical-Phonon-Hole Interaction by Photogenerated Carriers in the Layered Semiconductor Gallium Selenide, S. S. Yao and R. R. Alfano, *Phys. Rev. B* 26, 4781 (1982).
- Time-Resolved Picosecond Absorption Spectroscopy of the Layered Compound Gallium Selenide, S. S. Yao, J. Buchert, R. R. Alfano, *Phys. Rev. B* 25, 6534 (1982).
- Slowed Picosecond Kinetics of Hot Photogenerated Carriers in GaAs, R. J. Seymour, M. R. Junnarkar, R. R. Alfano, *Sol. St. Com.* 41, 657 (1982).
- Fluorescence Polarization Anisotropy and Kinetics of Malachite Green Measured as a Function of Solvent Viscosity, F. Pellegrino, A. Dagen, and R. R. Alfano, *Chem. Phys.* 67, 111 (1982).
- Description of an Electronic Controller used with an Autocorrelator to Measure a Femtosecond Pulse Duration in Real Time, A. Kalpaxis, A. G. Doukas, Y. Budansky, D. L. Rosen, A. Katz, R. R. Alfano, *Rev. Sc. Instr.* 53(7), 960 (1982).

1981

- Time-Resolved Luminescence of Photoexcited p-type Gallium Arsenide by Population Mixing, D. L. Rosen, A. G. Doukas, Y. Budansky, A. Katz, R. R. Alfano, *Appl. Phys. Lett.* 39, 935 (1981).
- A Subpicosecond Tunable Ring Dye Laser and its Applications to Time Resolved Spectroscopy, D.L. Rosen, A. G. Doukas, Y. Budansky, A. Katz, R. R. Alfano, *IEEE J. Quant. Electron.* QE 17, 2264 (1981).
- Photoluminescent Spectra and Kinetics of CdCr₂Se₄, W. J. Miniscalco, A. Lempicki, S. S. Yao, F. Pellegrino, R. R. Alfano, *J. of Lum.* 24/25, 363 (1981).
- Fluorescence Relaxation Kinetics and Quantum Yield from the Phycobilisomes of the Blue-green Alga *Nostoc* sp Measured as a Function of Single Picosecond Pulse Intensity, F. Pellegrino, D. Wong, R. R. Alfano, and B. A. Zilinskas, *Photochem. & Photobiol.* 34, 691 (1981).
- *Spin Relaxation of Photogenerated Degenerate Electron Distributions in GaAs, R. J. Seymour, M. R. Junnarkar, and R. R. Alfano, *Phys. Rev. B* 24, 3623 (1981).
- Exciton Annihilation in the Isolated Phycobiliproteins from Blue-Green Alga *Nostoc* sp, A. G. Doukas, V. Stefancic, J. Buchert, R. R. Alfano, B. A. Zilinskas, *Photochem. Photobiol.* 34, 505 (1981).
- *Fluorescence Relaxation Kinetics from Rhodopsin and Isorhodopsin, A. G. Doukas, P. Y. Lu, R. R. Alfano, *Biophys. J.* 35, 547 (1981).
- Photoluminescent Determination of the Fundamental Gap for the Ferromagnetic Semiconductor CdCr₂Se₄, S. Yao, F. Pellegrino, R. R. Alfano, W. J. Miniscalco, and A. Lempicki, *Phys. Rev. Lett.* 46, 558 (1981).
- Fluorescence Relaxation Kinetics and Quantum Yield from the Isolated Phycobiliproteins of the Blue-green Alga *Nostoc* sp. Measured as a Function of Single Picosecond Pulse Intensity, I, D. Wong, F. Pellegrino, R. R. Alfano, B. A. Zilinskas, *Photochem. & Photobiol.* 33, 651 (1981).
- Picosecond Fluorescence Kinetics and Polarization Anisotropy from Anthocyanin Pigments, F. Pellegrino, P. Sekuler, R. R. Alfano, *Photochem. & Photobiophys.* 2, 15 (1981).
- *Human Teeth with and without Dental Caries Studied by Visible Luminescent Spectroscopy, R. R. Alfano, and S. S. Yao, *J. Dent. Res.* 60, 120 (1981).
- Time-Dependent Multiphoton Absorption and Optical Kerr Effect in Liquid CS₂, P. P. Ho, P. Y. Lu, and R. R. Alfano, *J. Chem. Phys.* 74, 1605 (1981).
- Production of Picosecond Pulses by Mode Locking an Nd:Glass Laser with Dye #5, R. R. Alfano, N. H. Schiller, and G. A. Reynolds, *IEEE J. of Quant. Elec.* QE 17, 290 (1981).

1980

- Picosecond Characteristics of a Spectrograph Measured by a Streak Camera/Video Readout System, N. H. Schiller, R. R. Alfano, *Opt. Comm.* 35, 451 (1980).
- Applications of Picosecond Absorption Spectroscopy to the Study of Visual Pigments, A. G. Doukas, V. Stefancic, R. R. Alfano, *American Laboratory* 12, 63 (1980).
- An Ultrafast Streak Camera System, N. H. Schiller, Y. Tsuchiya, E. Inuzuka, Y. Suzuki, K. Kinoshita, K. Kamiya, H. Iida, R. R. Alfano, *Opt. Spectra* 14, 55 (1980).
- Factors Contributing to Deterioration of DODCI, D. L. Rosen, S. Reckie, R. C. Mirisola, P. P. Ho, A. G. Doukas, R. R. Alfano, *Opt. Comm.* 35, 125 (1980).
- *Squid Bathorhodopsin Forms within Ten Picoseconds, A. G. Doukas, V. Stefancic, T. Suzuki, R. H. Callender, R. R. Alfano, *Photobiochem. & Photobiophys.* 1, 305 (1980).

- *Combined Stimulated Raman Scattering and Continuum Self Phase Modulation, J. L. Gersten, R. R. Alfano, M. Belic, *Phys. Rev. A* 21, 1222 (1980).
- *Time Resolved Measurement of Electron Spin Relaxation Kinetics in GaAs, R. Seymour and R. R. Alfano, *Appl. Phys. Lett.* 37, 231 (1980).
- Observation of Broadened and Oscillatory Induced Kerr Kinetics in Neat Liquids, P. P. Ho, P. Lu, R. R. Alfano, *Phys. Rev. A* 21, 1730 (1980).

1979

- *Optical Kerr Effect, P. P. Ho and R. R. Alfano, *Phys. Rev. A* 20, 2170 (1979).
- Oscillatory Optical Induced Kerr Kinetics in Nitrobenzene, P. Ho, P. Lu, R. R. Alfano, *Opt. Comm.* 30, 426 (1979).
- Nd:Phosphate Glass Mode Locked Oscillator and Amplifier System, P. Y. Lu, P. P. Ho and R. R. Alfano, *IEEE QE-15*, 406 (1979).
- Picosecond Pulse Stacking in Calcite, H. E. Bates, R. R. Alfano and N. Schiller, *Appl. Opt.* 18, 947 (1979).
- Photochemistry of Rhodopsin and Isorhodopsin investigated on Picosecond Time Scale, T. G. Monger, R. R. Alfano, R. H. Callender, *Biophys. J.* 27, 105 (1979).

1978

- Fluorescence Kinetics of Spinach Chloroplast measured with a Picosecond Optical Kerr Gate, F. Pellegrino, W. Yu, R. R. Alfano, *Photochem. & Photobiol.* 28, 1007 (1978).
- *Coupled Molecular Relaxation Kinetics in Mixed Liquids, P. P. Ho and R. R. Alfano, *J. Chem. Phys.* 68, 4551 (1978).
- The Relaxation Kinetics of the Plastic Crystal - Succinonitrile, P. P. Ho and R. R. Alfano, *Phys. Rev. A* 17, 1161 (1978).

1977

- *Cis-Trans Isomerization in Rhodopsin occurs in Picoseconds, B. Green, T. Monger, R. R. Alfano, B. Aton, and R. Callender, *Nature* 269, 179 (1977).
- *Subnanosecond Fluorescence Quenching of Dye Molecules in Solution, W. Yu, F. Pellegrino, M. Grant, R. R. Alfano, *J. Chem. Phys.* 67, 1766 (1977).
- Temperature Dependence of the Rotational Relaxation Times of Anisotropic Molecules in Pure and Mixed Liquids, P. P. Ho and R. R. Alfano, *Chem. Phys. Lett.* 50, 74 (1977).
- *Ultrafast Laser Clocks Probe Phenomena in Molecular World, N. Schiller, M. Grant, and R. R. Alfano, *Physics Teacher* 15, 396 (1977).
- The Relaxation Kinetics of Salol in the Supercooled Liquid State is Investigated with the Optical Kerr Effect, P. P. Ho, and R. R. Alfano, *J. Chem. Phys.* 67, 1004 (1977).
- Optical Mixing in Type I and Type II KDP with Picosecond Laser Pulses, B. Green, J. C. Liu, and R. R. Alfano, *Opt. Comm.* 22, 119 (1977).
- Spectral Background from KDP in Type I and Type II Phase Matching, B. Green, and R. R. Alfano, *Opt. Comm.* 20, 305 (1977).
- *Time Resolved Fluorescence Spectroscopy of Spinach Chloroplast, W. Yu, F. Pellegrino, and R. R. Alfano, *Biochimica Biophysica* 460, 171 (1977).

1976

- Nonlinear Optical Effects in Antiferromagnetic KNiF, R. R. Alfano, P. P. Ho, P. A. Fleury, and H. J. Guggenheim, *Opt. Comm.* 19, 261 (1976).
- *Picosecond Kinetics of the Fluorescence from the Chromophore of the Purple Membrane Protein of Halobacterium Halobium, R. R. Alfano, W. Yu, R. Govindjee, B. Becker, T. G. Ebrey, *Biophys. J.* 16, 541 (1976).

Relaxation of the Optical Kerr Effect of Anisotropic Molecules in Mixed Liquids, P. P. Ho, W. Yu, R. R. Alfano, *Chem. Phys. Lett.* 37, 92 (1976).

Triplet Exciton Caging in Two Dimensions, S. Arnold, R. R. Alfano, M. Pope, W. Yu, P. P. Ho, C. Swenberg, *J. Chem. Phys.* 64, 5104 (1976).

1975

*Ultrafast Phenomena, R. R. Alfano and S. L. Shapiro, *Physics Today*, p. 42, July (1975).

Spectral Broadening of Picosecond 1.06 μm Pulse, W. Yu, R. R. Alfano, C. Sam, R. Seymour, *Opt. Comm.* 14, 344 (1975).

*Fluorescent Kinetics of Chlorophyll in Photosystem I and II Enriched Fraction of Spinach, W. Yu, P. P. Ho, R. R. Alfano, and M. Siebert, *Biochim. Biophys. Acta.* 387, 159 (1975).

Multiple Photon Scattering in Diamond, W. Yu, and R. R. Alfano, *Phys. Rev. A* 11, 188 (1975).

1974

Search for Superradiant Emission from "Complex" Organic Molecules in the Vapor Phase, R. Pappalardo, S. L. Shapiro, S. Ahmed, R. R. Alfano, *J. Chem. Phys.* 60, 3368 (1974).

Satellite Picosecond Pulses Investigated with an Optical Gate, W. Yu, and R. R. Alfano, *Optoelectronics* 6, 243 (1974).

Observation of Backward Stimulated Raman Scattering in Liquids Generated by Picosecond Laser Pulses, R. R. Alfano, and G. A. Zawadzka, *Phys. Rev. A* 9, 844 (1974).

Self Phase Modulation Near Electronic Resonances of a Crystal, R. R. Alfano, J. L. Gersten, G. A. Zawadzka, and N. Tzoar, *Phys. Rev. A* 10, 698 (1974).

*Probing Photosynthesis on a Picosecond Time Scale - Evidence in PSI and PSII Fluorescence in Chloroplasts, M. Seibert and R. R. Alfano, *Biophys. J.* 14, 269 (1974).

1973

Fission Rate of Singlet Excitons in Tetracene Crystal Measured with Picosecond Laser Pulses, R. R. Alfano, S. L. Shapiro and M. Pope, *Opt. Comm.* 9, 388 (1973).

Effect of Soap on Fluorescent Lifetimes and Quantum Yield of Rhodamine 6G in Water, R. R. Alfano, S. L. Shapiro, W. Yu, *Opt. Comm.* 7, 191 (1973).

*Ultrafast Phenomena in Liquids and Solids, R. R. Alfano and S. L. Shapiro, *Scientific American* 288, 43 (1973).

*Picosecond Fluorescent Kinetics in INVIVO Chlorophyll, M. Seibert, R. R. Alfano, *Biochimica-Biophysica Acta* 292, 493 (1973).

1972

*Establishment of a Molecular Vibration Decay Route in Liquid, R. R. Alfano, and S. L. Shapiro, *Phys. Rev. Lett.* 29, 1655 (1972).

*Electronic Mechanism for the Production of Self-Phase Modulation, R. R. Alfano, L. L. Hope, and S. L. Shapiro, *Phys. Rev. A* 6, 433 (1972).

Direct Measurement of the Vibrational Decay of Dye Molecules in Excited State, R. R. Alfano, and S. L. Shapiro, *Opt. Comm.* 6, 98 (1972).

*High Power Effects in Nonlinear Optical Wave Guides, S. Zemon, R. R. Alfano, S. L. Shapiro, and E. M. Conwell, *Appl. Phys. Lett.* 21, 327 (1972).

1971

*Optical Phonon Lifetime Measured Directly with Picosecond Pulses, R. R. Alfano and S. L. Shapiro, *Phys. Rev. Lett.* 26, 1247 (1971).

*Picosecond Spectroscopy Using the Inverse Raman Effect, R. R. Alfano, and S. L. Shapiro, *Chem. Phys. Lett.* 8, 631 (1971).

Light Scattering for Polaritons in the Presence of Lattice Damping, R. R. Alfano, and T. G. Giallorenzi, *Opt. Comm.* 4, 271 (1971).

Nonlinear Optical Properties of Liquid Lasers, R. R. Alfano, A. Lempicki, and S. L. Shapiro, *IEEE J. Quant. Electron.* QE-7, 416 (1971).

1970

*Observation of Self-Phase Modulation and Small Scale Filaments in Crystals and Glasses, R. R. Alfano, and S. L. Shapiro, *Phys. Rev. Lett.* 24, 592 (1970).

*Emission in the Region from 4000 to 7000 Å via Four Photon Coupling in Glass, R. R. Alfano, and S. L. Shapiro, *Phys. Rev. Lett.* 24, 585 (1970).

*Direct Distortion of Electronic Clouds of Rare Gas Atoms in Intense Electric Fields, R. R. Alfano, and S. L. Shapiro, *Phys. Rev. Lett.* 24, 1217 (1970).

Damping Effects on the Polariton and Plasmariton Dispersion Curves, R. R. Alfano, *J. Opt. Soc.* 60, 66 (1970).

Reduction of Rayleigh Light by Wavelength Selective Optical Chopper and Array of Filters, R. R. Alfano, and J. Spillman, *Rev. Sci. Instr.* 41, 282 (1970).

Picosecond Laser Emission from a Mode-Locked Nd:POCI Liquid Laser, R. R. Alfano, and S. L. Shapiro, *Opt. Comm.* 2, 90 (1970).

Explanation of the Transient Raman Gain Anomaly, R. R. Alfano, and S. L. Shapiro, *Phys. Rev. A* 2, 2376 (1970).

1969

A Simple Low Impedance High-Voltage Coaxial Transmission Line Pulser, R. R. Alfano, and N. Yurlina, *Rev. of Sci. Instr.* 40, 166 (1969).

Method for Detecting Weak Light Signals, R. R. Alfano, and N. Ockman, *Phys. Soc. of Japan* 41 (1969).

Coupling of the Transverse Plasmon and Transverse Optical Phonon in n-GaAs, R. R. Alfano, *Phys. Lett.* 29A, 634 (1969).

New Detection Technique: Reduction of Scattered Light and Ghost in the Raman Spectra by use of a Frequency Discrimination Light Chopper, R. R. Alfano, *Appl. Opt.* 5, 2095 (1969).

1968

Simple Optical Dewar and Photomultiplier Cooler, R. R. Alfano, *Rev. of Sci. Instr.* 21, 299 (1968).

Measuring Surface Cleanliness of n-GaAs by Ellipsometry, R. R. Alfano, *Solid State Electron.* 11, 789 (1968).

Continuous Recording and Averaging of Spectra from Repetitive Nanosecond Signals, R. R. Alfano, and N. Ockman, *Appl. Opt.* 7, 1244 (1968).

Use of the Faraday Effect to Determine the Electron Concentration and Concentration Profile in n-GaAs, R. R. Alfano and D. H. Baird, *J. Appl. Phys.* 39, 2930 (1968).

*Method for Detecting Weak Light Signals, R. R. Alfano, N. Ockman, *J. Opt. Soc.* 58, 90 (1968).

1966

Calibration of an Optical Compensator by Ellipsometry, R. R. Alfano and W. H. Woodruff, *Appl. Opt.* 5, 352 (1966).

Near-Infrared Faraday Rotation in GdIG as a Function of Temperature, R. R. Alfano, and D. H. Baird, *Appl. Phys. Lett.* 8, 338 (1966).

1964 (not refereed journal)

LaPlace's Equation in Prolate Spheroidal Coordinates, R. R. Alfano, "Spectra", *J. of the College of Science and Engineering, Fairleigh Dickinson University*, 26 (1964).

Book Chapters and Conference Proceeding Papers

2005

- THz Absorption Spectrum of *Bacillus Subtilis* Spores, B. Yu, A. Alimova, A. Katz, R. R. Alfano, Proc. of SPIE 5727, 20 (2005).
- Fluorescence Detection of Proteins released by *Bacillus Subtilis* Spores during Heat Shock Germination, A. Alimova, A. Katz, M. Paul, E. Rudolph, P. Gottlieb, J. C. Steiner, R. R. Alfano, Proc. of SPIE 5692, 337 (2005).
- Three-dimensional Optical Tomography of Objects in Turbid Media using the ‘Round-trip Matrix’, W. Cai, M. Alrubaiee, S. K. Gayen, M. Xu, R. R. Alfano, 5693-02, SPIE Conf. on Optical Tomography and Spectroscopy of Tissue VI, San Jose, CA., Jan. 23 – 26, 2005.
- Fluorescence Optical Tomography using Independent Component Analysis to Detect Small Targets in Turbid Media, M. Alrubaiee, M. Xu, S. K. Gayen, R. R. Alfano, 5693-39, SPIE Conf. on Optical Tomography and Spectroscopy of Tissue VI, San Jose, CA, Jan. 23-26, 2005.
- Refractive Index Changes during Germination of *Bacillus Subtillis* Spores, A. Katz, A. Alimova, M. Xu, E. Rudolph, P. Gottlieb, J. C. Steiner, R. R. Alfano, 5692-57, SPIE Conf. on Optical Tomography and Spectroscopy of Tissue VI, San Jose, CA., Jan. 23-26, 2005.
- Fluorescence Detection of Small Acid Soluble Proteins from *Bacillus Subtillis* Spores during Heat Shock Germination, A. Alimova, A. Katz, M. Paul, E. Rudolph, P. Gottlieb, J. C. Steiner, R. R. Alfano, 5692-59, SPIE Conf. on Optical Tomography and Spectroscopy Tissue VI, San Jose, CA., Jan. 23-26, 2005.

2004

- Time-resolved and Quasi-continuous wave Three-dimensional Tomographic Imaging of Objects in Tissue-like Turbid Media, M. Alrubaiee, M. Xu, S. K. Gayen, W. Cai, R. R. Alfano, SPIE Proc. 5463, 82 (2004).
- Virus-host Interaction probed by Native Stokes Shift Fluorescence, A. Katz, A. Alimova, P. Gottlieb, R. Podder, G. Minko, H. Wei, R. R. Alfano, Proc. of SPIE 5321, 289 (2004).
- Terahertz Time-Domain Spectroscopy of Torsional Vibrational Modes of Tryptophan, B. L. Yu, Q. Xing, R. R. Alfano, Proc. of SPIE 5326, 41 (2004).
- Stokes Shift Emission Spectroscopy of Key Biomolecules in Human Tissues, R. R. Alfano, Y. Yang, Proc. of SPIE 5326, 1 (2004).

2003

- Time-Resolved and Steady-State Fluorescence Spectroscopy from Bacteria Subjected to Bactericidal Agents, A. Katz, A. Alimova, M. Siddique, H. E. Savage, M. Shah, R. B. Rosen, R. R. Alfano, “Chemical and Biological Point Sensors for Homeland Defense”, ed. A. J. Sedlacek III et al., Proc. of SPIE 5269, 217 (2003).
- Wireless Propagation of Optical Coded Pulse Streams through Turbid Media, X. H. Ni, Q. R. Xing, W. Cai, R. R. Alfano, eds., B. A. van Tiggelen, S. E. Skipetrov, Wave Scattering in Complex Media: From Theory to Applications, 607-612, Kluwer Academic Publishers (2003).
- In Situ* Changes in Native Fluorescence from *Bacillus subtilis* during Endospore Formation, A. Katz, A. Alimova, G. Minko, H. E. Savage, D. V. Will, M. Shah, R. B. Rosen, R. R. Alfano, SPIE Proc. 4965, 134 (2003).
- In Situ* Identification of Bacteria Size by Light Scattering, A. Katz, A. Alimova, M. Xu, E. Rudolph, H. E. Savage, M. Shah, S. A. McCormick, R. B. Rosen, R. R. Alfano, SPIE Proc. 4965, 73 (2003).
- Cancerous and Normal Human Tissues investigated by Near-infrared Time-resolved and Spectroscopic Imaging Techniques, M. Al-Rubaiee, S. K. Gayen, J. A. Koutcher, R. R. Alfano, SPIE Proc. 4955, 199 (2003).
- Raman and Fluorescence Spectroscopic Evaluation of NIR Laser-welded Human and Porcine Aorta Tissues, A. Katz, A. Alimova, G. Minko, C. H. Liu, T. K. Gayen, H. E. Savage, R. K. Halder, S. A. McCormick, R. R. Alfano, Lasers in Surgery: Advanced Characterization, Therapeutics, and Systems XIII, SPIE Proc. 4949, 150, San Jose, CA, Jan. 25-26, 2003.

Near-infrared Laser Welding of Aortic and Skin Tissues and Microscopic Investigation of Welding Efficacy, T. K. Gayen, A. Katz, H. E. Savage, J. Lee, M. Paul, R. K. Halder, S. A. McCormick, R. R. Alfano, SPIE Proc. 4949, 182, San Jose, CA. Jan. 25-26, 2003.

2002

Near-Infrared Welding of Aorta and Skin Tissues Using a Cr⁴⁺:YAG Laser, Tapan K. Gayen, A. Katz, Y. Budansky, J. M. Evans, S. Yu, H. E. Savage, S. A. McCormick, R. R. Alfano, Lasers in Surgery: Advanced Characterization, therapeutics, and Systems XII, Kenneth E. Bartels, et al., Editors, Proc. of SPIE 4609, 212 (2002).

Noninvasive Fluorescence and Raman Spectroscopic Analysis of Laser Welded Aorta and Skin Tissue, A. Katz, T. K. Gayen, G. Minko, A. Alimova, H. E. Savage, S. A. McCormick, R. R. Alfano, "Optical Biopsy IV", Proc. of SPIE 4613, 48 (2002).

2000

Temporally and Spectrally Resolved optical Imaging of Normal and Cancerous Human Breast Tissues, S. K. Gayen, M. Alrubaiee, M. E. Zevallos, R. R. Alfano, Proc. of Inter-Institute Workshop on *In Vivo* Optical Imaging, Amir H. Gandjbakhche, ed., NIH (2000).

Detection of Glutamate in the Eye by Raman Spectroscopy, A. Katz, E. F. Kruger, G. Minko, C. H. Liu, R. B. Rosen, R. R. Alfano, Proc. SPIE 4098, 169 (2000).

DNA and Protein change in Human Breast Tissues by Diffuse Reflectance Spectrum, Y. Yang, E. J. Celmer, J. A. Koutcher, P. P. Ho, R. R. Alfano, Proc. SPIE 4082, 71 (2000).

Optical Fiber Needle to Probe inside the Body using Fluorescence Ratio Method, G. C. Tang, A. Katz, Y. Budansky, R. R. Alfano, Proc. SPIE 4082, 140 (2000).

Early Light Imaging for Biomedical Applications, P. P. Ho, R. R. Alfano, SPIE 4082, 8 (2000).

Detection of Objects Hidden in Highly Scattering Media using Time-Gated Imaging Methods, L. Wang, X. Liang, P. A. Galland, P. P. Ho, R. R. Alfano, Proc. SPIE 4082, 261 (2000).

*DNA and Protein Changes in Tissues probed by Kubelka Munk Spectral Function, Y. Yang, E. J. Celmer, J. A. Koutcher, R. R. Alfano, Proc. of SPIE 3917, 150 (2000).

Ultraviolet 2-D Fluorescence Mapping System for the Imaging of Head and Neck Tumors, A. Katz, H. E. Savage, F. Zeng, J. Rome, S. P. Schantz, S. A. McCormick, R. S. Cocker, R. R. Alfano, Proc. SPIE 3917, 146, 2000.

Ultraviolet and Blue 2-D Fluorescence Mapping of Gynecological Tissues, A. Katz, H. E. Savage, Y. Yang, F. Zeng, J. Rome, S. A. McCormick, R. S. Cocker, Y. Yu, R. R. Alfano, Proc. SPIE 3917, 200, 2000.

Spectral Polarization Imaging of Human Prostate Tissues, W. B. Wang, J. H. Ali, J. H. Vitenson, J. M. Lombardo, R. R. Alfano, Proc. SPIE 3917, 75, 2000.

Non-invasive Fluorescence-based Instrumentation for Cancer and Precancer Detection and Screening, A. Katz, R. R. Alfano, Proc. SPIE 3913, 223, 2000.

1999

High Speed Grating-generated Electronic Coherence Microscopy of Biological Tissue without moving parts, A. Gilerson, I. Zeylikovich, R. R. Alfano, Proc. of SPIE 3598, 213 (1999).

Nonlinear Optical Signals in Active Highly Scattering Media, F. Liu, J. Ying, R. R. Alfano, SPIE Proc. of Optical Tomography and Spectroscopy of Tissue III 3597, 403, San Jose, CA, Jan. 24 – 28, 1999.

Time Sliced Three Dimensional Inverse Image Reconstruction of Objects in Highly Scattering Media, M. Xu, S. K. Gayen, W. Cai, M. E. Zevallos, M. Lax, R. R. Alfano, SPIE Proc. of Optical Tomography and Spectroscopy of Tissue III 3597, 2, San Jose, CA, Jan. 24 – 28, 1999.

Investigation of Barrett's Esophagus by Ultraviolet and Visible Fluorescence Emission and Excitation Spectroscopy, A. Katz, P. M. Basuk, H. E. Savage, M. Chu, N. Altorki, T. Godwin, S. A. McCormick, R. R. Alfano, Proc. SPIE 3597, 411 (1999).

Spectroscopic and Time-sliced Imaging of Human Breast Tissues, S. K. Gayen, M. E. Zevallos, B. B. Das, R. R. Alfano, SPIE Proc. of Optical Tomography and Spectroscopy of Tissue III 3597, 508, San Jose, CA, Jan. 1999.

- Subsurface Structure of Tissues Investigated by Noninvasive Optical Second Harmonic Tomography, Yici Guo, H. E. Savage, F. Liu, S. P. Schantz, P. P. Ho, R. R. Alfano, SPIE Proc. of Optical Tomography and Spectroscopy of Tissue III 3597, 480, San Jose, CA, Jan. 24-28, 1999.
- Time-resolved Fluorescence Polarization Dynamics and Imaging of Fluorescein Dye attached to Different Molecular Weight Chains, W. B. Wang, J. H. Ali, R. B. Dorshow, M. A. McLoughlin, R. R. Alfano, SPIE Proc. of Biomedical Imaging: Reporters, Dyes, and Instrumentation 3600, 227, San Jose, CA, Jan. 26 – 28, 1999.
- Accurate Analytical Solution of the Photon Transport Equation in an Infinite Uniform Turbid Medium, W. Cai, M. Lax, R. R. Alfano, SPIE Proc. of Optical Tomography and Spectroscopy of Tissue III 3597, 15, San Jose, CA, Jan. 24 - 28, 1999.
- Excitation Spectroscopy Reveals Changes of Proteins and the Degree of Invasion in Malignant Tissues, Y. Yang, E. J. Celmer, J. A. Koutcher, R. R. Alfano, SPIE Proc. of Optical Tomography and Spectroscopy of Tissue III 3597, 511, San Jose, CA, Jan. 24 – 28, 1999.

1998

- Excitation Spectroscopy of Proteins in Malignant and Benign Tissues, Y. Yang, A. Katz, E. J. Celmer, J. A. Koutcher, R. R. Alfano, OSA TOPS 22, 99 (1998).
- Optic Fiber Needle Endoscope based Ratiometer for Tumor Targeting, G. C. Tang, A. Katz, Y. Budansky, R. R. Alfano, OSA TOPS 22, 176 (1998).
- Enhancement of Contrast Agent Images Using Spectral Fluorescence Difference, W. B. Wang, S. G. Demos, J. Ali, G. Zhang, R. R. Alfano, OSA TOPS 22, 57 (1998).
- Time-Sliced Transillumination Imaging of Normal and Cancerous Breast Tissues, S. K. Gayen, M. E. Zevallos, B. B. Das, R. R. Alfano, OSA TOPS 21, 63 (1998)
- New Optical Difference Approaches for Sub-Surface Imaging of Tissues, S. G. Demos, W. B. Wang, J. Ali, R. Alfano, OSA TOPS 21, 405 (1998).
- Nonlinear Optical Histological Spectroscopy and Imaging of Biological Tissues, Yici Guo, Feng Liu, Q. Z. Wang, H. E. Savage, N. Zhadin, P. P. Ho, S. Schantz, R. R. Alfano, OSA TOPS 21, 411 (1998).
- Time-Resolved Optical Backscattering from Highly Scattering Media, W. Cai, B. Luo, M. Lax, R. R. Alfano, OSA TOPS 21, 53 (1998).
- Inverse Reconstruction of Three-dimensional Tomographic Images of Objects in Turbid Media from Time-Sliced Two-dimensional Transmission Measurements, W. Cai, S. K. Gayen, M. Xu, M. Lax, R. R. Alfano, OSA TOPS 21, 138 (1998).
- Continuous-Wave All-Solid-State Laser Operation of Cr^{4+} :Forsterite and Cr^{4+} : Ca_2GeO_4 , J. M. Evans, V. Petricevic, A. B. Bykov, R. R. Alfano, OSA TOPS 17, 100 (1998).
- Novel Grating-generated Heterodyne Interferometric Tomography of Tissue, I. Zeylikovich, R. R. Alfano, Proc. SPIE 3250, 196 (1998).
- Fluorescence Ratio Mapping System for Tissue Diagnosis, A. Katz, H. E. Savage, F. Zeng, J. Rome, G. C. Tang, D. Harris, J. Koutcher, S. P. Schantz, R. R. Alfano, Proc. SPIE 3250, 64 (1998).
- Far-red and NIR Emission from Tissues, G. Zhang, S. G. Demos, R. R. Alfano, Proc. SPIE 3250, 72 (1998).
- Optical Fluorescence and Raman Biopsy of Squamous Cell Carcinoma from the Head and Neck, Yuanlong Yang, C. H. Liu, H. E. Savage, S. Schantz, R. R. Alfano, Proc. SPIE 3250, 68 (1998).
- Three Exposure Interferometric Histological Image Reconstruction of Biological Tissue, I. Zeylikovich, R. R. Alfano, Proc. SPIE 3250, 190 (1998).
- Second Harmonic and Two Photon Fluorescence Histology of Tissues, Yici Guo, Feng Liu, Q. Z. Wang, N. Zhadin, P. P. Ho, H. Savage, D. Harris, P. Sacks, S. Schantz, R. R. Alfano, Proc. SPIE 3250, 210 (1998).

1997

- Advances in Mediphotonic Imaging and Biopsy, R. R. Alfano, S. K. Gayen, A. Katz, IS&T/OSA Optics & Imaging in the Information Age, 299 (1997).
- Optical Polarization Surface and Sub-surface Imaging in Human Tissue, S. G. Demos, R. R. Alfano, IS&T/OSA Optics & Imaging in the Information Age, 305 (1997).
- Three-Dimensional Image Reconstruction in Highly Scattering Turbid Media, W. Cai, B. B. Das, F. Liu, Fanan Zeng, M. Lax, R. R. Alfano, Proc. SPIE 2979, 241 (1997).

- Differential Spectral Polarization Imaging, S. G. Demos, R. R. Alfano, Proc. SPIE 2979, 18 (1997).
- Native Cellular Fluorescence Characteristics of Normal and Malignant Epithelial Cells from Human Larynx, D. Parmeswaran, S. Ganesan, R. Nalini, P. Aruna, V. Veeraganesh, R. R. Alfano, Proc. SPIE 2979, 759 (1997).
- Biochemical Distinctions between Normal and Cancerous Human Breast Tissues obtained from Fluorescence Spectroscopy, N. N. Zhadin, Y. Yang, N. Ockman, R. R. Alfano, Proc. SPIE 2979, 585 (1997).
- Time-gated Images of Calcification Regions in Turbid Media, P. P. Ho, P. A. Galland, X. Liang, L. Wang, S. G. Demos, S. K. Gayen, R. R. Alfano, Proc. SPIE 2979, 94 (1997).
- Raman Spectra of Biomedical Samples using Optical Fiber Probes, G. Zhang, S. G. Demos, R. R. Alfano, Proc. Of Biomedical Sensing, Imaging, and Tracking Technologies II, Proc. SPIE 2976, 2 (1997).
- Temporal Polarization Preservation in Human Breast Tissue – A Method for Optical Imaging, S. G. Demos, S. Savage, Alexandra S. Heerdt, S. Schantz, R. R. Alfano, Proc. SPIE 2965, 40 (1997). Reprinted from Alt'96 International Symposium on Laser Methods for Biomedical Applications 20-24 May, 1996, Heraklion, Crete, Greece.
- Role of Local-phonon Mode Coupling in the Nonradiative Relaxation for Designing more Efficient Impurity Doped Solid State Laser Crystals, Dana M. Calistru, S. G. Demos, Scot Owen, V. Petricevic, R. R. Alfano, OSA TOPS Vol. 10 Advanced Solid State Lasers, 1997, ed. Clifford R. Pollock and S. Walter R. Bosenberg, pp 435.

1996

- Fermat Photons: Paths Propagation and Imaging in Turbid Media, A. Ya. Polishchuk, Jean Dolne, Feng Liu, M. Zevallos, B. Das, R. R. Alfano, OSA TOPS on Advances in Optical Imaging and Photon Migration, Vol. 2, 14, R. R. Alfano and J. G. Fujimoto (eds.), OSA 1996.
- Time-Resolved Polarization Shadowgrams in Turbid Media, X. Liang, L. Wang, P. P. Ho, R. R. Alfano, OSA TOPS on Advances in Optical Imaging and Photon Migration 1996, Vol. 2, 84, R. R. Alfano and J. G. Fujimoto (eds.), OSA 1996.
- Fourier Diagnostic Analysis of Fluorescence Spectra from Normal and Malignant Breast Tissues, A. Katz, Y. Yang, E. J. Celmer, M. Zurawska-Szczepaniak, R. R. Alfano, OSA TOPS on Biomedical Optical Spectroscopy and Diagnostics 1996, Vol 3, 136, Eva Sevick-Muraca and David Benaron (eds.) OSA, 1996.
- Optical Biopsy - Detecting Cancer with Light, A. Katz and R. R. Alfano, OSA TOPS on Biomedical Optical Spectroscopy and Diagnostics 1996, Vol. 3, 132, Eva Sevick-Muraca and David Benaron (eds.) OSA, 1996.
- Time Resolved Diffusion Tomographic Image Reconstruction in Highly Scattering Turbid Media, W. Cai, B. B. Das, F. Liu, M. Zevallos, M. Lax, R. R. Alfano, OSA TOPS on Advances in Optical Imaging and Photon Migration 1996, Vol. 2, 269, R. R. Alfano and J. G. Fujimoto (eds.) OSA, 1996.
- Sensitivity of Boundary Walls in Photon Migration and Optical Imaging, B. B. Das, Feng Liu, R. R. Alfano, OSA TOPS on Advances in Optical Imaging and Photon Migration, Vol. 2, 41, R. R. Alfano and J. G. Fujimoto (eds.) OSA, 1996.
- Polarization Imaging and Characterization of Human Breast Tissue, S. G. Demos, H. Savage, A. S. Heerdt, S. Schantz, R. R. Alfano, OSA TOPS Advances in Optical Imaging and Photon Migration 1996, Vol. 2, 113, R. R. Alfano and J. G. Fujimoto (eds.) OSA, 1996.
- Measurements of Effective Group Index of Refraction and Scattering Mean Free Path of Normal and Malignant Human Breast Tissues using Ultrafast Optical Techniques, Feng Liu, Y. X. Shan, H. Savage, A. S. Heerdt, S. Schantz, E. Celmer, R. R. Alfano, OSA TOPS on Advances in Optical Imaging and Photon Migration 1996, Vol. 2, 376, R. R. Alfano and J. G. Fujimoto (eds.) OSA, 1996.
- Photoacoustic Imaging of Objects Hidden in Random Scattering Media, S. K. Gayen, R. R. Alfano, C. M. Penney, OSA TOPS on Advances in Optical Imaging and Photon Migration 1996, Vol. 2, 322, R. R. Alfano and J. G. Fujimoto (eds.) OSA, 1996.
- Angular Dependence of The Intensity Temporal Profiles of Scattered Pulses in Diffusive Regime, M. E. Zevallos, F. Liu, B. B. Das, A. Ya. Polishchuk, R. R. Alfano, OSA TOPS on Advances in Optical Imaging and Photon Migration 1996, Vol. 2, 21, R. R. Alfano and J. G. Fujimoto (eds.) OSA, 1996.
- Optical Biopsy Fiber-based Fluorescence Spectroscopy Instrumentation, A. Katz, S. Ganesan, Y. Yang, G. C. Tang, Y. Budansky, E. Celmer, H. E. Savage, S. P. Schantz, R. R. Alfano, Proc. SPIE 2679, 118 (1996).

- Phosphorescence and Fluorescence Spectra from Breast Tissues, G. C. Tang, E. J. Celmer, R. R. Alfano, Proc. SPIE 2679, 102 (1996).
- Optical Spectroscopy of Benign and Malignant Breast Tissues, Y. Yang, A. Katz, E. J. Celmer, M. Zurawska-Szczepaniak, R. R. Alfano, Proc. SPIE 2679, 51 (1996).
- Enhancement of the Fluorescence Cancer Diagnostic Method of Tissues using Diffuse Reflectance and the Analysis of Oxygenation State, N. Zhadin, Y. Yang, S. Ganesan, N. Ockman, R. R. Alfano, Proc. SPIE 2679, 142 (1996).
- Intervalley Scattering as a Function of Temperature in GaAs using Time-resolved Visible Pump - IR Probe Absorption Spectroscopy, M. A. Cavicchia, W. B. Wang, R. R. Alfano, Hot Carriers in Semiconductors, p. 365, edited by K. Hess et al, Plenum Press, New York (1996).
- Hot Carrier Dynamics in the X Valley in Si and Ge measured by Pump-IR-Probe Absorption Spectroscopy, W. B. Wang, M. A. Cavicchia, R. R. Alfano, Hot Carriers in Semiconductors, p. 101, edited by K. Hess et al., Plenum Press, New York (1996).
- Temperature Dependence of Photoluminescence in InGaAsP/InP Strained MQW Heterostructures, O. Y. Raisky, W. B. Wang, R. R. Alfano, Hot Carriers in Semiconductors, p. 11, edited by K. Hess et al., Plenum Press, New York (1996).

1995

- Non-Euclidean Diffusion and "Fermat" Photons in Turbid Media, A. Ya. Polishchuk, R. R. Alfano, Proc. SPIE 2389, 6 (1995).
- Detection of a Scattering Layer inside a Three-layered Scattering Medium, J. J. Dolne, M. Klibanov, F. Liu, S. Gutman, R. R. Alfano, Proc. SPIE 2389, 40 (1995).
- Time-resolved Imaging of Oil Droplets in Highly Scattering Soil Solution, R. R. Alfano, X. Liang, L. Wang, P. P. Ho, Proc. SPIE 2389, 2 (1995).
- True Scattering Coefficients of Turbid Media, X. Liang, L. Wang, P. P. Ho, R. R. Alfano, Proc. SPIE 2389, 571 (1995).
- Fluorescence Spectroscopy to Evaluate Dermal Wounds, Yuanlong Yang, Lee David Mitchell, R. R. Alfano, Proc. SPIE 2387, 120 (1995).
- Spectroscopic Properties of Tryptophan and Bacteria, G. C. Tang, Y. L. Yang, Z. Z. Huang, W. Hua, F. Zhou, S. Cosloy, R. R. Alfano, Proc. SPIE 2387, 169 (1995).
- Imaging of Microscopic Objects Hidden behind a Highly Scattering Media, Feng Liu, Y. X. Shan, R. R. Alfano, Proc. SPIE 2387, 204 (1995).

1994

- Snake Light Translucent Phantoms Tomography, P. P. Ho, X. Liang, L. Wang, R. R. Alfano, OSA Proceedings on Adv. in Opt. Imaging and Photon Migration Vol. 21, 122 (1994).
- Snake Photon Imaging in Thick Tissues in Visible and Near Infrared Radiation Spectral Region, B. B. Das, K. M. Yoo, R. R. Alfano, OSA Proceedings on Adv. in Opt. Imaging and Photon Migration Vol. 21, 166, (1994).
- Early Arriving Transmitted Photon Intensity through Tissues, Feng Liu, K. M. Yoo, R. R. Alfano, OSA Proceedings on Adv. in Opt. Imaging & Photon Migration Vol. 21, 170 (1994).
- Spatial Frequency Imaging through Random Scattering Media, J. J. Dolne, K. M. Yoo, F. Liu, R. R. Alfano, OSA Proc. on Adv. in Opt. Imaging & Photon Migration Vol. 21, 284 (1994).
- High Resolution Spectra of Cross-Phase-Modulation for an A/D Converter, P. P. Ho, Q. Z. Wang, Q. D. Liu, Disa Liu, R. R. Alfano, Proc. SPIE 2155, 37 (1994).
- Induced Beam Deflection for Ultrafast Low-Signal-Level Optical Waveform Digitization, P. P. Ho, Q. Z. Wang, Q. D. Liu, R. R. Alfano, Proc. SPIE 2155, 157 (1994).

1993

- *60-fs Chromium-Doped Forsterite ($\text{Cr}^{4+}:\text{Mg}_2\text{SiO}_4$) Laser, A. Seas, V. Petricevic, R. R. Alfano, Springer Series in Chemical Physics 55, 174, Ultrafast Phenomena VIII, Editors: J. L. Martin, A. Migus, G. A. Mourou, A. H. Zewail, Springer Verlag Berlin Heidelberg (1993).

- Subpicosecond Relaxation in Stretch Oriented Poly (p-phenylene vinylene) Films, M. Yan, L. Rothberg, R. Dorsinville, R. R. Alfano, B. R. Hsieh, *SPIE Proc.* 1910, 122 (1993).
- Metal-Nanocluster Composites made by Ion Implantation: A Novel Third-Order Nonlinear Material, R. F. Haglund, Jr., Li Yang, R. H. Magruder, III, K. Becker, J. E. Wittig, C. W. White, R. A. Zuhr, Lina Yang, R. Dorsinville, R. R. Alfano, *Proc. SPIE* 1852, 113 (1993).
- Native Fluorescence Spectroscopic Detection of the Effects of Chemotherapeutic Retinoids on a Cancer Model of the Aerodigestive Tract, G. C. Tang, H. E. Savage, M. Silverberg, P. G. Sacks, V. Reid, S. P. Schantz, R. R. Alfano, "Optics for Protection of Man and Environment against Natural and Technological Disasters", Elsevier Science Publishers, B.V., p. 205 (1993).
- Femtosecond Time-gated Imaging of Translucent Objects hidden in Highly Scattering Media, K. M. Yoo, B. Das, F. Liu, Q. Xing, R. R. Alfano, *Springer Series in Chemical Physics*, 55, 124, *Ultrafast Phenomena VIII*, Editors: J. L. Martin, A. Migus, G. A. Mourou, A. H. Zewail, Springer Verlag, Berlin Heidelberg 1993.
- Native Fluorescence Spectroscopy of Thymus and Fat Tissues, G. C. Tang, M. C. Oz, V. Reid, K. Steinglass, M. Ginsberg, L. Jacobowitz, R. R. Alfano, *Proc. SPIE* 1887, 165 (1993).
- NIR Raman and Fluorescence Spectroscopies Diagnose Cancer!, C.-H. Liu, B. B. Das, W. L. Sha Glassman, G. C. Tang, H. R. Zhu, D. L. Akins, S. S. Lubicz, J. Cleary, R. Prudente, E. Celmer, E. Caron, R. R. Alfano, *Proc. SPIE* 1887, 188 (1993).

1992

- Initial Photochemistry of the Visual Pigment Rhodopsin, M. Yan, D. Manor, R. R. Alfano, R. H. Callender, L. J. Rothberg, *International Conf. on Lasers '92*, 422 (1992).
- Picosecond Γ -X Carrier Scattering in GaAs/AlAs Superlattice, Y. Takiguchi, K. Shum, R. R. Alfano, M. Dutta, P. G. Newman, *Proc. SPIE* 1599, 90 (1992).
- Time Resolved Fluorescence of Benign and Malignant Breast Tissues, A. Pradhan, B. B. Das, K. M. Yoo, R. R. Alfano, J. Cleary, R. Prudente, E. Celmer, *Proc. SPIE* 1599, 81 (1992).
- Anisotropy of the Picosecond Photoconductive Response of Highly Oriented Trans-Polyacetylene, A. D. Walser, R. Dorsinville, R. R. Alfano, R. Tubino, *Proc. SPIE* 1599, 95 (1992).
- Subpicosecond Kinetics of Rhodopsin, Ming Yan, H. S. Chao, R. R. Alfano, G. Weng, D. Manor, R. Callender, L. Rothberg, T. M. Jedju, *Proc. SPIE* 1599, 110 (1992).
- Novel Cr⁴⁺-Based Tunable Solid-State Lasers, V. Petricevic, A. Seas, R. R. Alfano, *Proc. SPIE* 1599, 209 (1992).
- Optical Spectroscopies Diagnose Cancer, R. R. Alfano, B. B. Das, W. Sha Glassman, A. Pradhan, G. C. Tang, *Proc. SPIE* 1599, 284 (1992).
- Absorption and Fluorescence-Absorption Techniques for Imaging through a Scattering Medium, K. M. Yoo, Feng Liu, Zhi-Wei Zang, S. A. Ahmed, R. R. Alfano, *Proc. SPIE* 1599, 323 (1992).
- Ballistic Time-Gated Optical Imaging in Turbid Media using Picosecond Kerr Gate, P. P. Ho, L. M. Wang, R. R. Alfano, *Proc. SPIE* 1599, 325 (1992).

1991

- Optical Spectroscopy may offer Novel Diagnostic Approaches for the Medical Profession, R. R. Alfano, A. Pradhan, G. C. Tang, B. B. Das, K. M. Yoo, *Laser Non-Surgical Medicine*, ed., L. Goldman, Technomic Publishing Co., Lancaster 59 (1991).
- Thiophene Based Conjugated Polymers: THG Spectroscopy and Transient Photogenerated Polaron Enhancement of Cubic Optical Nonlinearity, C. Taliani, G. Ruani, R. Zamboni, F. Kajzar, L. Yang, R. Dorsinville, Q. R. Alfano, and R. Tubino, "Organic Molecules for Nonlinear Optics and Photonics" *Nato ASI Series* (1991).
- CW Mode-Locked Operation of Chromium-Doped Forsterite Laser, A. Seas, V. Petricevic, R. R. Alfano, *OSA Proc. on Advanced Solid State Lasers* 10, 69 (1991).
- Degenerate Cross-Phase-Modulation and Four-Wave-Mixing for Pulse Compression and Amplification of Ultrashort Laser Pulses in Fiber Optical Communication Systems, Q. Z. Qang, P. P. Ho, R. R. Alfano, *Proc. of International Conference on Lasers '90*, STS Press, pp. 159-161, McLean, Va. (1991).

- Nonlinear Optical Properties of Thiophene Based Conjugated Polymers, C. Taliani, G. Ruani, R. Zamboni, L. Yang, R. Dorsinville, R. R. Alfano, *Frontiers of Polymer Research*, ed. P. N. Prasad and J. K. Nigam, p. 125 Plenum Press, NY (1991).
- Hot Carrier Dynamics in a $K \neq 0$ Satellite Valley in $Al_xGa_{1-x}As$, W. B. Wang, Kai Shum, R. R. Alfano, D. Szymd, A. J. Nozik, Proc. SPIE 1599, 106 (1991).
- Photoexcitations and Nonlinear Optical Properties in Thiophene based Conjugated Systems, C. Taliani, A. J. Pal, G. Ruani, R. Zamboni, R. R. Alfano, R. Dorsinville, L. Yang, Proc. SPIE 1599, 24 (1991).
- Determination of the Magnitude Response Time and Sign of the Third Order Optical Nonlinear Coefficient in Polymers, R. Dorsinville, Lina Yang, R. R. Alfano, N. L. Yang, C. Taliani, Proc. SPIE 1599, 40 (1991).
- Near-IR FT Raman Spectroscopy of Human Aorta, C. H. Liu, W. L. Sha Glassman, R. R. Alfano, H. R. Zhu, D. L. Akins, L. I. Deckelbaum, M. L. Stetz, K. O'Brien, J. Scott, Proc. SPIE 1599, 77 (1991).
- Ballistic Imaging of Biomedical Samples using Picosecond Optical Kerr Gate, L. Wang, Y. Liu, P. P. Ho, R. R. Alfano, Proc. SPIE 1431, 97 (1991).
- Time-resolved Fluorescence of Normal and Atherosclerotic Arteries, Asima Pradhan, B. B. Das, C.-H. Liu, R. R. Alfano, K. M. O'Brien, M. L. Stetz, J. J. Scott, L. I. Deckelbaum, Proc. SPIE 1425, 2 (1991).

1990

- Temperature Dependence of the Picosecond Photocurrent in Stretched Trans-Polyacetylene Films with Below Gap Excitation, A. D. Walser, R. Dorsinville, R. Tubino, R. R. Alfano, Mat. Res. Soc. Symp. Proc. Vol. 173, 437 (1990).
- Enhanced Third Order Optical Nonlinear Response in Polythiophene Films--Polaron Contributions, Lina Yang, R. Dorsinville, R. Zamboni, C. Taliani, R. Tubino, R. R. Alfano, Mat. Res. Soc. Symp. Proc. Vol. 173, 631 (1990).
- Effective Gain Measurements in Chromium-Doped Forsterite, V. Petričević, A. Seas, and R. R. Alfano, "OSA Proceedings of the Advanced Solid-State Lasers Conference, March 5-7, 1990, Salt Lake City, Utah, Vol. 6 of the OSA Proceedings Series, H. P. Jenssen and G. Dube, eds. (Optical Society of America, Washington, D.C., 1991), pp. 73-78.
- Rate of Electron-Phonon Relaxation in Niobium, K. M. Yoo, M. Siddique, R. R. Alfano, Ultrafast Phenomena 1990 Technical Digest Series Vol. 6, WF4-1 (1990).
- Ultrafast Pump-Probe X-Valley Absorption Spectroscopy in GaAs, W. B. Wang, N. Ockman, M. A. Cavicchia, M. Yan, R. R. Alfano, Ultrafast Phenomena 1990 Technical Digest Series Vol. 6, ThC-17, pp. 309-311 (1990).
- Determination of the Intervalley X_6 - Γ_6 , L_6 Scattering Time and the Density of States Effective Mass of the X_7 Band in GaAs by Picosecond Time-Resolved Absorption Spectroscopy, W. B. Wang, N. Ockman, M. A. Cavicchia, M. Yan, R. R. Alfano, Proc. SPIE 1282, Ultrafast Lasers Probe Phenomena in Bulk and Microstructure Semiconductors III, 86 (1990).
- Energy Relaxation of Hot Holes in GaAs grown on Si, Kai Shum, Y. Takiguchi, J. M. Mohaidat, Feng Liu, R. R. Alfano, H. Morkoc, Proc. SPIE 1282, 156, Ultrafast Lasers Probe Phenomena in Bulk and Microstructure Semiconductors III (1990).
- Photon Migration in Random Media: Angle and Time Resolved Studies, K. M. Yoo, F. Liu, and R. R. Alfano, Proc. SPIE: Laser-Tissue Interaction (1990).
- Angle- and Time-Resolved Studies of Backscattering of Light from Biological Tissues, K. M. Yoo, F. Liu, and R. R. Alfano, Proc. SPIE: Time-Resolved Laser Spectroscopy in Biochemistry II (1990).
- Speed of Superconducting Devices, K. M. Yoo, M. Siddique, X. M. Zhao, R. R. Alfano, D. P. Osterman, M. Radparvar, and J. Cunniff, Proceedings of SC Global 90 - International Superconductor Applications Convention (1990).

1989

- Cross-Phase Modulation: A New Technique for Controlling the Spectral, Temporal, and Spatial Properties of Ultrashort Pulses, P. L. Baldeck, P. P. Ho, and R. R. Alfano, Chapter 4 in *The Supercontinuum Laser Source*, Springer-Verlag, New York (1989).
- Supercontinuum Generation in Condensed Matter, Q. Z. Wang, P. P. Ho, and R. R. Alfano, Chapter 2 in *The Supercontinuum Laser Source*, Springer Verlag, New York (1989).

- Applications of Supercontinuum: Present and Future, R. Dorsinville, P. P. Ho, Jamal T. Manassah, and R. R. Alfano, Chapter 9 in *The Supercontinuum Laser Source*, Springer Verlag, New York (1989).
- Cross-Phase Modulation: A New Technique for Controlling the Temporal, Spectral and Spatial Properties of Ultrafast Pulses, P. L. Baldeck, D. Ji, P. P. Ho, and R. R. Alfano, *Proc. SPIE 1127 Nonlinear Optical Materials II*, 10 (1989).
- Chromium-Activated Forsterite Laser, V. Petricevic, S. K. Gayen, R. R. Alfano, *OSA Proceedings on Tunable Solid State Lasers*, Vol. 5, 77 (1989).

1988

- Generation of Sub-100-fsec Pulses at 532 nm from Modulation Instability Induced by Cross-Phase Modulation in Optical Fibers, P. L. Baldeck, R. R. Alfano, G. P. Agrawal in *Ultrafast Phenomena 6*, p. 53, Springer-Verlag, Berlin, Heidelberg (1988).
- Picosecond-Laser-Driven Shock Wave Dynamics in Semiconductors, X. Z. Lu, R. Garuthara, S. Lee, and R. R. Alfano in *Ultrafast Phenomena 6*, p. 226, Springer-Verlag, Berlin, Heidelberg (1988).
- Colliding Pulse Mode-Locked Femtosecond Laser using Binary-Energy-Transfer Gain Dye Mixture, M. Mihailidi, Y. Budansky, X. M. Zhao, Y. Takiguchi, and R. R. Alfano in *Ultrafast Phenomena 6*, p. 27, Springer-Verlag, Berlin, Heidelberg (1988).
- Room Temperature Vibronic Laser Action in $\text{Cr}^{3+}:\text{Mg}_2\text{SiO}_4$, V. Petricevic, S. K. Gayen, R. R. Alfano, K. Yamagishi and K. Moriya, in *Proceedings of the International Conference on Lasers '87*, F. J. Duarte Ed., STS, McLean, VA, p. 423 (1988).
- Ultrafast Processes in Quasi-Zero Dimensional Semiconductor Microcrystallites in Glasses, Kai Shum and R. R. Alfano, *Proc. SPIE 942*, 180 (1988).
- Effects of Picosecond-laser-driven Shock Waves on the Photoluminescence from Semiconductors, X. Z. Lu, R. Garuthara, S. Lee and R. R. Alfano, *Proc. SPIE 942*, 157 (1988).
- *Spin Orientation and Relaxation of Carriers in GaAs/AlGaAs Quantum Wells, Hsieh-Shin Chao, K. S. Wong, R. R. Alfano, H. Unlu and H. Morkoc, *Proc. SPIE 942*, 215 (1988).
- Real Time Phonon Dephasing Kinetics in Calcite, P. J. Delfyett, R. Dorsinville and R. R. Alfano, *SPIE 942*, 120 (1988).
- Parallel Digital Optical Computation Based on Optical Phase Conjugation, Y. Li, G. Eichmann, R. Dorsinville, and R. R. Alfano, *Proc. SPIE 881*, 216 (1988).

1987

- *Ultrafast Laser Technology, Peter J. Delfyett, S. K. Gayen, and R. R. Alfano, *Encyclopedia of Phys. Sc. and Tech.* 14, 169 (1987).
- Induced Phase Modulation and Induced Spectral Broadening of Propagation Laser Pulses in Condensed Matter, R. R. Alfano and P. P. Ho, *Proceedings of the International Conference on Lasers '86*, pp. 84-93, STS Press, McLean, VA (1987).
- Optical Transitions and Enhanced Recombination Lifetimes in Quasi-Zero Dimensional Electron System in $\text{CdS}_x\text{Se}_{1-x}$, K. Shum, G. C. Tang, M. R. Junnarkar, R. R. Alfano, *Proc. SPIE 793*, 150 (1987).
- Explosive Diffusion and Phonon Screening by Photogenerated Carrier Density, M. R. Junnarkar, R. R. Alfano, *Proc. SPIE 793*, 168 (1987).
- Transient Gratings in Wide Band Gap Semiconductors: Impurities and Optical Phonon Dynamics, P. J. Delfyett, R. Dorsinville, R. R. Alfano, *Proc. SPIE 793*, 139 (1987).
- Confinement Effects on the Scattering of Electrons by Polar Optical Phonons in Semiconductor Quantum Wells, Kai Shum, R. R. Alfano, *Proc. SPIE 793*, 70 (1987).
- Energy Relaxation and Diffusion of Photoexcited Carriers in Symmetric and Asymmetric GaAs Quantum Wells, K. Shum, M. R. Junnarkar, H.-S. Chao, R. R. Alfano, H. Morkoc, *Proc. SPIE 793*, 6 (1987).

1986

- Picosecond Raman-Induced Phase Conjugation Spectroscopy, R. Dorsinville, P. Delfyett, R. R. Alfano, in *Ultrafast Phenomena V*, eds. G. R. Fleming and A. E. Siegman, p. 521, Springer Verlag, New York (1986).

- Spin Dephasing Kinetics of Free Carriers in Alloy Semimagnetic Semiconductors $\text{Cd}_{1-x}\text{Mn}_x\text{Se}$ by one and Two Photon Excitation, M. R. Junnarkar, R. R. Alfano, in *Ultrafast Phenomena V*, eds. G. R. Fleming and A. E. Siegman, p. 251, Springer Verlag, New York (1986).
- Induced Phase Modulation and Spectral Broadening of a Weak 530-nm Picosecond Pulse by an Intense 1060-nm Picosecond Pulse in Glass, R. R. Alfano, Q. X. Li, T. Jimbo, J. T. Manassah, P. P. Ho, in *Ultrafast Phenomena V*, eds. G. R. Fleming and A. E. Siegman, p. 157, Springer Verlag, New York (1986).
- Ultrafast Photophysical Processes in Visual Pigments, A. G. Doukas, R. H. Callender, R. R. Alfano, in *Applications of Fluorescence in the Biomedical Sciences* pp. 69-89, Alan R. Liss, Inc., New York (1986).
- Induced Phase Modulation and Induced Spectral Broadening of Propagation Laser Pulses in Condensed Matter, R. R. Alfano and P. P. Ho, *Proc. of the International Conference on Lasers '86*, 84 (1986).
- Light Emission from GaSe Semiconductor under Picosecond-Laser-Induced Shock Pressure, R. Rao, X. Z. Lu, B. Willman, S. Lee, A. G. Doukas, and R. R. Alfano, *Proc. of the Internat'l Conf. on Lasers '86*, 76 (1986).
- Ultrafast Nonlinear Optical Processes in 4BCMU-Polydiacetylene, P. P. Ho, R. Dorsinville, N. L. Yang, G. Odian, G. Eichmann, T. Jimbo, Q. Z. Wang, G. C. Tang, N. D. Chen, W. K. Zou, Y. Li, and R. R. Alfano, *Proc. SPIE 682*, 36 (1986).
- Determined Valence-Band Discontinuity via Optical Transitions in Ultrathin Quantum Wells, K. Shum, P. P. Ho, R. R. Alfano, *Proceedings of Lasers '85* 602, STS Press, McLean, VA (1986).
- Carrier Relaxation via Magnetic Interactions in the Magnetic Semiconductor CdCr_2Se_4 , P. P. Ho, R. R. Alfano, *Proceedings of Lasers '85*, 128, STS Press, McLean, VA (1986).
- Single Shot Autocorrelator Based on Degenerate Four Wave Mixing, J. Buchert, R. Dorsinville, P. Delfyett, R. R. Alfano, *Proceedings of Lasers '85*, 780, STS Press, McLean, VA (1986).
- High Power Picosecond Laser Induced Shock Waves in Condensed Matter, R. Rao, X. Z. Lu, A. Doukas, Q. Lee, B. Willman, P. Harris, R. R. Alfano, *Proceedings of Lasers '85*, 171, STS Press, McLean, VA (1986).
- Nonradiative Relaxation in Tunable Solid State Laser Crystals, S. K. Gayen, W. B. Wang, V. Petricevic, R. R. Alfano, *Proceedings of Lasers '85*, 622, STS Press, McLean, VA (1986).
- Determination of Single and Collective Particle Correlation Kinetics using Time Resolved Picosecond Phase Conjugation, J. M. Buchert, R. Dorsinville, P. Delfyett, R. R. Alfano, *Proceedings of Lasers '85*, 340, STS Press, McLean, VA (1986).

1985

- Optical Investigations of Chromium Chalcogenide Spinel in Magnetic Semiconductors, W. Miniscalco, A. Lempicki, S. S. Yao, R. R. Alfano, N. G. Stoffel, G. Margaritondo, in *"Semiconductors Probed by Ultrafast Laser Spectroscopy"*, ed. R. R. Alfano, Academic Press, NY (1985).
- Techniques in Time Resolved Luminescence Spectroscopy, D. Rosen, A. Doukas, A. Katz, Y. Budansky, R. R. Alfano, in *"Semiconductors Probed by Ultrafast Laser Spectroscopy"*, ed. R. R. Alfano, Academic Press, NY p. 393 (1985).
- Nonlinear and Time Resolved Studies of Native Defects in CdSe, D. L. Rosen, Q. X. Li, R. R. Alfano, *Proc. SPIE (1/85) 524*, 95 (1985).
- The Ultrafast Supercontinuum Laser Source, R. R. Alfano, *Proceedings of Lasers '85*, 110, STS Press, McLean, VA (1986).

1984

- Analysis of Fluorescence Kinetics and Energy Transfer in Isolated a Subunits of Phycoerythrin from Nostoc Sp., A. J. Dagen, R. R. Alfano, B. A. Zilinskas, C. E. Swenberg, in *Ultrafast Phenomena IV*, eds. D. H. Auston, K. B. Eisenthal, p. 493, Springer Verlag, New York (1984).
- Primary Events in Vision Probed by Ultrafast Laser Spectroscopy, A. G. Doukas and R. R. Alfano, in *Ultrafast Phenomena IV*, eds. D. H. Auston, K. B. Eisenthal, p. 459, Springer Verlag, New York (1984).
- Picosecond Laser Induced Shock Wave Pressure Measurements in Al, C-Si, and GaAs, K. P. Leung, S.S. Yao and R. R. Alfano, *"Shock Waves in Condensed Matter"*, ed. J. R. Asay, R. A. Graham, G. K. Straub, Elsevier Science Publishers B.V., p. 343 (1984).

Photoluminescence of Spin-Polarized Electrons in Semiconductors, E. J. Johnson, R. J. Seymour, R. R. Alfano, in "Semiconductors Probed by Ultrafast Laser Spectroscopy", Vol. II, ed. R. R. Alfano, Academic Press, NY (1984).

Techniques in Time-Resolved Luminescence Spectroscopy, D. L. Rosen, A. G. Doukas, A. Katz, Y. Budansky, R. R. Alfano, in "Semiconductors Probed by Ultrafast Laser Spectroscopy", Vol. II, ed. R. R. Alfano, Academic Press, p.393, NY (1984).

1983

Slowing of the Vibrational Dephasing Time by Hydrogen Bonding in Glycerol, R. Dorsinville, W. M. Franklin, N. Ockman, R. R. Alfano, "Time Resolved Vibrational Spectroscopy", ed. Atkinson, Academic Press (1983).

Photoluminescence Dynamics of High Density Electron Hole Plasma in Ga_{0.5}In_{0.5}P under High Power Picosecond Laser Pulse Excitation, H. Zarrabi and R. R. Alfano, Proc. SPIE 439, (1983).

1982

Picosecond Relaxation Kinetics of Highly Photogenerated Carriers in Semiconductors, S. S. Yao, M. R. Junnarkar, and R. R. Alfano in "Picosecond Phenomena III", eds. K. B. Eisenthal, R. M. Hochstrasser, W. Kaiser, A. Laubereau, Springer-Verlag, New York, p. 389 (1982).

Time Resolved Fluorescence Spectroscopy, F. Pellegrino and R. R. Alfano in Biological Events Probed by Ultrafast Laser Spectroscopy, ed. R. R. Alfano, Academic Press, NY, p. 27 (1982).

Picosecond Laser Techniques and Design, A. G. Doukas, J. Buchert, R. R. Alfano, in "Biological Events Probed by Ultrafast Laser Spectroscopy", R. R. Alfano, ed., Academic Press, p.38 (June 1982).

Laser Action in Emerald, J. Buchert, A. Katz, R. R. Alfano, Proceedings of the International Conference on Lasers '82, 791 (1982).

Instrument for Simultaneously Measuring Intensity, Time, and Wavelength: the Temporal Spectral Photometer, N. H. Schiller, R. R. Alfano, Proc. SPIE 348, 280 (1982).

Picosecond and Subpicosecond Luminescence in Semiconductors, D. L. Rosen, A. Katz, A. G. Doukas, Y. Budansky, R. R. Alfano, Proc. SPIE 322, 182 (1982).

1980

Picosecond Polarization Kinetics of Photoluminescence of Semiconductors and Dyes, R. J. Seymour, P. Y. Lu, R. R. Alfano, in Picosecond Phenomena II, eds. R. Hochstrasser, W. Kaiser, C. V. Shank, p. 111, Springer-Verlag, New York (1980).

Picosecond Absorption and Fluorescence Studies of the Isolated Phycobiliproteins from the Blue-green Alga Nostoc sp. in "Photosynthesis" Vol. 1 pp59-68, G. Akoynglou ed., Proceedings 5th International Congress in Photosynthesis 1980.

Picosecond Fluorescence Absorption and Raman Spectroscopy, F. Pellegrino, A. G. Doukas, R. R. Alfano, Invited Paper, Proceedings VII Internat'l Conference on Raman Spectroscopy, pp. 453-457, W. F. Murphy, ed., North-Holland (1980).

1979

Video Imaging Systems in Picosecond Laser Spectroscopy, F. Pellegrino and R. R. Alfano, Multichannel Image Detectors, ed. Y. Talmi, ACS Symposium Series 102 8, 183 (1979).

Picosecond Studies, R. R. Alfano, OISD Encyclopedia, E-362 (1979).

1978

Time Resolved Picosecond Laser Spectroscopy, F. Pellegrino, A. Kalpaxis, and R. R. Alfano, Proc. SPIE 148, 140 (1978).

CONFERENCE PRESENTATIONS, ABSTRACTS, RESEARCH REPORTS, BOOK REPORTS & SEMINARS

- M. Niebauer, A. Alimova, A. Katz, M. Xu, E. Rudolph, J. Steiner and R. R. Alfano, "Detection of biomass in New York City aerosols: Light scattering and optical fluorescence techniques", in *Eos Trans. American Geophysical Union*, 86 (52), Fall Meet. Suppl., Abstract B53B-03 (2005).
- A. Katz, A. Alimova, M. Xu, P. Gottlieb, E. Rudolph, J. C. Steiner and R. R. Alfano, "Changes in refractive Index and size of bacillus subtilis spores during activation, measured by light transmission", in *Conference on Lasers and Electro-optics/Quantum Electronics and Laser Science and Photonic Applications, System and Technologies 2005* (Optical Society of America, Washington, DC, 2005)
- W. Cai, M. Xu and R. R. Alfano, "Light distribution from the analytical solution of the radiative transfer equation", in *Conference on Lasers and Electro-optics/Quantum Electronics and Laser Science and Photonic Applications, System and Technologies 2005* (Optical Society of America, Washington, DC, 2005)
- M. Alrubaiee, M. Xu, S. K. Gayen, and R. R. Alfano, "Three-dimensional localization of several scattering targets in a turbid medium using independent component", in *Conference on Lasers and Electro-optics/Quantum Electronics and Laser Science and Photonic Applications, System and Technologies 2005* (Optical Society of America, Washington, DC, 2005)
- M. Xu and R. R. Alfano, "Light depolarization by mie scatterers", in *Conference on Lasers and Electro-optics/Quantum Electronics and Laser Science and Photonic Applications, System and Technologies 2005* (Optical Society of America, Washington, DC, 2005)
- M. Xu, M. Alrubaiee, S. K. Gayen and R. R. Alfano, "Fluorescence optical imaging in turbid media using independent component analysis", in *Conference on Lasers and Electro-optics/Quantum Electronics and Laser Science and Photonic Applications, System and Technologies 2005* (Optical Society of America, Washington, DC, 2005)
- X. Ni, S. A. Kartazayeva, and R. R. Alfano, "Polarization memory in the backscattering of light from a turbid medium", in *Conference on Lasers and Electro-optics/Quantum Electronics and Laser Science and Photonic Applications, System and Technologies 2005* (Optical Society of America, Washington, DC, 2005)
- M. Sharonov, V. Petricevic, A. Bykov, and R. R. Alfano, "Ultra-wideband near-infrared laser operation of Cr³⁺ centers in chromium doped Li(In,Sc)GeO₄ olivines", in *Conference on Lasers and Electro-optics/Quantum Electronics and Laser Science and Photonic Applications, System and Technologies 2005* (Optical Society of America, Washington, DC, 2005)
- I. Zeylikovich, V. Kartazaev and R. R. Alfano, "Coherence properties of supercontinuum generation in microstructure fiber", in *Conference on Lasers and Electro-optics/Quantum Electronics and Laser Science and Photonic Applications, System and Technologies 2005* (Optical Society of America, Washington, DC, 2005)
- X. Ni, C. Wang, X. Liang, M. Alrubaiee and R. R. Alfano, "Supercontinuum interference from Fresnel diffraction caused by periodic filamentation", in *Conference on Lasers and Electro-optics/Quantum Electronics and Laser Science and Photonic Applications, System and Technologies 2005* (Optical Society of America, Washington, DC, 2005)
- Supercontinuum Multiple Frequency Channel Generation for WDM System, I. Zeylikovich, U. Kartazayev, R. R. Alfano, "Frontiers in Optics 2004" OSA Annual Meeting, Rochester, NY, October 10-14, 2004.
- Spectral, Temporal and Coherence Properties of Supercontinuum Generation in a Photonic Crystal Fiber, I. Zeylikovich, U. Kartazayev, R. R. Alfano, "Frontiers in Optics 2004" OSA Annual Meeting, Rochester, NY, October 10-14, 2004.
- A Blue-green Emitting Organic-Inorganic Hybrid Nanocomposite, S. K. Gayen, M. Brito, B. Das, X. Liang, G. Comanescu, R. R. Alfano, C. Gonzalez, V. Balogh-Nair, "Frontiers in Optics 2004", OSA Annual Meeting, Rochester, NY, October 10-14, 2004.
- Coherent THz Rotational Absorption and Dephasing of Methanol Gas, Baolong Yu, X. Xin, R. R. Alfano, "Frontiers in Optics 2004" OSA Annual Meeting, Rochester, NY, October 10-14, 2004.
- Randomization of Coherence and Polarization from the Ballistic to the Diffusive Regimes in a Highly Scattering Layer, J. Ali, R. R. Alfano, "Frontiers in Optics 2004" OSA Annual Meeting, Rochester, NY, October 10-14, 2004.
- Coherence Properties of the Supercontinuum Source, I. Zeylikovich, R. R. Alfano, WP2, OSA Annual Meeting, Frontier Optics, October 6 – 9, 2003, Tucson, AZ.

- Middle IR-Transmission Zone for Corrosion and Crack Detection beneath Paint, W. Wang, I. Zeylikovich, J. Ali, F. Zeng, R. R. Alfano, V. Benischek, F. Pellegrino, R. D'Italia, MT77, OSA Annual Meeting, Frontier Optics, October 6 – 9 2003, Tucson, AZ.
- THz Absorption Spectroscopy to Detect Biological and Chemical Molecules in the Environment, B. Yu, Y. Yang, X. Xin, A. Alimova, A. Chechins, S. A. Alfano, A. Katz, R. R. Alfano, MT36, OSA Annual Meeting, Frontier Optics, October 6-9, 2003, Tucson, AZ.
- Free-space Optical Propagation of Pulse Coded Data Stream, X Ni, Q. Xing, W. Cai, R. R. Alfano, MT48, OSA Annual Meeting, Frontier Optics, October 6-9, 2003, Tucson, AZ.
- Native Fluorescence Mapping of Cancer, A. Katz, R. R. Alfano, Invited, MJJ2, OSA Annual Meeting, Frontier Optics, October 6 – 9 2003, Tucson, AZ.
- Optical Biopsy and Imaging for Medical and Non-medical Applications, Invited talk, R. R. Alfano, Forum 2003 – The Progression of Technology, Business and Designs, U.S. Patent and Trademark Office, Crystal City, Virginia, June 10, 2003.
- Improving Inverse Reconstruction Problem for Three-dimensional Optical Image of Breast, W. Cai, S. K. Gayen, M. Xu, R. R. Alfano, P48-1, *Era of Hope*, Dept. of Defense Breast Cancer Research Program Meeting, Sept. 25-28, 2002, Orlando, FL.
- Near-infrared Photonics Imaging of Human Breast Tissue, M. Al-Rubaiee, S. K. Gayen, W. Cai, M. Xu, J. A. Koutcher, P48-2, *Era of Hope*, Dept. of Defense Breast Cancer Research Program Meeting, Sept. 25-28, 2002, Orlando, FL.
- Cancerous and Normal Human Tissues investigated by Near-infrared Time-resolved and Spectroscopic Imaging Techniques, M. Al-Rubaiee, S. K. Gayen, J. A. Koutcher, R. R. Alfano, 4955-28, Optical Tomography and Spectroscopy of Tissue V Conference of SPIE's Photonics West BiOS 2003/Photonics West, January 25-31, 2003, San Jose, CA.
- Time-resolved and Optical Spectroscopic Imaging for Cancer Detection, S. K. Gayen, M. Al-Rubaiee, R. R. Alfano, Invited talk, 2003 IEEE MTT-S International Symposium, June 8-13, 2003, Philadelphia, PA.
- Noninvasive Spectroscopic Analysis of Laser Welded Aorta and Skin Tissues, A. Katz, T. K. Gayen, M.D., G. Minko, H. E. Savage, S. A. McCormick, R. R. Alfano, 4613-10, SPIE BiOS 2002, Jan. 19-25, 2002, San Jose, CA.
- Near-infrared Welding of Aorta and Skin Tissues using Cr⁴⁺ lasers, T. K. Gayen, MD, A. Katz, J.M. Evans, Y. Budansky, H. E. Savage, S. A. McCormick, R. R. Alfano, 4609-48, SPIE BiOS 2002, Jan. 19-25, 2002, San Jose, CA.
- Advances in Mediphotonics: Optical Biopsy and Tomography, R. R. Alfano, Plenary Presentation, Opto Northeast and Imaging 2001, April 10-11, 2001, Rochester, NY.
- Detection of Glutamate in the Eye by Raman Spectroscopy, A. Katz, E. F. Kruger, C. H. Liu, G. Minko, R. B. Rosen, R. R. Alfano, 4098B-26, SPIE Conference on Raman Spectroscopy and Light Scattering Technologies in Materials Science, August 3-4, 2000, San Diego, CA.
- Time-Sliced and Spectroscopic Two-dimensional Imaging of Normal and Cancerous Human Breast Tissues, S. K. Gayen, M. Alrubaiee, R. R. Alfano, 'Era of Hope', DOD Breast Cancer Research Program Meeting, pp. 195, June 8-11, 2000, Atlanta, GA.
- Analytical Solution of the Polarized Photon Transport Equation in an Infinite Uniform Scattering Medium, W. Cai, M. Lax, R. R. Alfano, SuE1-1, Biomedical Topical Meetings, 62, April 2-5, 2000, Miami Beach, FL.
- Time-resolved Fourier Diffuse Optical Tomography, M. Xu, M. Lax, R. R. Alfano, TuC4-1, Biomedical Topical Meetings, 345, April 2-5, 2000, Miami Beach, FL.
- Electronic Time-Gated and Spectroscopic Near-Infrared Imaging of Lesions in Human Tissues, S. K. Gayen, J. Koutcher, Y13 10 2000, Bull. of APS 45, March Meeting of the APS, 3/20 – 3/24/2000, MN
- Fluorescence-based Instrumentation for Cancer Detection, A. Katz, #3913-27, BiOS 2000, San Jose, CA, January 22-28, 2000.
- Prototype Instrument for Subsurface Imaging in a Clinical Environment, S. G. Demos, H. B. Radousky, R. R. Alfano, #3917-10, BiOS 2000, San Jose, CA, January 22-28, 2000.
- Spectral Polarization Imaging Study on Human Prostate Tissues, W. B. Wang, J. H. Ali, R. B. Dorshow, R. R. Alfano, #3917-44, BiOS 2000, San Jose, CA, January 22-28, 2000.
- Ultraviolet Fluorescence Mapping System for the Imaging of Tumors, A. Katz, H. E. Savage, F. Zeng, J. Rome, S. M. McCormick, S. P. Schantz, R. R. Alfano, #3917-23, BiOS 2000, San Jose, CA, January 22-28, 2000.

- Preparation of Submicron and Micron Size Cr(IV) Optical Composites, Leslie L. Isaacs, R. R. Alfano, V. Petricevic, B. P. Wang, J. Ying, F6.6, MRS Fall Meeting, Boston, MA, Nov 29 – Dec 3, 1999.
- Time-Resolved Optical Imaging of Jet Sprays and Phantoms in Turbid Media, P. A. Galland, X. Liang, L. Wang, P. P. Ho, R. R. Alfano, TuXX71, 1999 OSA Annual Meeting & Exhibit: Optics in High-Tech Industries, Santa Clara, CA, Sept. 26-30, 1999.
- Continuous Wave and Frequency-Domain Optical Spectroscopy of Brain Perfusion: A Cross-Correlation Animal Study, M. R. Stankovic, G. Zhang, A. Katz, R. R. Alfano, W. Rosenfeld, D. Maulik, P. Stubblefield, WS5, 1999 OSA Annual Meeting & Exhibit: Optics in High-Tech Industries, Santa Clara, CA, Sept. 26-30, 1999.
- Femtosecond Laser Pulses: Principles and Experiments, R. R. Alfano, edited by Claude Ruillere, Springer Verlag, New York 1998; Physics Today pp56, 1999.
- Two-Photon Tomography, Feng Liu, QFB1 (invited), CLEO/QELS '99, Baltimore, May 23 – 28, 1999.
- Time-sliced and Spectroscopic Correlated Two-dimensional Near-infrared Imaging for Cancer Detection, S. K. Gayen, M. E. Zavallos, R. R. Alfano, CFL4, CLEO/QELS '99, Baltimore, May 23 – 28, 1999.
- Role of Intra-, Inter-molecular, and Resonance Decay Pathways in Nonradiative Processes taking Place in Impurity-doped Laser Crystals, Dana M. Calistru, QThM6 (invited) CLEO/QELS '99, Baltimore, May 23-28, 1999.
- Continuous Wave and Frequency Domain Brain Perfusion Measurements: A Cross-Correlation Animal Study, M. R. Stankovic, G. Zhang, A. Katz, W. Rosenfeld, P. G. Stubblefield, D. Maulik, R. R. Alfano, OSA Annual Meeting, Santa Clara, CA, 9/26/99 – 10/1/99.
- Time-resolved Transillumination Imaging of Normal and Cancerous Human Breast Tissues with a Picosecond Electronic Time Gate, S. K. Gayen, R. R. Alfano, Manuel E. Zavallos, BC32 7, Bull. of APS 44, 117, APS 1999 Centennial Meeting, Atlanta, GA, March 20-26, 1999.
- Development of Cr⁴⁺ Doped Tunable Solid State Laser Materials, L. L. Isaacs, R. R. Alfano, A. B. Bykov, V. Petricevic, B. Wang, D. Yao, ZC29 3, Bull. of APS 44, 1932, APS 1999 Centennial Meeting, Atlanta, GA, March 20-26, 1999.
- Time-Resolved Fluorescence Spectroscopy and Imaging in Tissues, Program Chair, 3600, SPIE BiOS '99, San Jose, CA, January 23-29, 1999.
- Time-resolved Fluorescence Polarization dynamics of Fluorescein Dye attached to Different Molecular Weight Chains and their Images in Turbid Media, W. B. Wang, J. Ali, R. B. Dorshow, R. R. Alfano, 3600-51, SPIE BiOS '99, San Jose, CA, January 23 – 29, 1999.
- High-speed Grating-generated Electronic Coherence Microscopy of Biological Tissue, A. Gilerson, I. Zeylikovich, R. R. Alfano, 3598-43, SPIE BiOS '99, San Jose, CA, January 23-29, 1999.
- Changes of Proteins and the Degree of Invasion in Malignant Breast Tissue revealed by Excitation Spectroscopy, Y. Yang, E. J. Celmer, J. Koutcher, R. R. Alfano, #3597-86, SPIE BiOS '99, San Jose, CA, January 23-29, 1999.
- Near-infrared Spectroscopic and Time-sliced Imaging of Human Breast Tissues, S. K. Gayen, M. E. Zavallos, B. B. Das, R. R. Alfano, 3597-84, SPIE BiOS '99, #3597-84, San Jose, CA, January 23-29, 1999.
- Subsurface Tumor Progression investigated by Noninvasive Optical Second Harmonic Tomography, Y. Guo, H. E. Savage, F. Liu, S. P. Schantz, P. Ho, R. R. Alfano, 3597-77, SPIE BiOS '99, San Jose, CA, January 23-29, 1999.
- Investigation of Barrett's Esophagus by Ultraviolet and Visible Fluorescence Emission and Excitation Spectroscopy, A. Katz, H. E. Savage, P. Basuk, N. Altorki, T. Godwin, R. R. Alfano, 3597-61, SPIE BiOS '99, San Jose, CA, January 23-29, 1999.
- Accurate Analytical Solution of Photon Transport Equation in Infinite Uniform Turbid Medium, W. Cai, M. Lax, R. R. Alfano, 3597-05, SPIE BiOS '99, San Jose, CA, January 23-29, 1999.
- Time-sliced 3D Inverse Image Reconstruction of Objects in Highly Scattering Media, M. Xu, S. K. Gayen, W. Cai, M. E. Zavallos, M. Lax, R. R. Alfano, 3597-02, SPIE BiOS '99, San Jose, CA, January 23-29, 1999.
- Introduction to the Photon Migration Conference, R. R. Alfano, Britton Chance, Bruce Tromberg, #3597, SPIE BiOS '99, San Jose, CA, January 23-29, 1999.
- Temporal Polarization Dynamics and Imaging of Fluorescein attached to Different Molecular Weight Chains, W. B. Wang, J. Ali, R. R. Alfano, R. B. Dorshow, MBB2, 1998 OSA Annual Meeting & Exhibit, Baltimore, MD, October 4-9, 1998.
- Real-time Fluorescence Ratio Mapping of Tissue, Fanan Zeng, J. Rome, A. Katz, R. R. Alfano, MBB4, 1998 OSA Annual Meeting & Exhibit, Baltimore, MD, October 4-9, 1998.

- Linear and Nonlinear Optical Biopsy and Imaging, R. R. Alfano, (Invited) Tu11, 1998 OSA Annual Meeting & Exhibit, Baltimore, MD, October 4-9, 1998.
- Subsurface Spectral Polarization Imaging using NIR Laser Illumination, S. G. Demos, R. R. Alfano, H. B. Radousky, TuZ2, 1998 OSA Annual Meeting & Exhibit, Baltimore, MD, October 4-9, 1998.
- Spatial Distribution of Two-photon excited Fluorescence in Scattering Media, Jinpin Ying, Feng Liu, R. R. Alfano, WM4, 1998 OSA Annual Meeting & Exhibit, Baltimore, MD, October 4-9, 1998.
- Time-sliced and Spectroscopic Near-infrared Imaging of Normal and Cancerous Human Breast Tissues, S. K. Gayen, M. E. Zavallos, R. R. Alfano, WM5, 1998 OSA Annual Meeting & Exhibit, Baltimore, MD, October 4-9, 1998.
- Imaging of Bones inside Tissues using Picosecond Electronic Time-gating, M. E. Zavallos, S. K. Gayen, B. B. Das, R. R. Alfano, WM6, 1998 OSA Annual Meeting & Exhibit, Baltimore, MD, October 4-9, 1998.
- Optical Second-harmonic Tomography of Subsurface Tumor Evaluation, Y. Guo, H. E. Savage, F. Liu, S. P. Schantz, P. P. Ho, R. R. Alfano, WM7, 1998 OSA Annual Meeting & Exhibit, Baltimore, MD, October 4-9, 1998.
- Role of Intra-, Inter-molecular and Resonance Decay Pathways in Nonradiative Processes taking Place in Impurity-doped Laser Crystals, Dana M. Calistru, S. G. Demos, R. R. Alfano, WDD15, 1998 OSA Annual Meeting & Exhibit, Baltimore, MD, October 4-9, 1998.
- Low-threshold, Fiber-laser-pumped, CW Operation of Cunyite ($\text{Cr}^{4+}:\text{Ca}_2\text{GeO}_4$) Laser, B. Xu, J. M. Evans, V. Petricevic, A. B. Bykov, R. R. Alfano, WDD33, 1998 OSA Annual Meeting & Exhibit, Baltimore, MD, October 4-9, 1998.
- Coherence Grating-generated Tomography with Novel Axial Scanning Line, I. Zeylikovich, A. Gilerson, R. R. Alfano, WOO7, 1998 OSA Annual Meeting & Exhibit, Baltimore, MD, October 4-9, 1998.
- Growth and Spectroscopic Characteristics of Cr^{4+} -doped Olivine Laser Crystals, V. Petricevic, A. Bykov, R. R. Alfano, ThH8, OSA Annual Meeting & Exhibit, Baltimore, MD, October 4-9, 1998.
- InGaAsP/InP Multiple Quantum Well Solar Cell Structures, O. Raisky, W. B. Wang, R. R. Alfano, C. L. Reynolds, ThPP20, 1998 OSA Annual Meeting & Exhibit, Baltimore, MD, October 4-9, 1998.
- Femtosecond Time-resolved Nonlinear Optical Processes in PbO-BiO-GaO Glasses, T. Qiu, A. B. Bykov, P. P. Ho, R. R. Alfano, ThPP34, 1998 OSA Annual Meeting & Exhibit, Baltimore, MD, October 4-9, 1998.
- Three-dimensional Inverse Image Reconstruction using Picosecond Time-sliced Two-dimensional Near-Infrared Transmission Measurements, W. Cai, S. K. Gayen, M. Xu, M. Zavallos, M. Lax, R. R. Alfano, ThUU6, 1998 OSA Annual Meeting & Exhibit, Baltimore, MD, October 4-9, 1998.
- Supercontinuum Generation using 1.25 Micrometer Femtosecond Seed Pulses, J. Evans, V. Petricevic, R. R. Alfano, Q. Fu, ThZZ6, 1998 OSA Annual Meeting & Exhibit, Baltimore, MD, October 4-9, 1998.
- Detection of Barrett's Esophagus by Ultraviolet and Visible Fluorescence Emission and Excitation Spectroscopy, A. Katz, Howard E. Savage, Paul Basuk, Nasser Altorki, Tom Godwin, R. R. Alfano, FK2, 1998 OSA Annual Meeting & Exhibit, Baltimore, MD, October 4-9, 1998.
- Femtosecond Cr:forsterite Regenerative Amplifier System, Jonathan Evans, V. Petricevic, R. R. Alfano, FV2, 1998 OSA Annual Meeting & Exhibit, Baltimore, MD, October 4-9, 1998.
- Subsurface Tumor Evaluation using Noninvasive Optical Second Harmonic Imaging, F. Liu, Y. Guo, R. R. Alfano, H. E. Savage, S. P. Schantz, HN77, American Head and Neck Society's Fifth Research Workshop on the Biology, Prevention and Treatment of Head and Neck Cancer, McLean, VA, August 27-30, 1998.
- Advances in Cr^{4+} -Doped Tunable Solid State Lasers, V. Petricevic (Invited), A. B. Bykov, J. M. Evans, R. R. Alfano, ICAPT98T02, The 1998 International Conference on Applications of Photonic Technology, Ottawa, Canada, July 27-30, 1998.
- Optical Spectroscopy of Tm^{3+} in Organic Matrices for Hole-burning Storage Applications, A. V. Turukhin, A. V. Carpenter, A. A. Gorokhovskiy, R. R. Alfano, T.-Y. Chu, Y. Okamoto, Advanced Optical Memories, SPIE 3468, September 1998.
- Optical Imaging and Optical Biopsy of Tissues, R. R. Alfano, Human Tissues in Research - Issues and Opportunities, Bio'98, 80, New York, NY, June 14-18, 1998.
- Fundamental Differences between Malignant and Benign Breast Tissues revealed in the Excitation Spectra: An Optical Biopsy Approach, Y. Yang, R. R. Alfano, Frontiers in Human Tissue Research: Moving into the 21st Century, NDRI Poster Abstract, Philadelphia, PA., April 15, 1998.
- Time-resolved and Spectroscopic Near-infrared Transillumination Imaging of Human Breast Tissues, S. K. Gayen, M. E. Zavallos, R. R. Alfano, Frontiers in Human Tissue Research: Moving into the 21st Century, NDRI Poster Abstract, Philadelphia, PA, April 15, 1998.

- Time-sliced Transillumination Imaging of Normal and Cancerous Breast Tissues, S. K. Gayen, M. E. Zevallos, B. B. Das, R. R. Alfano, ATuB5, AOIPM, OSA Meeting, Orlando, FL, March 8-11, 1998.
- Time-resolved Optical Backscattering in Highly Scattering Media, W. Cai, B. Luo, M. Lax, R. R. Alfano, AWB4, AOIPM, OSA Meeting, Orlando, FL, March 8-11, 1998.
- Nonlinear Optical Histological Spectroscopy of Tissues, Yici Guo, Feng Liu, Q. Z. Wang, N. Zhadin, P. P. Ho, R. R. Alfano, AWC4, AOIPM, OSA Meeting, Orlando, FL, March 8-11, 1998.
- Enhancement of Contrast Agent Images using Spectral Fluorescence Difference, W. B. Wang, S. G. Demos, J. Ali, G. Zhang, R. R. Alfano, BMB5, BiOSD, OSA Meeting, Orlando, FL, March 8-11, 1998.
- Excitation Spectroscopy of Proteins in Malignant and Benign Tissues, Y. Yang, A. Katz, R. R. Alfano, E. J. Celmer, M. Zurawska-Szczepaniak, H. E. Savage, S. Schantz, BTuA3, BiOSD, OSA Meeting, Orlando, FL, March 8-11, 1998.
- Optic Fiber Needle Based Ratiometer for Tumor Targeting, G. C. Tang, A. Katz, Y. Budansky, R. R. Alfano, BTuC6, BiOSD, OSA Meeting, Orlando, FL, March 8-11, 1998.
- Real-time Native Fluorescence Ratio Mapping System for Tissue, A. Katz, J. Rome, F. Zeng, G. C. Tang, H. E. Savage, J. Koutcher, S. P. Schantz, R. R. Alfano, #3250-12, BiOS '98, SPIE Photonics West, San Jose, CA, January 23-30, 1998.
- Optical Fluorescence and Raman Biopsy of Squamous Cell Carcinoma from the Head and Neck, Y. Yang, C. H. Liu, H. E. Savage, S. P. Schantz, R. R. Alfano, #3250-14, BiOS '98, SPIE Photonics West, San Jose, CA, January 23-30, 1998.
- Far-red and NIR Emission from Tissues under Photo Excitation, G. Zhang, S. G. Demos, R. R. Alfano, #3250-15, BiOS '98, SPIE Photonics West, San Jose, CA, January 23-30, 1998.
- Three-exposure Interferometric Histological Image Reconstruction of Biological Tissue, I. Zeylikovich, R. R. Alfano, #3250-29, BiOS '98, SPIE Photonics West, San Jose, CA, January 23-30, 1998.
- Novel Grating-generated Heterodyne Interferometric Tomography of Tissue, I. Zeylikovich, R. R. Alfano, #3250-30, BiOS '98, SPIE Photonics West, San Jose, CA, January 23-30, 1998.
- Second Harmonic and Two-photon Fluorescence Nonlinear Optical Histology of Tissues, Y. Guo, F. Liu, N. N. Zhadin, P. Ho, H. E. Savage, D. Harris, P. G. Sacks, S. P. Schantz, R. R. Alfano, #3250-33, BiOS '98, SPIE Photonics West, San Jose, CA, January 23-30, 1998.
- Picosecond Dynamics of Low-density Excitons in GaAs Quantum Wells, K. Shum, R. R. Alfano, H. Morkoc, #3277-18, Ultrafast Phenomena in Semiconductors II, SPIE Photonics West, San Jose, CA, January 23-30, 1998.
- Fluorescence Optic Fiber Stereotactic Needle Ratiometer for Breast Tumor Diagnosis, G. C. Tang, A. Katz, Y. Budansky, R. Krumm, R. R. Alfano, DoD Breast Cancer Research Program Meeting, Washington, DC, October 31 - November 4, 1997.
- 3-D Stereolithography of Dense Ceramic Dispersions: Photocuring and Photon Diffusion in Dense Dispersions, R. Garg, R. K. Prud'homme, I. A. Aksay, F. Liu, R. R. Alfano, ACS Colloids Meeting, Wilmington, DE, June 1997.
- Pulsed Laser Operation of $\text{Cr}^{4+}:\text{LiScGeO}_4$ at 1.3 μm , V. Petricevic, A. B. Bykov, J. M. Evans, A. Seas, A. Delgado, R. R. Alfano, G. V. Kanunnikov, CTuE7, CLEO '97, Baltimore, MD, May 18-23, 1997.
- Time-resolved Pulse Propagation in Tissue Tubular Structures, M. E. Zevallos, F. Liu, R. R. Alfano, CTuP55, CLEO '97, Baltimore, MD, May 18-23, 1997.
- Near-infrared Transillumination Imaging with Use of a Chromium-doped Forsterite Laser, S. K. Gayen, L. Wang, M. Zevallos, R. R. Alfano, CTuP58, CLEO '97, Baltimore, MD, May 18-23, 1997.
- Theory of Snake Photons in Highly Forward Scattering Media, A. Ya. Polishchuk, R. R. Alfano, CTuP59, CLEO '97, Baltimore, MD, May 18-23, 1997.
- Temporal and Polarization Behavior of Far-red Emission in Tissues, G. Zhang, S. G. Demos, R. R. Alfano, CWP4, CLEO '97, Baltimore, MD, May 18-23, 1997.
- Room Temperature cw and Pulsed Near-infrared Tunable Laser Operation of $\text{Cr}^{4+}:\text{Ca}_2\text{GeO}_4$, V. Petricevic, A. B. Bykov, J. M. Evans, A. Seas, R. R. Alfano, CThT2, CLEO '97, Baltimore, MD, May 18-23, 1997.
- Advances in Cr^{4+} -doped Tunable Solid-state Laser Materials, V. Petricevic, A. B. Bykov, A. Seas, R. R. Alfano, Di Yao, L. Isaacs, G. V. Kanunnikov, CFH1, CLEO '97, Baltimore, MD, May 18-23, 1997.
- Role of Electron-phonon Interaction in Improved Laser Performance of the $\text{Cr}^{4+}:\text{Ca}_2\text{GeO}_4$ Laser Crystal, S. Owen, D. M. Calistru, S. G. Demos, A. B. Bykov, V. Petricevic, R. R. Alfano, CFH2, CLEO '97, Baltimore, MD, May 18-23, 1997.

- Second Harmonic Tomography for Highly Scattering Tissues, R. R. Alfano, Y. Guo, F. Liu, P. P. Ho, N. Zhadin, H. Savage, D. Harris, P. Sacks, S. Schantz, CPD1, CLEO '97, Baltimore, MD, May 18-23, 1997.
- Raman Spectra of Biomedical Samples using Optical Fiber Probes, G. Zhang, S. G. Demos, R. R. Alfano, #2976-02, BiOS '97, San Jose, CA, February 8-14, 1997.
- Ultrafast Correlation Interferometric Imaging through Turbulent Medium, Iosif Zeylikovich, R. R. Alfano, #2979-03, BiOS '97, San Jose, CA, February 8-14, 1997.
- Differential Spectral Polarization Imaging, S. G. Demos, R. R. Alfano, #2979-04, BiOS '97, San Jose, CA, February 8-14, 1997.
- Time-gated Images of Calcification Regions in Turbid Media, R. R. Alfano, P. P. Ho, X. Liang, P. Galland, L. Wang, #2979-13, BiOS '97, San Jose, CA, February 8-14, 1997.
- 3D-Imaging Reconstruction in Highly Scattering Turbid Media, W. Cai, B. B. Das, F. Liu, FanAn Zeng, M. Lax, R. R. Alfano, #2979-33, BiOS '97, San Jose, CA, February 8-14, 1997.
- Short-scale Nondiffusive features of Photon Migration in Turbid Media: the most Probable and Average Photon Paths, A. Y. Polishchuk, J. J. Dolne, F. Liu, R. R. Alfano, #2979-77, BiOS '97, San Jose, CA, February 8-14, 1997.
- Biochemical Distinctions between Normal and Cancerous Human Breast Tissues obtained from the True Fluorescence Emission and Excitation Spectra, N. Zhadin, Y. Yang, N. Ockman, R. R. Alfano, #2979-84, BiOS '97, San Jose, CA, February 8-14, 1997.
- Native Cellular Fluorescence Characteristics of Normal and Malignant Epithelial Cells from Human Larynx, D. Parmeswaran, S. Ganesan, R. Nalini, P. Aruna, V. Veeraganesh, R. R. Alfano, #2979-113, BiOS '97, San Jose, CA, February 8-14, 1997.
- Role of Local-phonon mode coupling in the Nonradiative Relaxation for Designing more Efficient Imputiry-doped Solid-state Laser Crystals, D. M. Calistru, S. G. Demos, V. Petricevic, S. Owen, R. R. Alfano, WG-5, Advanced Solid-State Lasers Twelfth Topical Meeting, Technical Digest 378, Orlando, FL, January 27-29, 1997.
- Fluorescence and Raman Spectroscopy for Tissue Diagnosis and Characterization, R. R. Alfano, A. Katz, Analytical Use of Fluorescent Probes in Oncology, ed. E. Kohen and J. G. Hirschberg, pp. 81, Plenum Press 1996.
- Temperature Dependence of Photoluminescence and Photocurrent in InGaAsP/InP MQW p-i-n Heterostructures, O. Y. Raisky, W. B. Wang, R. R. Alfano, C. L. Reynolds, Jr., V. Swaminathan, MT6, 1996 OSA Annual Meeting/ILS-XII/Optics & Imaging in the Information Age, pp.79, Rochester, NY, Oct. 20-24, 1996.
- Spectral Image using Acousto-Optic Tunable Filter, G. C. Tang, J. T. Chen, A. Katz, R. R. Alfano, MU2, 1996 OSA Annual Meeting/ILS-XII/Optics & Imaging in the Information Age, pp. 79, October 20-24, 1996.
- Degenerate Cross-phase Modulation between Two Circularly Polarized Laser Light Pulses traveling into a Nonbirefringent Single-mode Optical Fiber, Q. D. Liu, W. L. Sha, P. P. Ho, R. R. Alfano, MDD4, 1996 OSA Annual Meeting/ILS-XII/Optics & Imaging in the Information Age, pp. 83, October 20-24, 1996.
- Spectral Cross-phase Modulation for Laser Light Pulses in Different Fibers Modes in a Multi-mode Optical Fiber, Q. D. Liu, P. P. Ho, R. R. Alfano, MDD5, 1996 OSA Annual Meeting/ILS-XII/Optics & Imaging in the Information Age, pp. 83, October 20-24, 1996.
- Advances in Optical Biopsy Diagnostic Instrumentation, A. Katz, R. R. Alfano, G. C. Tang, Y. Yang, E. J. Celmer, M. Zurawska-Szczepaniak, H. E. Savage, S. P. Schantz, TuE1 (invited), 1996 OSA Annual Meeting/ILS-XII/Optics & Imaging in the Information Age, pp. 102, October 20-24, 1996.
- Photon Migration in Highly Concentrated and Highly Absorbing Ceramic Scattering Suspensions, Feng Liu, R. R. Alfano, R. Garg, R. K. Prud'homme, I. A. Aksay, TuM5, 1996 OSA Annual Meeting/ILS-XII/Optics & Imaging in the Information Age, pp. 107, October 20-24, 1996.
- Correction of Fluorescence Spectra from Highly Scattering Media for Internal Absorption Effect, using Diffuse Reflectance Spectra, N. N. Zhadin, R. R. Alfano, TuAA2, 1996 OSA Annual Meeting/ILS-XII/Optics & Imaging in the Information Age, pp. 114, October 20-24, 1996.
- A Fast Flexible Diffusion Tomography Algorithm for Imaging Highly Scattering Random Media, Fanan Zheng, G. Zhang, Feng Liu, R. R. Alfano, TuQQ3 (Highlighted Poster), 1996 OSA Annual Meeting/ILS-XII/Optics & Imaging in the Information Age, pp. 124, October 20-24, 1996.
- Advances in Mediphotonic Imaging and Biopsy, R. R. Alfano, WAA2 (invited), 1996 OSA Annual Meeting/ILS-XII/Optics & Imaging in the Information Age, pp. 145, October 20-24, 1996.

- Optical Polarization Imaging in Human Tissue, S. G. Demos, R. R. Alfano, WAA4, 1996 OSA Annual Meeting/ILS-XII/Optics & Imaging in the Information Age, pp. 146, October 20-24, 1996.
- Kilohertz Cr:forsterite Regenerative Amplifier, J. M. Evans, V. Petricevic, A. Delgado, R. R. Alfano, Qiang Fu, WFF2, 1996 Annual Meeting/ILS-XII/Optics & Imaging in the Information Age, pp. 147, October 20-24, 1996.
- Polarization Stabilities of Linearly and Circularly Polarized Light Pulses Propagating in Nonbirefringent Single-mode Optical Fibers, Q. D. Liu, J. Quresh, P. P. Ho, R. R. Alfano, WLL7, 1996 OSA Annual Meeting/ILS-XII/Optics & Imaging in the Information Age, pp. 157, October 20-24, 1996.
- Growth and Spectroscopy of Cr⁴⁺:Ca₂GeO₄ Laser Crystal Tunable in the 1.35-1.48- μ m Near-Infrared Spectral Range, V. Petricevic, A. B. Bykov, R. R. Alfano, J. Steiner, Di Yao, L. Isaacs, ThD6, 1996 OSA Annual Meeting/ILS-XII/Optics & Imaging in the Information Age, pp. 163, October 20-24, 1996.
- Room Temperature Near-infrared Tunable Laser Operation of Cr⁴⁺:Ca₂GeO₄, V. Petricevic, A. B. Bykov, J. M. Evans, R. R. Alfano, ThD7, 1996 OSA Annual Meeting/ILS-XII/Optics & Imaging in the Information Age, pp. 163, October 20-24, 1996.
- Ultrafast Dark-field Interferometric Microscopic Reflectometry, I. Zeylikovich, R. R. Alfano, ThE5, 1996 OSA Annual Meeting/ILS-XII/Optics & Imaging in the Information Age, pp. 164, October 20-24, 1996.
- Intensity-dependent Polarization Twisting of Linearly Polarized Picosecond and Femtosecond Laser Pulses Propagating in Nonbirefringent Single-mode Optical Fibers, Q. D. Liu, Y. X. Shan, P. P. Ho, R. R. Alfano, ThW6, 1996 OSA Annual Meeting/ILS-XII/Optics & Imaging in the Information Age, pp. 172, October 20-24, 1996.
- Femtosecond Laser Pulse Broadening and Time Modulation in Near-field Scanning Optical Microscopy probe Tip Fiber, W. B. Wang, O. Raisky, Y. X. Shan, Feng Liu, R. R. Alfano, ThGG5, 1996 OSA Annual Meeting/ILS-XII/Optics & Imaging in the Information Age, pp. 177, October 20-24, 1996.
- Polarization Temporal Gating of Light Propagating in Highly Scattering Medium, S. G. Demos, J. Ullman, E. J. Celmer, M. Zurawska-Szczepaniak, R. R. Alfano, WB5-1, Ultrafast Phenomena 1996 Technical Digest 8, P. 178, San Diego, CA, May 28 - June 1, 1996.
- Temporal Polarization Preservation in Human Breast Tissue - a Method for Optical Imaging, S. G. Demos, H. Savage, A. S. Heerdt, S. Schantz, R. R. Alfano, 5.6, ALT'96 International Conference on Laser Methods for Biological and Environmental Applications, Heraklion, Crete, Greece, May 20-24, 1996.
- Polarization Preservation Gate - A Tool for Optical Mammography, S. G. Demos, H. Savage, A. S. Heerdt, S. Schantz, R. R. Alfano, CMD2, CLEO '96 Technical Digest 9, p. 20, Anaheim, CA, June 2-7, 1996.
- Kilohertz Cr:forsterite Regenerative Amplifier, J. M. Evans, V. Petricevic, A. Delgado, R. R. Alfano, Qiang Fu, CTuL4, CLEO '96 Technical Digest 9, p. 127, Anaheim, CA, June 2-7, 1996.
- Competition between Two Lasing Modes of Sulforhodamine 640 in Scattering Suspension Media, W. L. Sha, C.-H. Liu, R. R. Alfano, CThG3, CLEO '96 Technical Digest 9, p. 373, Anaheim, CA, June 2-7, 1996.
- Phonon Participation in Ultrafast Nonradiative Processes in Cr:Mg₂SiO₄ Laser Crystal, S. G. Demos, D. M. Calistru, R. R. Alfano, QTuB5, QELS '96 Technical Digest 10, p. 50, Anaheim, CA, June 2-7, 1996.
- Nonequilibrium Vibronic States of Cr Ions in Mg₂GeO₄ studied by Upconverted Hot Luminescence Laser Spectroscopy, B. Y. Han, S. G. Demos, V. Petricevic, R. R. Alfano, QTuB25, QELS '96 Technical Digest 10, p. 64, Anaheim, CA, June 2-7, 1996.
- Ultrafast "Fermat" Photons Migration in Turbid Media: The Least Mean Square Curvature of the Most Favorable Paths, A. Ya. Polishchuk, J. Dolne, F. Liu, R. R. Alfano, QWA6, QELS '96 Technical Digest 10, p. 100, Anaheim, CA, June 2-7, 1996.
- Plenary Session, R. R. Alfano, AMA, Technical Digest 1996, p.v, OSA Advances in Optical Imaging and Photon Migration Conference, Orlando, FL, March 18-20, 1996.
- Time-Resolved Polarized Shadowgrams of Turbid Media, X. Liang, L. Wang, P. P. Ho, R. R. Alfano, AMD2, Technical Digest 1996, p. 35, OSA Advances in Optical Imaging and Photon Migration Conference, Orlando, FL, March 18-20, 1996.
- Time-Resolved Diffusion Tomographic Image Reconstruction in Turbid Media, W. Cai, B. B. Das, F. Liu, M. Lax, R. R. Alfano, ATuA3, Technical Digest 1996, p. 140, OSA Advances in Optical Imaging and Photon Migration Conference, Orlando, FL, March 18-20, 1996.
- Photoacoustic Imaging of Objects Hidden in Random Scattering Media, S. K. Gayen, R. R. Alfano, C. M. Penney, ATuB2, Technical Digest 1996, p. 163, OSA Advances in Optical Imaging and Photon Migration Conference, Orlando, FL, March 18-20, 1996.

- Fermat Photons: Paths Propagation and Imaging in Turbid Media, A. Ya. Polishchuk, Jean Dolne, Feng Liu, M. Zevallos, B. B. Das, R. R. Alfano, ATuD1, Technical Digest, p. 200, OSA Advances in Optical Imaging and Photon Migration Conference, Orlando, FL, March 18-20, 1996.
- Angular Dependence of the Intensity Temporal Profiles of Scattered Pulses in Diffusive Regime, M. E. Zevallos, F. Liu, B. B. Das, A. Ya. Polishchuk, R. R. Alfano, ATuD3, Technical Digest, p. 206, OSA Advances in Optical Imaging and Photon Migration Conference, Orlando, FL, March 18-20, 1996.
- Sensitivity of Boundary Walls on Photon Migration and Optical Imaging, B. B. Das, Feng Liu, R. R. Alfano, AWB5, Technical Digest, p. 248, OSA Advances in Optical Imaging and Photon Migration Conference, Orlando, FL, March 18-20, 1996.
- Polarization Imaging and Characterization of Human Breast Tissue, S. G. Demos, R. R. Alfano, H. Savage, A. Heerdt, S. Schantz, AWC1, Technical Digest, p. 252, OSA Advances in Optical Imaging and Photon Migration Conference, Orlando, FL, March 18-20, 1996.
- Measurements of Key Optical Parameters of Normal and Malignant Human Breast Tissues, Feng Liu, Y. X. Shan, R. R. Alfano, H. Savage, A. S. Heerdt, S. Schantz, E. Celmer, AWE4, Technical Digest, p. 280, OSA Advances in Optical Imaging and Photon Migration Conference, Orlando, FL, March 18-20, 1996.
- Fourier Diagnostic Analysis of Fluorescence Spectra from Normal and Malignant Breast Tissues, A. Katz, Y. Yang, E. J. Celmer, M. Zurawska-Szczepaniak, R. R. Alfano, BThA13-1, Technical Digest, p. 87, OSA Biomedical Optical Spectroscopy and Diagnostics Conference, Orlando, FL, March 20-22, 1996.
- Differentiation of Cholesteatoma and other Ear Epithelia using Intrinsic Cellular and Tissue Fluorescence, H. E. Savage, S. C. Parisier, M. S. Goldrich, J. C. Han, R. R. Alfano, S. P. Schantz, #2679-05, SPIE Conference on Advances in Laser Light Spectroscopy to Diagnose Cancer and Other Diseases III, San Jose, CA, January 29-30, 1996.
- Optical Spectroscopy of Breast Benign and Malignant Tissues, Y. Yang, E. J. Celmer, M. Zurawska-Szczepaniak, R. R. Alfano, #2679-09, SPIE Conference on Advances in Laser Light Spectroscopy to Diagnose Cancer and Other Diseases III, San Jose, CA, January 29-30, 1996.
- Tissue Autofluorescent Identification of in-vitro Epithelial Differentiation: A Potential Chemopreventive Biomarker, P. G. Sacks, H. E. Savage, J. Levine, V. Kolli, R. R. Alfano, S. P. Schantz, #2679-10, SPIE Conference on Advances in Laser Light Spectroscopy to Diagnose Cancer and Other Diseases III, San Jose, CA, January 29-30, 1996.
- Comparison of Phosphorescence and Fluorescence Spectra Emitted from Breast Tissues at Low Temperature, G. C. Tang, C. S. Tang, R. R. Alfano, #2679-19, SPIE Conference on Advances in Laser Light Spectroscopy to Diagnose Cancer and Other Diseases III, San Jose, CA, January 29-30, 1996.
- Optical Biopsy Fiber based on Fluorescence Instrumentation, A. Katz, S. Ganesan, H. E. Savage, S. P. Schantz, R. R. Alfano, #2679-22, SPIE Conference on Advances in Laser Light Spectroscopy to Diagnose Cancer and Other Diseases III, San Jose, CA, January 29-30, 1996.
- Enhancement of the Fluorescence Cancer Diagnostic Method of Tissues by the Analysis of their Oxygenation State, N. Zhadin, Y. Yang, S. Ganesan, N. Ockman, R. R. Alfano, #2679-25, SPIE Conference on Advances in Laser Light Spectroscopy to Diagnose Cancer and Other Diseases III, San Jose, CA, January 29-30, 1996.
- Influence of Keratin on Native Cellular Fluorescence of Human Skin, R. A. Davis, H. E. Savage, R. R. Alfano, S. P. Schantz, #2679-38, SPIE Conference on Advances in Laser Light Spectroscopy to Diagnose Cancer and Other Diseases III, San Jose, CA, January 29-30, 1996.
- Photonic Pathology: Fluorescence and Raman Spectroscopy for Tissue Diagnosis and Characterization, R. R. Alfano, A. Katz, NATO ASI SERIES VOLUME: Analytical Use of Fluorescent Probes in Oncology, Hollywood, FL, October 15-18, 1995.
- Ultrafast Retrieval of Femtosecond Photon Echo Signals, I. Zeylikovich, G. Bai, A. Gorokhovskiy, R. R. Alfano, MU5, OSA Annual Meeting & Exhibit, ILS-XI, 52, September 10-15, 1995, Portland, OR.
- Photon Density Waves beyond the Diffusive Approximation, A. Ya. Polishchuk, R. R. Alfano, WBB4, OSA Annual Meeting & Exhibit, ILS-XI, 109, Sept. 10-15, 1995, Portland, OR.
- Real-time Observation of Light Diffraction by Femtosecond Correlation Interferometry, I. Zeylikovich, G. Bai, R. R. Alfano, WHH6, OSA Annual Meeting & Exhibit, ILS-XI, 113, Sept. 10-15, 1995, Portland, OR.
- ""Fermat"" Photons in Turbid Media: Non-Euclidean Diffusion and Principle of the Least Mean-Square Curvature, A. Ya. Polishchuk, R. R. Alfano, ThA5, OSA Annual Meeting & Exhibit, ILS-XI, 134, Sept. 10-15, 1995, Portland, OR.

- Ultrafast Processes - Laser-Spectroscopic Clocks are providing New Insights, S. K. Gayen, V. P. Tomaselli, R. R. Alfano, Photonics Spectra, May 1995.
- Resonance Raman Scattering in Cr⁴⁺-doped Forsterite Laser Crystal, Dana M. Calistru, W. B. Wang, V. Petricevic, R. R. Alfano, QTul3, p. 95, CLEO/QELS '95, May 21 - 26, 1995, Baltimore, MD.
- Vector Characteristics of Femtosecond Laser Pulses Propagating in Single-mode Optical Fibers, Q. D. Liu, L. Shi, W. L. Sha, P. P. Ho, R. R. Alfano, QThD3, p. 127, CLEO/QELS '95, May 21 - 26, 1995, Baltimore, MD.
- Fermat Photon Migration in Turbid Media, A. Ya. Polishchuk, R. R. Alfano, CTh111, p. 128, CLEO/QELS '95, May 21-26, 1995, Baltimore, MD.
- Reconstruction of a Two-layered Random-scattering Medium by Fourier Transformation of Time-resolved Profiles, J. J. Dolne, A. Polishchuk, F. Liu, R. R. Alfano, CTh116, p. 128, CLEO/QELS '95, May 21-26, 1995, Baltimore, MD.
- Second-conduction-band Relaxation of a Photoexcited Hot Electron Distribution in GaP, Michael Cavicchia, R. R. Alfano, QThG30, p. 133, CLEO/QELS '95, May 21-26, 1995, Baltimore, MD.
- Molecular Dynamics, Robert R. Alfano, Presider, QFA, p. 143, CLEO/QELS '95, May 21-26, 1995, Baltimore, MD.
- Laser Action from Optically Pumped Dye-treated Tissues, Masood Siddique, Q. Z. Wang, R. R. Alfano, CFE7, p. 145, CLEO/QELS '95, May 21-26, 1995, Baltimore, MD.
- Spectroscopy of Dermal Wounds, Yuanlong Yang, Lee David Mitchell, R. R. Alfano, Paper 2387-19, BIOS/SPIE Symposium, February 4-10, 1995, San Jose, CA.
- Spectroscopic Properties of Tryptophan and Bacteria, G. C. Tang, Y.-L. Yang, Z.-Z. Huang, R. R. Alfano, #2387-26, BIOS/SPIE Symposium, February 4-10, 1995, San Jose, CA.
- Microscope Imaging of Objects hidden behind a Highly Scattering Media, F. Liu, Y. X. Shan, G. F. Anderson, R. R. Alfano, #2387-31, BIOS/SPIE Symposium, February 4-10, 1995, San Jose, CA.
- Raman Spectroscopy as a Molecular Diagnostic Tool for Tissues, R. R. Alfano, C.-H. Liu, W. L. Glassman, G. Tang, H. E. Savage, S. P. Schantz, S. Lubicz, E. Celmer, #2388A-16. BIOS/SPIE Symposium, February 4-10, 1995, San Jose, CA.
- Time-resolved Imaging of Translucent Droplets in Highly Scattering Turbid Media, R. R. Alfano, X. Liang, L. Wang, P.-P. Ho, #2389-01, BIOS/SPIE Symposium, February 4-10, 1995, San Jose, CA.
- Fermat Photons in Turbid Media for Optical Tomography Applications, A. Y. Polishchuk, R. R. Alfano, #2389-02, BIOS/SPIE Symposium, February 4-10, 1995, San Jose, CA.
- Recognition of an Opaque Phantom in a Diffusive Medium from Time-resolved Data using Tomographical Image Reconstruction, B. B. Das, J. J. Dolne, R. L. Barbour, H. L. Graber, J. Chang, F. Liu, R. R. Alfano, #2389-04, BIOS/SPIE Symposium, February 4-10, 1995, San Jose, CA.
- Detection of a Thin Scattering Layer Object inside a Slab of Highly Scattering Medium, J. J. Dolne, M. V. Klibanov, S. Gutman, F. Liu, R. R. Alfano, #2389-07, BIOS/SPIE Symposium, February 4-10, 1995, San Jose, CA.
- Symposium on Advanced Optical Techniques for Medical Diagnostics: Imaging, R. R. Alfano, MZ, Chair, OSA Annual Meeting, Oct. 2-7, 1994, Dallas, TX.
- Time-resolved NIR Study of Pulse Propagation and Imaging in Tissues for Optical Mammography, Feng Liu, B. B. Das, R. R. Alfano, MZ3, Invited Talk, OSA Annual Meeting, Oct. 2-7, 1994, Dallas, TX.
- Effects of Fourier Spatial Filter on the Temporal Profiles of Ultrashort Laser Pulses Propagated through a Turbid Medium, Q. Z. Wang, X. Liang, L. Wang, P. P. Ho, R. R. Alfano, MZ4, OSA Annual Meeting, Oct. 2-7, 1994, Dallas, TX.
- Microscopic Imaging of Objects hidden inside Highly-Scattering-Media, G. E. Anderson, Feng Liu, R. R. Alfano, MPP3, OSA Annual Meeting, Oct. 2-7, 1994, Dallas, TX.
- Native Tissue Fluorescence in Normal, Preneoplastic, and Neoplastic Tissue of the Aerodigestive Mucosa, H. E. Savage, V. Kolli, R. Chandawarkar, J. Zhang, J. F. Ansley, R. R. Alfano, TuG2, Invited Talk, OSA Annual Meeting, Oct. 2-7, 1994, Dallas, TX.
- Medical Application of Spectroscopies in Gynecology and Obstetrics, W. Glassman, C.-H. Liu, R. Garfield, M. Bryan-Smith, R. R. Alfano, TuX1, Invited Talk, OSA Annual Meeting, Oct. 2-7, 1994, Dallas, TX.
- Ultrafast Temporal Behavior of Laser Action of Dyes in Sandlike Powders, M. Siddique, Q. Z. Wang, C. H. Liu, R. R. Alfano, WH5, OSA Annual Meeting, Oct. 2-7, 1994, Dallas, TX.
- Laser Action of Rh640 in Scattering Particle-Suspension Media, W. L. Sha, C. H. Liu, R. R. Alfano, WH6, OSA Annual Meeting, Oct. 2-7, 1994, Dallas, TX.

- Time-Resolved Measurements of C₆₀ and C₇₀-Toluene Solutions, Lina Yang, R. Dorsinville, Q. Z. Wang, R. R. Alfano, WII7, OSA Annual Meeting, Oct. 2-7, 1994, Dallas, TX.
- Multiple Scattered Light in Random Media in the Presence of Metallic Particles, Margarita Mihailidi, Q. Z. Wang, R. R. Alfano, WMM6, OSA Annual Meeting, Oct. 2-7, 1994, Dallas, TX.
- Photoluminescence, Fluorescence Line-narrowing, and Spectral Hole-burning Studies of Si Center in CVD Diamonds, A. A. Gorokhovskiy, A. Turukhin, R. R. Alfano, W. Phillips, ThBBB5, OSA Annual Meeting, Oct. 2-7, 1994, Dallas, TX.
- Waveguide Multiplexer Signal Encoding for Ultrafast XPM A/D Converter, Q. Z. Wang, Q. Liu, D. Liu, P. P. Ho, E. Walge, R. R. Alfano, ThDDD5, OSA Annual Meeting, Oct. 2-7, 1994, Dallas, TX.
- Temporal Nonlinear Optical Responses of C₆₀- and C₇₀-Toluene Solutions, R. Dorsinville, Lina Yang, R. R. Alfano, FS5, OSA Annual Meeting, Oct. 2-7, 1994, Dallas, TX.
- Advances in Cr⁴⁺-Doped Tunable Solid-State Lasers, Li Yang, V. Petricevic, R. R. Alfano, in Novel Laser Sources and Applications, pp. 103-115, ed. J. F. Becker, A. C. Tam, J. B. Gruber, L. Lam, SPIE Proceedings of Workshop, Nov. 12-13, 1993, San Jose, CA.
- Optical Snake Imaging, R. R. Alfano, P. P. Ho, Session F1, 1994 IEEE Dual-Use Technologies & Applications Conference, SUNY, Utica/Rome, May 23-26, (1994).
- Upper Satellite Conduction Band Population Dynamics in GaAs measured by Femtosecond UV Pump-IR Probe Absorption Spectroscopy, M. A. Cavicchia, R. R. Alfano, MD29-1, OSA Ultrafast Phenomena Technical Digest 7, 128 (1994).
- Panel Discussion: Real World Ultrafast Applications, W. H. Weber, K. Smith, J. Wiesenfeld, S. Williamson, A. Weiner, M. Rodwell, R. Alfano, MG1-1, OSA Ultrafast Phenomena Technical Digest 7, 154 (1994).
- Femtosecond Time-Resolved Infrared Absorption in InP, W. B. Wang, R. R. Alfano, C22 12, Bull. Am. Phys. Soc. 39, 211 (1994).
- Femtosecond UV Pump-IR Probe Absorption Spectroscopy of Energy Relaxation in the X₆, Primary, and the X₇, Secondary Conduction Bands in GaP, M. A. Cavicchia, R. R. Alfano, J21 4, Bull. Am. Phys. Soc. 39, 545 (1994).
- Observation of the 1P Excitonic States in Cd(S,Se)-Glass Quantum Dots, R. R. Alfano, K3 3, Bull. Am. Phys. Soc. 39, 579 (1994).
- Tunneling Times and Probabilities for Multi-Quantum Well Based Solar Cell Structures, Jihad M. Mohaidat, Kai Shum, W. B. Wang, R. R. Alfano, K20 12, Bull. Am. Phys. Soc. 39, 613 (1994).
- Relationship of Aerodigestive Mucosal Disease to Autofluorescence Profiles, H. E. Savage, R. P. Schantz, M.D., J. Zhang, M.D., P. G. Sacks, R. R. Alfano, 2135-02, SPIE International Symposium, 103, Los Angeles, CA, Jan. 22-29, (1994).
- Optical Spectroscopy Methods to Detect Colon Cancer Tissue, Y. Yang, G. C. Tang, M. Bessler, R. R. Alfano, 2135-04, SPIE International Symposium, 103, Los Angeles, CA, Jan. 22-29, (1994).
- Fluorescence Spectroscopic Diagnosis of Gynecological Cancerous and Normal Tissues, Z. Z. Huang, W. L. S. Glassman, G. C. Tang, S. Lubicz, R. R. Alfano, 2135-06, SPIE International Symposium, 103, Los Angeles, CA, Jan. 22-29, (1994).
- Near-IR Fourier Space Gate and Absorption Shadowgram Images through Random Scattering Media, J. J. Dolne, K. M. Yoo, R. R. Alfano, SPIE International Symposium, 104, Los Angeles, CA, Jan. 22-29, (1994).
- Development of Cr⁴⁺-doped Tunable Solid State Lasers, V. Petricevic, R. R. Alfano, 2138-47, SPIE International Symposium, 117, Los Angeles, CA, Jan. 22-29, (1994).
- Ultrafast Satellite Valley Carrier Relaxation Dynamics using UV-pump IR-probe Absorption Spectroscopy in GaAs and GaP, M. A. Cavicchia, R. R. Alfano, 2142-15, SPIE International Symposium, 125, Los Angeles, CA, Jan. 22-29, (1994).
- High-resolution Spectra of Cross Phase-modulation for A/D, P.-P. Ho, Q. Z. Wang, Q. Liu, D. Liu, R. R. Alfano, 2155-05, SPIE International Symposium, 162, Los Angeles, CA, Jan. 22-29, (1994).
- Induced Beam Deflection for Ultrafast Low-signal-level Optical Waveform Digitization, P.-P. Ho, Q. Z. Wang, Q. Liu, D. Liu, R. R. Alfano, 2155-18, SPIE International Symposium, 162, Los Angeles, CA, Jan. 22-29, (1994).
- Nonlinear Optical Properties of Metal-Quantum-Dot Composites Synthesized by Ion Implantation, R. F. Haglund, Jr., Li Yang, R. H. Magruder, III, C. W. White, R. A. Zuhr, Lena Yang, R. Dorsinville, R. R. Alfano, Invited Paper, 7th International Conference on Radiation Effects in Insulators - REI-7, Nagoya, Japan, Sept. 6-10, (1993).

- Fluorescence Spectroscopic Diagnosis Method for Gynecological Cancer and Normal Tissues, Z. Z. Huang, W. Sha Glassman, G. C. Tang, S. Lubicz, R. R. Alfano, #197, Biomed. Engr. Soc. 1993 Annual Fall Meeting, Vol. 21, Supp 1, Memphis, TN, Oct. 21-24 (1993).
- Relaxation Dynamics of Niobium Metal, M. Mihailidi, Q. Xing, K. M. Yoo, R. R. Alfano, L'44 WVV4, ILS-IX, Bull. Am. Phys. Soc. 38 No. 8, 1747 (1993).
- Fluorescence and Phosphorescence of Breast Tissue at Low Temperature, G. C. Tang, Asima Pradhan, R. R. Alfano, #326, Biomed. Engr. Soc. 1993 Annual Fall Meeting, Vol. 21, Supp 1, Memphis, TN, Oct. 21-24, (1993).
- Raman Spectroscopy for Diagnosing Disease, C.-H. Liu, W. Glassman, H. R. Zhu, D. L. Akins, Q. S. Lubicz, L. I. Deckelbaum, J. Cleary, R. Prudente, E. Celmer, R. R. Alfano, #198, Biomed. Engr. Soc. 1993 Annual Fall Meeting, Vol. 21, Supp 1, Memphis, TN, Oct. 21-24, (1993).
- Fluorescence Spectral Methods to Detect Colon Cancer Tissue, Y. Yang, G. C. Tang, M. Bessler, R.R. Alfano, #199, Biomed. Engr. Soc. 1993 Annual Fall Meeting, Vol. 21, Supp. 1, Memphis, TN, Oct 21-24, (1993).
- Near IR Fourier Space Gate Absorption Shadowgram Images through Random Media, J. J. Dolne, J. M. Yoo, R. R. Alfano, #192, Biomed. Engr. Soc. 1993 Annual Fall Meeting, Vol. 21, Supp 1, Memphis, TN, Oct. 21-24. (1993).
- Metal-Nanocluster Composites made by Ion Implantation: A Novel Third-Order Nonlinear Material, R. F. Haglund, Jr., Li Yang, R. H. Magruder, III, K. Becker, J. E. Wittig, C. W. White, R. A. Zuhr, Lina Yang, R. Dorsinville, R. R. Alfano, 1852-09, SPIE, 1993.
- Ultrafast Time and Spatial Gated Optical Imaging in Biomedical Media, P. P. Ho, L. Wang, X. Liang, N. Galland, L. Kalpaxis, R. R. Alfano, MG3 (Invited), OSA 1993 Annual Meeting Technical Digest 16, 10, Toronto, Canada Oct. 3-8, (1993).
- High-processing-rate Optical-computing System with a Time-division-multiplexed Data Stream, J. Mihailidi, M. Siddique, R. R. Alfano, MW6, OSA 1993 Annual Meeting Technical Digest 16, 27, Toronto, Canada, Oct. 3-8, (1993).
- Modulated Cross-phase-modulation spectra, Q. Z. Wang, Q. D. Liu, Disa Liu, P. P. Ho, R. R. Alfano, WX4, OSA 1993 Annual Meeting Technical Digest 16, 135, Toronto, Canada, Oct. 3-8, (1993).
- Recent Advances in Cr⁴⁺-doped Tunable Solid-State Lasers, V. Petricevic, R. R. Alfano, WZ2 (Invited), OSA 1993 Annual Meeting Technical Digest 16, 137, Toronto, Canada, Oct. 3-8, (1993).
- Recent Advances in Femtosecond Cr⁴⁺-doped Forsterite Lasers, R. R. Alfano, A. Seas, V. Petricevic, WNN3, OSA 1993 Annual Meeting Technical Digest 16, 149, Toronto, Canada, Oct. 3-8, (1993).
- Imaging a thin Strip of Fat in a Thick Breast Tissue using Snake Light, B. B. Das, K. M. Yoo, R. R. Alfano, CTuG2, CLEO'93 Vol. 11, 94 (1993).
- Self Mode-Locked Chromium-Doped Forsterite Laser, A. Seas, V. Petricevic, R. R. Alfano, JTuC1, CLEO'93 Vol. 11, 142 (1993).
- Intensity Attenuation of the Transmitted Light Pulse at various Arrival Time Intervals through Biological Tissues, Feng Liu, K. M. Yoo, R. R. Alfano, CTuN86, CLEO'93 Vol. 11, 210 (1993).
- Picosecond Fourier-Kerr Gated Imaging in Thick Biomedical Media, L. Wang, P. P. Ho, D. Hui, S. Liang, R. R. Alfano, CTuN87, CLEO'93 Vol. 11, 212 (1993).
- Subpicosecond Exciton Dynamics in Stretch Oriented Poly (p-phenylene vinylene) Films, M. Yan, L. Rothberg, R. R. Alfano, B. R. Hsieh, E14 5, Bull. Am. Phys. Soc. 38, 210 (1993).
- Triplet Exciton Formation and Decay in Stretch Oriented Poly (p-phenylene vinylene) Films, M. Yan, L. Rothberg, R. R. Alfano, B. R. Hsieh, F14 11, Bull. Am. Phys. Soc. 38, 258 (1993).
- Determination of the Effective Scattering causing Momentum Relaxation by measuring the Spin Relaxation Time, Hsiehshin Chao, R. R. Alfano, O25 10, Bull. Am. Phys. Soc. 38, 700 (1993).
- Femtosecond Pulses Generated from a Synchronously Pumped Chromium-Doped Forsterite Laser, A. Seas, T. Petricevic, R. R. Alfano, ATuD4-1, 227, Advanced Solid State Lasers, February 1-4, 1993, New Orleans, LA.
- Cr:Mg₂GeO₄ and Cr:CaMgSiO₄: New Potential Tunable Solid-State Laser Crystals, V. Petricevic, A. Seas, R. R. Alfano, ATuE1-1, 238, Advanced Solid State Lasers, February 1-4, 1993, New Orleans, LA.
- Subpicosecond Relaxation in stretch-oriented Poly-p-phenylenevinylene Films, M. Yan, R. Dorsinville, R. R. Alfano, L. J. Rothberg, B. R. Hsieh, M. Stolka, 1853-23, 48, Theory and Application of Novel Optoelectronic Materials, OE Lase '93, Los Angeles, CA, January 16-23, 1993.

- Fluorescence Spectroscopy from Thymus and Fat Tissues, M. C. Oz, G. C. Tang, V. Reid, K. Steinglass, J. Ginsberg, L. Jacobowitz, R. R. Alfano, 1887-26, 136, *Physiological Imaging, Spectroscopy, and Early Detection Diagnostic Methods*, OE Lase '93, Los Angeles, CA, January 16-23, 1993.
- Fluorescence and Raman Spectroscopies Diagnose Cancer, R. R. Alfano, G. C. Tang, W. S. Glassman, B. B. Das, C.-H. Liu, 1887-09, 137, *Physiological Imaging, Spectroscopy, and Early Detection Diagnostic Methods*, OE Lase'93, Los Angeles, CA, January 16-23, 1993.
- Tissue Autofluorescence Spectroscopy as an Intermediate Endpoint for Chemopreventive Agents, S. P. Schantz, H. E. Savage, G. C. Tang, P. G. Sacks, M. Silverberg, R. R. Alfano, 1887-25, 137, *Physiological Imaging, Spectroscopy, and Early Detection Diagnostic Methods*, OE Lase '93, Los Angeles, CA, January 16-23, 1993.
- Time- and Fourier-space-gated Optical Imaging of Thick Turbid Media, R. R. Alfano, L. Wang, X. Liang, P. Ho, 1888-01, 139, *Photon Migration and Imaging in Random Media and Tissues*, OE Lase '93, Los Angeles, CA, January 16-23, 1993.
- Femtosecond Time-gated Detection of Translucent Objects Hidden in Biological and Highly Scattering Random Media, B. B. Das, K. M. Yoo, R. R. Alfano, 1888-02, 139, *Photon Migration and Imaging in Random Media and Tissues*, OE Lase '93, Los Angeles, CA, January 16-23, 1993.
- Should Photon Flux or Photon Density be used to Describe the Temporal Profile of Scattered Laser Pulse in Random Media?, F. Liu, K. M. Yoo, R. R. Alfano, 1888-12, 139, *Photon Migration and Imaging in Random Media and Tissues*, OE Lase '93, Los Angeles, CA, January 16-23, 1993.
- Current Advances in the Development of Femtosecond Forsterite Lasers, V. Petricevic, A. S. Seas, R. R. Alfano, 1892-07, 150, *Medical Lasers and Systems II*, OE Lase '93, Los Angeles, CA, January 16-23, 1993.
- Picosecond Electron Thermalization in Biaxially Strained GaAs/AlGaAs Quantum Well grown on Si Substrate under External Uniaxial Stress, Y. Takiguchi, K. Shum, R. R. Alfano, H. Qiang, F. H. Pollak, H. Morkoc, AOD6.4, 39, *LEOS '92*, Boston, MA, November 16-19, 1992.
- Generation of Ultrashort Pulses from Cr⁴⁺: Forsterite, A. Seas, V. Petricevic, R. R. Alfano, SSLT 4.3, 41 *LEOS '92*, Boston, MA, November 16-19, 1992.
- Time-Space Gated Optical Imaging in Thick Turbid Media for Breast Cancer Screening, L. Wang, P. P. Ho, D. Hui, S. Liang, R. R. Alfano, MED3.3, 51, *LEOS '92*, Boston, MA, November 16-19, 1992.
- Femtosecond Laser Pulse Transmission and Imaging Through Biological Tissues, F. Liu, K. M. Yoo, R. R. Alfano, MED3.4, 51, *LEOS '92*, Boston, MA, November 16-19, 1992.
- Phonon Modes Involved in the Vibrational Relaxation of Forsterite, S. G. Demos, R. R. Alfano, SSLT11.6, 68, *LEOS'92*, Boston, MA, November 16-19, 1992.
- Optical Spectroscopy for the Diagnosis of Cancer, R. W. Krumm, R. R. Alfano, *The Opticon Solution Series, Biomedical Engineering Symp.*, 10, Boston, MA, November 17, 1992.
- The Initial Photochemistry of Vision, M. Yan, R. R. Alfano, L. Rothberg, T. M. Jedju, D. Manor, G. Weng, R. Callender, MED6.3, 62, *LEOS'92*, Boston, MA, November 16-19, 1992.
- Localized 2D-exciton Energy Relaxation due to Acoustic Deformation Potential Interaction, Y. Takiguchi, K. Shum, R. R. Alfano, E. S. Koteles, D. C. Bertolet, and Kei May Lau, MSS3, 43, *OSA Annual Meeting*, Albuquerque, NM, Sept. 20-25, 1992.
- Imaging through Scattering Media and Biological Systems, R. R. Alfano, WF3, Invited, 103, *OSA Annual Meeting*, Albuquerque, NM, Sept. 20-25, 1992.
- A CW Mode-locked Chromium-doped Forsterite Laser Generates Tunable Sub-100-fs Pulses, A. Seas, V. Petricevic, R. R. Alfano, Th003, 161, *OSA Annual Meeting*, Albuquerque, NM, Sept. 20-25, 1992.
- Initial Steps of Vision, Ming Yan, R. R. Alfano, L. Rothberg, T. M. Jedju, D. Manor, G. Weng, R. Callender, QWF4, Invited, CLEO/QELS '92, 99, Anaheim, CA, May 10-15, 1992.
- Generation of sub-100-fs Pulses from a CW Mode-Locked Chromium-Doped Forsterite Laser, A. Seas, V. Petricevic, R. R. Alfano, CPD10-1/19, CLEO/QELS '92, Anaheim, CA, May 10-15, 1992.
- Ballistic and Snake Imaging in Biomedical Media using a Picosecond Double-Stage Optical Kerr Gate, L. Wang, P. P. Ho, R. R. Alfano, CThB3, CLEO/QELS'92, 100, Anaheim, CA, May 10-15, 1992.
- Femtosecond Absorption Spectroscopy Sheds Light on the First Step in Vision, M. Yan, D. Manor, K. J. Rothberg, G. Weng, R. H. Callender, R. R. Alfano, SPIE Conference 1681 on *Optically Based Methods for Process Analysis*, Somerset, NJ, March 23-26, 1992.
- Picosecond Dynamics of Hydrogen Molecular Complex in GaAs Quantum Wells, K. Shum, H.-S. Chao, R. R. Alfano, H. Morkoc, C26 4, *Bull. Am. Phys. Soc.* 37, 195 (1992).

- Subpicosecond Carrier Dynamics in Stretch Oriented Poly p-phenylene-vinylene films, Ming Yan, R. Dorsinville, R. R. Alfano, L. Rothberg, B. R. Hsieh, M. Stolka, I32 4, Bull. Am. Phys. Soc.37, 411 (1994).
- Subpicosecond Carrier Dynamics in Polythiophene and Polythieno(3,2-b) thiophene film, R. Dorsinville, Ming Yan, L. Yang, R. R. Alfano, L. Rothberg, C. Taliani, I32 5, Bull. Am. Phys. Soc. 37, 412 (1994).
- The Initial Steps of Vision, R. R. Alfano, Ming Yan, L. Rothberg, D. Manor, R. Callender, J19 1, Bull. Am. Phys. Soc. 37, 444 (1994).
- Light Scattering in Random Media, R. R. Alfano, Polytechnic University Physics Department Colloquium, Fall 1991, Brooklyn, NY, November 21, 1991.
- Photon Migration and Light Scattering for Imaging Applications, R. R. Alfano, G. E. Research and Development Center, Schenectady, NY, November 14, 1991.
- Photon Migration and Imaging in Turbid Media, R. R. Alfano, 1991-1992 NEC Research Institute Colloquium Series, Princeton, NJ, November 12, 1991.
- Ultrafast Light Scattering and Photon Migration in Biomedical Media, K. M. Yoo, B. B. Das, Feng Liu, R. R. Alfano, MZ3, 1991 Optical Society of America Annual Meeting, 1991 Technical Digest Series 17, 27, San Jose, CA, November 3-8, 1991.
- Ballistic and Snake Signal Imaging in Tissue Scattering Walls using a Picosecond Multistage Kerr System, L. Wang, P. P. Ho, R. R. Alfano, MZ5, 1991 Optical Society of America Annual Meeting, 1991 Technical Digest Series 17, 28, San Jose, CA, November 3-8, 1991.
- Excited-state Nonlinearity in Polythiophene, Lina Yang, Q. Z. Wang, R. Dorsinville, R. R. Alfano, R. Zamboni, C. Taliani, FG2, 1991 Optical Society of America Annual Meeting, 1991 Technical Digest Series 17, 197, San Jose, CA, November 3-8, 1991.
- New Semiconductor Materials Systems, R. R. Alfano, presider, Conference on Quantum Electronics Laser Science, Baltimore, MD, May 12-17, 1991.
- Sign and Magnitude of $X^{(3)}$ in Polysilane Polymers, Lina Yang, R. Dorsinville, W. K. Zou, N. L. Yang, and R. R. Alfano, QWD5, Conference on Quantum Electronics Laser Science 11, 132, Baltimore, MD, May 12-17, 1991.
- Ballistic Imaging in Biomedical Samples using Picosecond Optical Kerr Gates, L. Wang, Y. Liu, P. P. Ho, R. R. Alfano, CTuH4, CLEO, Conference on Lasers and Electro-optics Vol. 10, 102, Baltimore, MD, May 12-17, 1991.
- Imaging Hidden Objects in Scattering Media through Fluorescence and Absorption Technique, K. M. Yoo, Z.-W. Zang, F. Liu, S. Ahmed, R. R. Alfano, CTuH5, CLEO, Conference on Lasers and Electro-optics Vol. 10, 104, Baltimore, MD, May 12-17, 1991.
- Human Breast Tissues Studied by IR Fourier-transform Raman Spectroscopy, C. H. Liu, R. R. Alfano, W. L. Sha, H. R. Zhu, D. L. Akins, J. Cleary, R. Prudente, E. Celmer, CWF51, CLEO, Conference on Lasers and Electro-optics Vol. 10, 282, Baltimore, MD, May 12-17, 1991.
- Transient Gain Measurements of Chromium Doped Forsterite ($\text{Cr}^{4+}:\text{Mg}_2\text{SiO}_4$), A. Seas, V. Petricevic, R. R. Alfano, MB5-1/29, Advanced Solid-State Lasers, Hilton Head, SC, March 18-20, 1991.
- Slope Efficiency Measurements of Chromium-Doped Forsterite Laser, V. Petricevic, A. Seas, R. R. Alfano, 18/MB1-1, Advanced Solid-State Lasers, Hilton Head, SC, March 18-20, 1991.
- CW Mode-Locked Operation of Chromium-Doped Forsterite Laser, A. Seas, V. Petricevic, R. R. Alfano, pdp11-1, Advanced Solid-State Lasers, Hilton Head, SC, March 18-20, 1991.
- Ultrafast Cross-Phase Modulation for Optical Computation and Communications, P. P. Ho, R. R. Alfano, IEEE Princeton Section Sarnoff Symposium, Princeton, NJ, March 22, 1991.
- The L-X Intervalley Scattering Time in $\text{Al}_{0.6}\text{Ga}_{0.4}\text{As}$ Determined by Femtosecond Time-Resolved Infrared Absorption Spectroscopy, W. B. Wang, Kai Shum, R. R. Alfano, D. Szmyd, A. J. Nozik, Bull. Am. Phys. Soc. 36, 735 (1991).
- Transient Tunneling Photocurrent in a Double Barrier Structure, J. M. Mohaidat, W. B. Wang, Y. Takiguchi, K. Shum, R. R. Alfano, Bull. Am. Phys. Soc. 36, 546 (1991).
- Femtosecond Pump-Probe Infrared Absorption Spectroscopy to Determine the L-X Intervalley Deformation Potential in Si, W. B. Wang, N. Ockman, R. R. Alfano, Bull. Am. Phys. Soc. 36, 709 (1991).
- Effect of Valence Subband Structure on the Energy Relaxation Dynamics of Electrons in GaAs Quantum Wells grown on Si, Kai Shum, Y. Takiguchi, J. M. Mohaidat, R. R. Alfano, H. Morkoc, Bull. Am. Phys. Soc. 36, 676, APS March meeting, Cincinnati, OH, March 1991.

- Transient Tunneling Photocurrent in a Double Barrier Structure, J. M. Mohaidat, W. B. Wang, Y. Takiguchi, Kai Shum, R. R. Alfano, Bull. Am. Phys. Soc. 36, 546, APS March meeting, Cincinnati, OH, March 1991.
- Spontaneous Photon Emission Spectrum of Tunneling Electrons in a Double Barrier Structure, G. Bai, Kai Shum, and R. R. Alfano, Bull. Am. Phys. Soc. 36, 546, APS March meeting, Cincinnati, OH, March 1991.
- The X-L Intervalley Scattering Time in AlGaAs Determined by Femtosecond Time-Resolved Infrared Absorption Spectroscopy, W. B. Wang, Kai Shum, R. R. Alfano, D. Szmyd, A. J. Nozik, Bull. Am. Phys. Soc. 36, 735, APS March meeting, Cincinnati, OH, March 1991.
- Time-Resolved Nonequilibrium Energy Relaxation of Thermalized Electrons and Holes in GaAs Quantum Wells Grown on Si, Kai Shum, Y. Takiguchi, J. M. Mohaidat, R. R. Alfano, H. Morkoc, Bull. Am. Phys. Soc. 36, 676, APS March Meeting, Cincinnati, OH, March 1991.
- Primary Events in the Photolysis of the Retinal Chromophore in Rhodopsin, Ming Yan, H. S. Chao, R. R. Alfano, L. Rothberg, T. M. Jedju, G. Weng, D. Manor, R. Callender, Bull. Am. Phys. Soc. 36, 499, APS March Meeting, Cincinnati, OH, March 1991.
- UV Fluorescence Spectroscopic Technique in the Diagnosis of Breast, Ovarian, Uterus and Cervix Cancer, B. Das, W. Sha Glassman, R. R. Alfano, J. Cleary, R. Prudent, E. Celmer, S. Lubicz, SPIE 1427 Laser-Tissue Interaction II, 368 (1991).
- Fluorescence Spectroscopy separates Breast Cancer from Benign Tumors and Tissues, B. B. Das, R. R. Alfano, J. Cleary, R. Prudent, E. Cellmer, 1427-42, SPIE Proceedings 1427, Los Angeles, CA, January 1991.
- Picosecond Time-resolved Ballistic Kerr Imaging of Biological Samples, L. Wang, P. P. Ho, C. H. Liu, R. R. Alfano, 1431-1, SPIE Proceedings 1431, Los Angeles, CA, January 1991.
- Time-Resolved Fluorescence Kinetics of Normal and Atherosclerotic Coronary Arteries, A. Pradhan, A.H. Liu, B. B. Das, R. R. Alfano, L. I. Deckelbaum, K. M. O'Brien, M. L. Stetz, J. J. Scott, 1425-01, SPIE Proceedings 1425, Los Angeles, CA, January 1991.
- Dispersion-free Femtosecond Optical Autocorrelator, Y. Takiguchi, Y. Budansky, R. R. Alfano, Opt. & Photonics News, TuQ4, A-52, OSA Annual Meeting, Boston MA, Nov. 4-9, 1990.
- Picosecond Time-resolved Imaging of Point and Plane Objects inside Highly Scattered Turbid Media, L. M. Wang, P. P. Ho, C. Liu, G. Zhang, R. R. Alfano, Opt. & Photonics News, TuDD1, A-56, OSA Annual Meeting, Boston, MA, Nov. 4-9, 1990.
- Speed of the Coherent Component of the Femtosecond Laser Pulses Propagating through Random Scattering Media, Feng Liu, K. M. Yoo, R. R. Alfano, Opt. & Photonics News, TuCC3, A-58, OSA Annual Meeting, Boston, MA, Nov. 4-9, 1990.
- Angle- and Time-resolved Studies of Photon Transport in Random Media, K. M. Yoo, Feng Liu, R. R. Alfano, Opt. & Photonics News, TuCC4, A-58, OSA Annual Meeting, Boston, MA, Nov. 4-9, 1990.
- Time-resolved Fluorescence from Normal and Atherosclerotic Arteries, Asima Pradhan, C. H. Liu, B. B. Das, R. R. Alfano, L. Deckelbaum, K. M. O'Brien, M. L. Stetz, J. J. Scott, Opt. & Photonics News, TuOO1, A-62, OSA Annual Meeting, Boston, MA, Nov. 4-9, 1990.
- Intensity Dependence of Fluorescence Lifetimes and Quantum Yields from Doxycycline by using Picosecond Excitation, Asima Pradhan, T. Hasan, R. Gillies, R. R. Alfano, Opt. & Photonics News, TuOO4, A-64, OSA Annual Meeting, Boston, MA, Nov. 4-9, 1990.
- Fluorescence Spectra from Normal and Tumor Tissues of the Gynecological Tract, W. Sha, C. H. Liu, G. C. Tang, S. Lubicz, R. R. Alfano, Opt. & Photonics News, TuOO5, A-64, OSA Annual Meeting, Boston, MA, Nov. 4-9, 1990.
- Time-resolved Fluorescence Kinetics from Benign and Malignant Tumors, Asima Pradhan, G. C. Tang, R. R. Alfano, J. Cleary, R. Prudent, E. Celmer, Opt. & Photonics News, TuOO6, A-64, OSA Annual Meeting, Boston, MA, Nov. 4-9, 1990.
- UV Fluorescence Spectroscopy Distinguished Breast Cancer from Benign Tumors, B. B. Das, R. R. Alfano, J. Cleary, R. Prudent, E. Celmer, Opt. & Photonics News, TuOO7, A-66, OSA Annual Meeting, Boston, MA, Nov. 4-9, 1990.
- Ultrafast Spectroscopy, R. R. Alfano, Presider, OSA Annual Meeting, Boston, MA, Nov. 4-9, 1990.
- Transient Gain Measurements of Nonradiative Dynamics in Chromium-Doped Forsterite ($\text{Cr}^{4+}:\text{Mg}_2\text{SiO}_4$), A. Seas, V. Petricevic, R. R. Alfano, Opt. & Photonics News, TuYY1, A-67, OSA Annual Meeting, Boston, MA, Nov. 4-9, 1990.
- Nonequilibrium Phonon Dynamics in Forsterite, S. G. Demos, J. M. Buchert, R. R. Alfano, Opt. & Photonics News, WK2, A-73, OSA Annual Meeting, Boston, MA, Nov. 4-9, 1990.

- Effect of Degenerate Four-Wave Mixing on Pulse Amplification and Compression in the Degenerate Cross-Phase-Modulation Process, Q. Z. Wang, P. P. Ho, R. R. Alfano, *Opt. & Photonics News*, WK6, A-75, OSA Annual Meeting, Boston, MA, Nov. 4-9, 1990.
- Observation of Parametric hyper-Raman Scattering in an Organic Crystal, Q. Z. Wang, P. P. Ho, R. R. Alfano, R. Kashyap, *Opt. & Photonics News*, WU9, A-81, OSA Annual Meeting, Boston, MA, Nov. 4-9, 1990.
- Femtosecond Group-velocity Dispersion in Optics, Y. Takiguchi, R. R. Alfano, *Opt. & Photonics News*, ThY4, A-96, OSA Annual Meeting, Boston, MA, Nov. 4-9, 1990.
- Picosecond Photocurrent Anisotropy in Stretched Trans-polyacetylene with below-and above-gap Excitation, A. D. Walser, R. Dorsinville, R. Tubino, R. R. Alfano, *Opt. & Photonics News*, ThY24, A-96, OSA Annual Meeting, Boston, MA, Nov. 4-9, 1990.
- Four-dimensional Picosecond Exciton Capture at the Interface in Symmetric and Asymmetric Quantum Wells, Y. Takiguchi, Kai Shum, J. Mohaidat, H. Morkoc, R. R. Alfano, *Opt. & Photonics News*, FN4, A-116, OSA Annual Meeting, Boston, MA, Nov. 4-9, 1990.
- Enhanced Third-order Optical Nonlinear Response about Polaronic Bands in Polythiophene Films, Lina Yang, R. Dorsinville, R. R. Alfano, R. Zamboni, C. Taliani, R. Tubino, *Opt. & Photonics News*, FX5 A-116, OSA Annual Meeting, Boston, MA, Nov. 4-9, 1990.
- Time-resolved Studies of Light Scattering in Biological Media, R. R. Alfano, K. M. Yoo, Invited (OSM2.1), IEEE Lasers and Electro-Optics Society Annual Meeting, Boston, MA, Nov. 4-9, 1990.
- Direct Experimental Evidence of the Role of Nonlinear Excitations on Cubic Susceptibility in Polythiophene, Lina Yang, R. Dorsinville, R. R. Alfano, C. Taliani, G. Ruani, R. Zamboni, R. Tubino, International Conference on Science and Technology of Synthetic Materials, Tubingen, FRG, Sept. 2-7, 1990.
- Fluorescence and Raman Spectroscopy of Human Leukemia and White and Red Blood Cells, G. C. Tang, A. Pradhan, R. R. Alfano, D. S. J. Choy, CTUO5, CLEO 1990 Vol. 7, Technical Digest Series, p. 214, Anaheim, CA, May 21-25, 1990.
- Biological Materials Probed by the Temporal and Angular Profiles of the Backscattered Ultrafast Laser Pulses, K. M. Yoo, Feng Liu, R. R. Alfano, CFPI, CLEO 1990, Vol. 7, Technical Digest Series, p. 548, Anaheim, CA, May 21-25, 1990.
- Rate of Electron-phonon Relaxation in Niobium, K. M. Yoo, M. Siddique, Meeting on Ultrafast Phenomena, Monterey, CA, May 14-17, 1990.
- Ultrafast Pump-probe X-valley Absorption Spectroscopy in GaAs, W. B. Wang, N. Ockman, M. Cavicchia, M. Yan, and R. R. Alfano, summaries of papers presented at the Ultrafast Phenomena Topical Meeting, THC 17, pp. 285-286, Monterey, CA, May 14-17, 1990.
- Determination of the Intervalley $X_6 \rightarrow \Gamma_6$, L_6 Scattering Time and the Density of States Effective Mass of the X_7 band in GaAs by Picosecond Time-resolved Absorption Spectroscopy, W. B. Wang, N. Ockman, M. A. Cavicchia, M. Yan, and R. R. Alfano, Proceedings of the 1990 SPIE Conference, 1282-10, Invited Paper, San Diego, CA, March 1990.
- Direct Experimental Evidence of the Role of Nonlinear Excitations on Cubic Susceptibility in Polythiophene, Lina Yang, R. Dorsinville, R. R. Alfano, C. Taliani, G. Ruani, R. Zamboni, R. Tubino, International Conference on Science and Technology of Synthetic Materials, Tubingen, FRG, Sept. 2-7, 1990.
- When does the Diffusion Approximation fail to describe Photon Transport in Random Media? Feng Liu, K. M. Yoo, R. R. Alfano, *Bull. Am. Phys. Soc.* **35**, 261 (1990), March meeting, Anaheim, CA.
- Effect of Particle-Particle Correlation on the Temporal Broadening of a Scattered Ultrafast Laser Pulse, M. Yoo, J. Malinsky, R. R. Alfano, *Bull. Am. Phys. Soc.* **35**, 490 (1990), March meeting, Anaheim, CA.
- Femtosecond Thermal Modulation Measurements of Electron-phonon Relaxation in Niobium, K. M. Yoo, X. M. Zhao, M. Siddique, and R. R. Alfano, *Bull. Am. Phys. Soc.* **35**, 678 (1990), March meeting, Anaheim, CA.
- Femtosecond Thermal Modulation Measurements on Electron-phonon Relaxation Time in Niobium, K. M. Yoo, R. R. Alfano, International Superconductor Applications Convention, Long Beach, CA, Jan. 17-19, 1990.
- Angle- and Time-Resolved Studies of Backscattering of Light from Biological Tissue, K. M. Yoo, G. C. Tang, R. R. Alfano, OE LASE '90 of SPIE Symposium on Biomedical Optics, Los Angeles, CA, Jan 14-19, (1990).
- Time-Resolved Studies of Light Scattering in Random Media, K. M. Yoo and R. R. Alfano, OE LASE '90 of SPIE Symposium on Laser Spectroscopy, Los Angeles, CA, Jan. 14-19 (1990).

- Characterization of Biological Tissues from the Line Shape of the Coherent Peak and the Temporal Profile of Back Scattered Light, K. M. Yoo, G. C. Tang, and R. R. Alfano, *J. Electrochem. Soc.* 137, 416c (1989); Symp. of Photonics, Electrochemical Society 176th meeting, Orlando, Florida Oct. 15-20 (1989).
- Optical Nonlinearities and Instabilities in Semiconductors, reviewed by R. R. Alfano and K. Shum, *Opt. Engr.* 28, SR-169 (1989).
- Chromium-Activated Forsterite Laser, V. Petricevic, S. K. Gayen, R. R. Alfano, OSA Topical Meeting, Cape Cod, MA, May 1-3, 1989.
- Time-resolved Studies of Light Scattering in Random Media, K. M. Yoo, R. R. Alfano, #WW5, 154 Annual meeting of the Optical Society of America, Orlando, Florida October 15-20, (1989).
- Single-stage Optical Binary Full-adder, Y. Li, M. Turner, P. Neos, R. Dorsinville, R. R. Alfano, #TUDD3, 108 Annual meeting of the Optical Society of America, Orlando, Florida October 15-20 (1989).
- Cancer Diagnosis by Laser Spectroscopy, R. R. Alfano, SDIO 4th Annual MFEL Conference, Dallas, Texas, Sept. 22-24, (1989).
- Tetravalent Chromium-Doped Forsterite Laser, V. Petricevic, S. K. Gayen, R. R. Alfano, Invited, International Conference on Tunable Lasers, Irkutsk, USSR, Sept. 20-22, (1989).
- Chromium-Activated Forsterite Laser, V. Petricevic, R. R. Alfano, S. K. Gayen MD4, pp. 48, Tunable Solid State Lasers Conference, Cape Cod, Mass., May 1-3, (1989).
- Broadly Tunable Room-Temperature Chromium-Activated Forsterite Laser, V. Petricevic, S. K. Gayen, R. R. Alfano, MH4, pp.38, Conference on Lasers and Electro-Optics, Baltimore, Maryland, April 24-28, (1989).
- Observation of Modulation Instability Oscillation in a Colliding-Pulse Mode-Locking Dye Laser, P. L. Baldeck, C-Y. Wang, Y. Budansky, R. R. Alfano, WF43, pp. 61, Conference on Lasers and Electro-Optics, Baltimore, Maryland, April 24-28, (1989).
- Picosecond Optical Nonlinear Response in Polymers, R. Dorsinville, Lina Yang, R. R. Alfano, N. L. Yang, R. Tubino, C. Taliani, TuAA5, pp.40, Conference on Lasers and Electro-Optics, Baltimore, Maryland, April 24-28, (1989).
- Spectroscopic and Quantum Electronic Properties of a Chromium Activated Forsterite Laser, S. K. Gayen, V. Petricevic, R. R. Alfano, ThKK2, pp.84, Conference on Lasers and Electro-Optics, Baltimore, Maryland, April 24-28, (1989).
- Asymmetric Spectral Broadening of Picosecond Pulses in Multimode Optical Fibers, Q. Z. Wang, D. Ji, Lina Yang, P. P. Ho, R. R. Alfano, FCC4, pp. 93, Conference on Lasers and Electro-Optics, Baltimore, Maryland, April 24-28, (1989).
- Cross-phase Modulation: A New Technique to Control the Temporal, Spectral and Spatial Properties of Ultrafast Pulses, P. L. Baldeck, D. Ji, P. P. Ho, R. R. Alfano, The International Congress on Optical Science and Engineering, Palais des Congres, Porte Maillot Paris, France, April 24-28, (1989).
- Ballistic Wave Transport in Disordered Media, K. M. Yoo and R. R. Alfano, B1212, Bulletin of the American Physical Society, March meeting Vol. 34, 458 (1989).
- Picosecond Optical Nonlinear Response in Polycondensed Thiophene Based Polymer Films, R. Dorsinville, Lina Yang, R. R. Alfano, C. Taliani, 19 6 Bulletin of the American Physical Society, March meeting Vol. 34, 674 (1989).
- Wave Localization in One-Dimensional Media, K. M. Yoo and R. R. Alfano, K7 8, Bulletin of the American Physical Society, March meeting Vol. 34, 767 (1989).
- Femtosecond Time- and Angle-resolved Studies of Weak Localization, Y. Takiguchi, K. M. Yoo, and R. R. Alfano, 07 7, Bulletin of the American Physical Society, March meeting Vol. 34, 904 (1989).
- Interconduction Band $X_6 \rightarrow X_7$ Absorption Spectrum in GaAs, W. B. Wang, N. Ockman, M. A. Cavicchia, and R. R. Alfano, M14 12 Bulletin of the American Physical Society, March meeting Vol. 34, 832 (1989).
- L to G Intervalley Scattering Time in GaAs measured by Time Resolved Four Wave Mixing, A. Katz and R. R. Alfano, M14 13, Bulletin of the American Physical Society, March meeting Vol. 34, 833 (1989).
- The Intervalley $X_6 \rightarrow X_7$ Scattering Time in GaAs measured by Picosecond Pump-probe Infrared Absorption Spectroscopy, W. B. Wang, N. Ockman, M. Yan, and R. R. Alfano, M14 14, Bulletin of the American Physical Society, March meeting Vol. 34, 833 (1989).
- Continuous-wave and Tunable Laser Operation of Chromium-activated Forsterite Laser, V. Petricevic, R. R. Alfano, S. K. Gayen, Q17 1, Bulletin of the American Physical Society, March meeting Vol. 34, 965 (1989).
- Pulse Reflection from Media of Small Particles, R. R. Alfano and K. M. Yoo, N99, Post Deadline Poster Section, Bulletin of the American Physical Society, March meeting (1989).

- Absorption of Alkali Atoms D-line in the Luminescence Spectrum from Solid-Fluid Interfaces under High Intensity Laser Excitation, R. R. Alfano and K. M. Yoo, N99, Post Deadline Poster Section, Bulletin of the American Physical Society, March Meeting (1989).
- Luminescence and Display Materials - Photonics, R. R. Alfano, Chairman, Nonlinear Optics, Photonics and Ultrafast Symposium at 174th Meeting of Electrochemical Society, Chicago, October 11-14, 1988.
- Harmonic Cross-Phase Modulation in ZnSe, P. P. Ho and R. R. Alfano, Photonics and Ultrafast Symposium at 174th Meeting of Electrochemical Society, Chicago, October 11-14, 1988, *J. Electrochem. Soc: Review and News*, Vol. 135-8, 387C, #608 (1988).
- Investigation of Optical Spectroscopy of Cancerous and Normal Human Tissues, R. R. Alfano, G. C. Tang, A. Pradhan, and S. Wenling, Photonics and Ultrafast Symposium at 174th Meeting of the Electrochemical Society, Chicago, October 11-14, 1988, *J. Electrochem. Soc: Review and News*, Vol. 135-8, 387C, #611 (1988).
- Induced-Frequency Shift, Induced-Spectral Broadening and Optical Amplification of Picosecond Pulses by Cross-Phase Modulation in a Single-Mode Optical Fiber, P. L. Baldeck and R. R. Alfano, *J. Electrochem. Soc: Review and News*, Vol. 135-8, 1988.
- Lasing and Spectroscopic Properties of Chromium-Activated Forsterite, V. Petricevic, S. K. Gayen, and R. R. Alfano, *Bulletin of the Am. Phys. Soc.* 33, 1626, Fourth International Laser Science Conference (ILS-IV), Atlanta, Georgia, 2-6 October, (1988).
- Ultrafast Nonlinear Processes in Polysilane, Lina Yang, Q. Z. Wang, P. P. Ho, R. Dorsinville, N. L. Yang, W. K. Zou, and R. R. Alfano, Nonlinear Optical Properties of Materials Conference, Troy, New York, 174, August 22-25, 1988.
- Cross-Phase Modulation and Induced-Focusing of Optical Nonlinearities in Optical Fibers and Bulk Materials, R. R. Alfano, P. L. Baldeck and P. P. Ho, Nonlinear Optical Properties of Materials Conference, Troy, NY, 297, August 22-25, 1988.
- Photoconductive Response of Highly Oriented Polyacetylene, R. Tubino, R. Dorsinville, A. Walser, A. Seas, R. R. Alfano, International Conference on Science and Technology of Synthetic Metals, June 26 - July 2, (1988).
- Optical Diagnosis of Cancerous and Normal Human Tissues, R. R. Alfano, G. Tang, A. Pradhan, 3rd Annual Meeting on Medical Free Electron Lasers, Salt Lake City, May 15-18 (1988).
- Ultrashort Laser Pulse Ranging and Imaging, P. P. Ho and R. R. Alfano, 3rd Annual Meeting on Medical Free Electron Lasers, Salt Lake City, May 15-18 (1988).
- Ultrashort Laser Pulse Tomography, P. P. Ho, P. Baldeck, K. Wong, G. Zhang, F. Raccach, and R. R. Alfano, Workshop of Photon Migrations, U. of Penn., Philadelphia, April 19 (1988).
- Generation of Sub-100-Fsec Pulses at 532 nm from Modulation Instability Induced by Cross-phase Modulation in Optical Fibers, Proceedings paper #PD2, ICUP '88, Mont Hei, Japan (1988).
- Observation of Modulation Instability Induced by Cross-phase Modulation, P. L. Baldeck, R. R. Alfano, G. P. Agrawal, Conference abstract #MBB7, Digest of OSA Annual Meeting, Santa Clara, CA (1988).
- Optical Wave Breaking due to Cross-phase Modulation in Optical Fibers, Govind P. Agrawal, P. L. Baldeck, and R. R. Alfano, Conference abstract #MW#, Digest of OSA Annual Meeting, Santa Clara, CA (1988).
- Self-Focusing, Self-Phase Modulation and Diffraction in Homogeneous Media and Graded-Index Optical Fibers, Jamal T. Manassah, P. L. Baldeck, and R. R. Alfano, Conference abstract #FS2, Digest of OSA Annual Meeting, Santa Clara, CA (1988).
- Light Sheds Light on Cancer, R. R. Alfano, NY Acad. of Medicine, Harold Lamport Memorial Lecture Section on Biomedical Engineering, May 10, 1988.
- Steady State and Time-Resolved Fluorescence Spectra from Normal and Tumor Human Tissues, A. Pradhan, G. C. Tang, R. R. Alfano, D. Choy, S. Wahl, Am. Soc. for Laser Medicine and Surgery Eighth Annual meeting in Dallas, TX, April 23-27, 1988.
- Coherent Backscattering of a Picosecond Pulse from a Disordered Medium: Analysis of the Pulse Shape in the Time Domain, K. M. Yoo, K. Arya, G. Tang, J. L. Birman, R. R. Alfano, *Bulletin of the Am. Phys. Soc.* 33, 282 (1988).
- Single Shot Real Time Resolved Phonon Dephasing Measurements in CaCo_3 using Phase Conjugation, P. J. Delfyett, R. Dorsinville, R. R. Alfano, *Bulletin of the Am. Phys. Soc.* 33, 350 (1988).
- Missing Emission Line at 2.11 eV in the High T_c Superconductor $\text{YBa}_2\text{Cu}_3\text{O}_{7-x}$ under Pulsed Laser Excitation, K. M. Yoo, R. R. Alfano, *Bulletin of the Am. Phys. Soc.* 33, 381 (1988).

- Temperature Dependence of the Picosecond Photoconductive Response in Highly oriented Trans-polyacetylene Films, R. Dorsinville, A. D. Walser, R. Tubino, R. R. Alfano, *Bulletin of the Am. Phys. Soc.* 33, 492 (1988).
- Energy Relaxation and Exciton-(e-h) Plasma State Competition in GaAs/GaAlAs Quantum Wells, M. R. Junnarkar, K. S. Wong, H. S. Chao, R. R. Alfano, *Bulletin of the Am. Phys. Soc.* 33, 622 (1988).
- Effect of Picosecond-Laser-Induced Shock Waves on the Band Structure at the G-Point in GaAs, X. Z. Lu, R. Garuthara, S. Lee, R. R. Alfano, *Bulletin of the Am. Phys. Soc.* 33, 692 (1988).
- Spectroscopic Properties of $\text{Cr}^{3+}:\text{Mg}_2\text{SiO}_4$: A New Tunable Solid-State Laser Crystal, S. K. Gayen, V. Petricevic, R. R. Alfano, K. Yamagishi, K. Moriya, *Bulletin of the Am. Phys. Soc.* 33, 810 (1988).
- Room-Temperature Pulsed Laser Action in $\text{Cr}^{3+}:\text{Mg}_2\text{SiO}_4$, V. Petricevic, S. Gayen, R. R. Alfano, K. Yamagishi, K. Moriya, *Bulletin of the Am. Phys. Soc.* 33, 811 (1988).
- Spin Relaxation in GaAs Quantum Wells, H.-S. Chao, K. S. Wong, R. R. Alfano, H. Unlu, H. Morkoc, Invited talk, SPIE Symposium on Ultrafast Lasers Probe Phenomena in Bulk and Microstructure Semiconductors II, Newport Beach, CA, March 14-15, (1988).
- Ultrafast Processes in Zero-dimensional Semiconductor Particles in Glasses, K. Shum, R. R. Alfano, Invited talk, SPIE Symposium on Ultrafast Lasers Probe Phenomena in Bulk and Microstructure Semiconductors II, Newport Beach, CA, March 14-15, (1988).
- Effect of Picosecond-laser-driven Shock Waves on Photoluminescence from Semiconductors, X.-Z. Lu, R. Garuthara, S. Lee, R. R. Alfano, Invited talk, SPIE Symposium on Ultrafast Lasers Probe Phenomena in Bulk and Microstructure Semiconductors II, Newport Beach, CA, March 14-15, (1988).
- Real-time Phonon Dephasing Kinetics in Solids and Liquids, R. Dorsinville, P. J. Delfyett, R. R. Alfano, Invited talk, SPIE Symposium on Ultrafast Lasers Probe Phenomena in Bulk and Microstructure Semiconductors II, Newport Beach, CA, March 14-15, (1988).
- Parallel Digital and Symbolic Optical Computation using Optical Phase Conjugation, Yao Li, G. Eichmann, R. R. Alfano, SPIE Symposium on "Optical Computing", Los Angeles, CA, Jan. 10-15, (1988).
- Dispersionless-like Propagation of Induced Spectral Broadened Laser Pulses in ZnSe, P. P. Ho, P. Z. Wang, R. R. Alfano, International Conference on Lasers '87, Lake Tahoe, Nevada, Dec. 7-12, (1987).
- Frontier of Ultrafast Laser Technology - Supercontinuum and Medical Applications, R. R. Alfano, Plenary invited talk, International Conference on Lasers '87, Lake Tahoe, Nevada, Dec. 7-12, (1987).
- Laser Action in Chromium-Doped Forsterite, V. Petricevic, S. K. Gayen, R. R. Alfano, Plenary invited talk, International Conference on Lasers '87, Lake Tahoe, Nevada, Dec. 7-12, (1987).
- Fluorescence Spectra from Cancerous and Normal Human Breast and Lung Tissues, R. R. Alfano, G. C. Tang, A. Pradhan, D. J. Choy, E. Opher, Invited talk, OSA Annual meeting, Rochester, NY, Oct. 18-23, (1987).
- Single-Shot Real-Time-Resolved Phonon Dephasing Measurements using Phase Conjugation, Peter J. Delfyett, R. Dorsinville, R. R. Alfano, OSA Annual Meeting, Rochester, NY, Oct. 18-23, (1987).
- Self-, Cross-, and Induced-Phase Modulations in Condensed Matter, Invited talk, OSA Annual meeting, Rochester, NY, Oct. 18-23, (1987).
- Ultrafast Digital Optical Computing using Optical Four-Wave Mixing, Y. Li, G. Eichmann, R. Dorsinville, and R. R. Alfano, OSA Annual meeting, Rochester, NY, Oct. 18-23, (1987).
- Experimental Evidence for Cross-Phase Modulation, Induced-Phase Modulation, and Self-Focusing of Picosecond Pulses in Optical Fibers, P. Baldeck, P. P. Ho, R. R. Alfano, OSA Annual meeting, Rochester, NY, Oct. 18-23, (1987).
- Laser Fluorescence Spectra from Cancerous and Normal Human Breast and Lung Tissues, R. R. Alfano, G. C. Tang, D. Choy, E. Opher, Invited Paper *Bulletin of the American Physical Society* 32, 1602, Third International Laser Science Conference, September (1987).
- Spectral and Temporal Investigation of Cross and Induced Phase Modulation Effects on Picosecond Pulses in Singlemode Optical Fibers, P. L. Baldeck, F. Racciah, R. Garuthara, and R. R. Alfano, *Bulletin of the American Physical Society* 32, 1616, Third International Laser Science Conference, September (1987).
- Enhancement of Ultrafast Supercontinuum Generation in Water Cations, P. P. Ho, T. Jimbo, Q. X. Li, Q. Z. Wang, V. L. Caplan and R. R. Alfano, *Bulletin of the American Physical Society* 32, 1631, Third International Laser Science Conference, September (1987).
- Real Time Vibrational Kinetics in Wide Band Gap Crystals and Liquids, R. Dorsinville, P. J. Delfyett, R. R. Alfano, *Bulletin of the American Physical Society* 32, 1632, Third International Laser Science Conference, September (1987).

- Laser Fluorescence Spectra from Cancerous Tumor and Normal Human Breast and Lung Tissues, R. R. Alfano, G. C. Tang, A. Pradhan, M. Bleich, D. Choy, E. Opher, *Journal of Tumor Marker Oncology* 2, 77, 4th International Conference on Human Tumor Markers, New York, August 25-28, (1987).
- Energy Relaxation and Diffusion of Photoexcited Carriers in Symmetric and Asymmetric GaAs Quantum Wells, K. Shum, M. R. Junnarkar, H. S. Chao, R. R. Alfano, H. Morkoc, Invited Paper, *SPIE Proceedings* 793, March (1987).
- Optical Transitions and Enhanced Recombination Lifetimes in Quasi-Zero Dimensional Electron System in $\text{CdS}_x\text{Se}_{1-x}$, K. Shum, G. C. Tang, M. R. Junnarkar, R. R. Alfano, *SPIE Proceedings* 793, March (1987).
- Ultrafast Photoluminescence Kinetics of Photoexcited Carriers in Symmetric and Asymmetric Quantum Wells GaAlAs-GaAs Microstructures, M. R. Junnarkar, K. Shum, S. Chao, R. R. Alfano, H. Morkoc, *SPIE Proceedings* 793, March (1987).
- Confinement Effects on the Scattering of Electrons by Polar Optical Phonons in Semiconductor Quantum Wells, K. Shum, R. R. Alfano, *SPIE Proceedings* 793, March (1987).
- Transient Gratings in Wide Bandgap Crystals, P. J. Delfyett, R. Dorsinville, R. R. Alfano, *SPIE Proceedings* 793, March (1987).
- Explosive Diffusion and Phonon Screening by Photogenerated Carrier Density, M. R. Junnarkar, R. R. Alfano, *SPIE Proceedings* 793, March (1987).
- Photoconductive Response in Highly Oriented Trans-polyacetylene, R. Dorsinville, R. Tubino, J. L. Birman, and R. R. Alfano, *Bulletin of The American Physical Society* 32, 431 March (1987).
- Picosecond Kinetics of Carriers in GaAs/GaAlAs Quantum Wells, M. R. Junnarkar, K. Shum, H. S. Chao, and R. R. Alfano, *Bulletin of the American Physical Society* 32, 436 March (1987).
- Shock-Wave-Induced Collision Broadening of the Photoluminescence Spectra in GaSe, X. Z. Lu, S. Lee, R. Garuthara and R. R. Alfano, *Bulletin of the American Physical Society* 32, 450 March (1987).
- Microscopic Theory of Optical Pulse Propagation through Semiconductor, Joseph Malinsky, Joseph L. Birman, and R. R. Alfano, *Bulletin of the American Physical Society* 32, 450 March (1987).
- Picosecond Excite-and-Probe Absorption Studies of Nonradiative Relaxation Kinetics in Tunable Solid State Laser Crystals, Invited, R. R. Alfano, and S. K. Gayen, *Bulletin of the American Physical Society* 32, 465, March (1987).
- Time-Resolved and Steady-State Photoluminescence from 1S and 1P Electron-hole Recombinations in Quasi-Zero Dimensional Electron System in CdS, Se_{1-x} , Kai Shum and R. R. Alfano, *Bulletin of the American Physical Society* 32, 566 March (1987).
- Intensity Effects on the Stimulated Four Photon Spectra Generated by Picosecond Pulses in Optical Fibers, P. L. Baldeck and R. R. Alfano, *Bulletin of the American Physical Society* 32, 566 March (1987).
- Noncollinear Second Harmonic Generation for Ultrafast Digital Optical Computing, Y. Li, G. Eichmann, P. P. Ho, X. Luo, and R. R. Alfano, *Bulletin of the American Physical Society* 32, 566 March (1987).
- Picosecond Time Resolved Transient Gratings in ZnSe, P. J. Delfyett, R. Dorsinville, and R. R. Alfano, *Bulletin of the American Physical Society* 32, 609 March (1987).
- Dispersionless Propagation of Modulated Two-Photon-Like Excitonic Polaritons in ZnSe, P. P. Ho, Z. Wang, T. Jimbo, R. R. Alfano, *Bulletin of the American Physical Society* 32, 728 March (1987).
- New Medical Frontier of Fluorescence Spectroscopy and Time Resolved Fluorescence for Early Diagnosis of Disease Tissues, Invited, R. R. Alfano, *Global Foundation, New Frontier of Lasers in Medicine*, Orlando, Florida, December 7-10, (1986).
- Effect of Intense Picosecond Laser Induced Shock Pressure on the Spontaneous and Stimulated Emission from Layered GaSe Semiconductor, R. Rao, X. Z. Lu, A. Doukas, B. Willman, S. Lee, R. R. Alfano, Invited, *Lasers '86*, Orlando, Florida, November 3-7, (1986).
- IPM: Induced Spectral Broadening of Ultrashort Laser Pulses in Condensed Matter, R. R. Alfano, P. P. Ho, Invited, *Lasers '86*, Orlando, Florida, November 3-7, (1986).
- Supercontinuum Laser Pulse Profile Characterization and Compression, P. P. Ho, Q. Li, T. Jimbo, R. R. Alfano, *Annual Meeting of Optical Society of America*, Seattle, Washington, October 19-25, (1986).
- Photoluminescence Dynamics of the Layered GaSe Semiconductor under Intense Picosecond Laser-Induced Shock Waves, X. Z. Lu, R. Rao, A. Doukas, B. Willman, S. Lee, R. R. Alfano, *Annual Meeting of Optical Society of America*, Seattle, Washington, October 19-25, (1986).
- Induced Spectral Broadening of a Second Harmonic Pulse in ZnSe Crystals Generated by an Intense Ultrashort Laser Pulse, R. R. Alfano, Q. Z. Wang, T. Jimbo, P. P. Ho, Invited, *Annual Meeting of Optical Society of America*, Seattle, WA October 19-25 (1986).

- Induced Spectral Broadening in ZnSe Crystals by an Intense Picosecond Laser Pulse, R. R. Alfano, Q. Z. Wang, T. Jimbo, P. P. Ho, 170th Meeting of the Electrochemical Society, San Diego, CA, October 19-24, (1986).
- Photoexcitations and Photoconduction in Highly Oriented Polyacetylene, R. Tubino, R. Dorsinville, J. L. Birman, and R. R. Alfano, Proceedings of International School of Molecular Electrons, Varna, Bulgaria, October (1986).
- Infrared 3-14 mm Continua Generated using Picosecond 10 mm Pulses, P. B. Corkum, P. P. Ho, R.R. Alfano, CLEO '86 Conference on Lasers and Electro-Optics, San Francisco, ThR1, June 9-13, (1986).
- Status of the Ultrafast Supercontinuum, R. R. Alfano, MIT EECS/RLE Seminar Series on Optics and Quantum Electronics, MIT April 23, (1986).
- Photoconductivity Measurements in Highly Stretched Trans-Polyacetylene Films, R. Dorsinville, M. Szalkiewicz, R. R. Alfano, J. L. Birman, Bull. Am. Phys. Society 31, 230, March meeting, Las Vegas, March 31-April 5, (1986).
- Influence of Mn^{2+} Ions on Bound States of Carriers in Wurtzite Semimagnetic Semiconductors $Cd_{1-x}Mn_xSe$, M. R. Junnarkar, R. R. Alfano, Bull. Am. Phys. Society 31, 294, March meeting, Las Vegas, March 31-April 5, (1986)
- Carrier Relaxation Dynamics in GaAs Heterostructures measured by Femtosecond Four-Wave Mixing Transient Gratings, A. Katz, P. Ryerson, R. R. Alfano, Bulletin of Am. Phys. Society 31, 294 March meeting, Las Vegas, March 31-April 5, (1986).
- Photogenerated High Density Electron-Hole Plasma Energy Relaxation and Experimental Evidence for Rapid Expansion of the Electron-Hole Plasma in CdSe, M. R. Junnarkar, R. R. Alfano, Bull. Am. Phys. Society 31, 350, March meeting, Las Vegas, March 31-April 5, (1986).
- Determination of Valence-band-discontinuity via Optical Transitions in Ultrathin Quantum Wells, K. Shum, P. P. Ho, R. R. Alfano, Bull. Am. Phys. Society 31, 556, March meeting, Las Vegas, March 31-April 5, (1986).
- Electron-Degeneracy Effects on Electron-Energy-Loss Rate for Two- and Three-Dimensional Electron Systems, K. Shum, R. R. Alfano, Bull. Am. Phys. Society 31, 350, March meeting, Las Vegas, March 31-April 5, (1986).
- Intense Picosecond Laser Generated Shock Wave Induced Photoluminescence Dynamics of GaSe, R. Rao, X. Z. Lu, S. Lee, B. Willman, A. G. Doukas, P. Harris, R. R. Alfano, APS 31, 838 (1986), Washington meeting.
- The Ultrafast Supercontinuum Laser Source, invited, R. R. Alfano, International Conference on Lasers '85, Las Vegas, December 2-6, (1985).
- Determined Valence-Band Discontinuity Via Optical Transitions in Ultrathin Quantum Wells, K. Shum, P. P. Ho, R. R. Alfano, International Conference on Lasers '85, Las Vegas, December 2-6, (1985).
- Nonradiative Relaxation in Tunable Solid State Laser Crystals, S. K. Gayen, W. B. Wang, V. Petricevic and R. R. Alfano, International Conference on Lasers '85, Las Vegas, December 2-6, (1985).
- Determination of Single and Collective Particle Correlation Kinetics using Time Resolved Picosecond Phase Conjugation, J. R. Buchert, R. Dorsinville, P. Delfyett, R. R. Alfano, International Conference on Lasers '85, Las Vegas, December 2-6, (1985).
- Single Shot Autocorrelator based on Degenerate Four Wave Mixing, J. Buchert, R. Dorsinville, P. Delfyett, and R. R. Alfano, International Conference on Lasers '85, Las Vegas, December 2-6, (1985).
- Picosecond Time Resolved Studies of Nonradiative Relaxation in Ruby and Alexandrite, S. K. Gayen, W. B. Wang, V. Petricevic, R. R. Alfano, First International Laser Science Conference, Dallas, Texas, (1985).
- Temperature Dependence of the Ultrafast Photoluminescence Kinetics from the Magnetic Semiconductors $CdCr_3Se_4$ Excited by Femtosecond Laser Pulse, P. P. Ho, W. Lam, A. Katz, S. S. Yao, R. R. Alfano, ML7 - International Conference on Lasers '85, p.5, Las Vegas, Dec. 2-6, (1985).
- High Power Picosecond Laser Generated Shock Waves in Condensed Matter, R. Rao, A. Doukas, R. R. Alfano, P. Harris, ML8 - International Conference on Lasers '85, p.5, Las Vegas, Dec. 2-6, 1985.
- Single and Collective Particle Relaxation Time Measurements from Picosecond Phase Conjugate Experiments, J. Buchert, R. Dorsinville, P. Delfyett, S. Krimchansky, R. R. Alfano, WF8 - International Conference on Lasers '85, p. 13, Las Vegas, Dec. 2-6 (1985).

- Photoluminescence Determination of Well Depth of $\text{Ga}_{0.47}\text{In}_{0.53}\text{As}/\text{Al}_{0.48}\text{In}_{0.52}$ in Ultrathin Single Quantum Wells, K. Shum, P. P. Ho, R. R. Alfano, HL5 - International Conference on Lasers '85, P. 20, Las Vegas, Dec. 2-6, (1985).
- Nonradiative Loss Mechanism and Tunable Solid State Laser Material, S. Gayen, W. B. Wang, V. Petricevic, R. R. Alfano, HL6 - International Conference on Lasers '85, p. 20, Las Vegas, Dec. 2-6, (1985).
- Phase Conjugate Temporal Correlator for Laser Pulse and Coherence Duration Measurements, J. Buchert, R. Dorsinville, P. Delfyett, S. Krimchansky, R. R. Alfano, FE7 - International Conference on Lasers '85, p.27, Las Vegas, Dec. 2-6, 1985.
- Time Resolved Picosecond Raman Induced Phase Conjugation in Liquids and Solids, R. Dorsinville, P. Delfyett, R. R. Alfano, APS Bulletin American Physical Society - First International Laser Science Conference, Vol. 30,1798 (1985).
- Picosecond Time-Resolved Studies of Nonradiative Relaxation in Ruby and Alexandrite, S. K. Gayen, W. B. Wang, V. Petricevic, R. R. Alfano, invited, APS Bulletin American Physical Society - First International Laser Science Conference - Vol. 30, 1798 (1985).
- High Density Photoexcited Free Carrier Spin Relaxation Processes in Wurtzite Semiconductor CdSe and Semimagnetic Semiconductor $\text{Cd}_{1-x}\text{Mn}_x\text{Se}$, M. R. Junnarkar, R. R. Alfano, J. Furdyna, Bull. American Physical Society 30, 575 (1985).
- Native Defects in CdSe Studied by Picosecond Spectroscopy, D. L. Rosen, Q. X. Li, R. R. Alfano, Bull. Am. Phys. Soc. 30, 258 (1985).
- Picosecond Excite-and-Probe Absorption Measurements of Cr^{3+} Ions in Laser Crystals, S. K. Gayen, V. Petricevic, W. B. Wang, R. Dorsinville, N. Ockman, R. R. Alfano, Bull. Am. Phys. Soc. 30, 419 (1985).
- Inelastic Light Scattering off the Shock Front in Water, K. P. Leung, A. G. Doukas, R. R. Alfano, P. Harris, Bull. Am. Phys. Soc. 30, 318 (1985).
- Fluorescence Kinetics of Emission from a Small Finite Volume of a Biological System-MAM-F2; A. J. Dagen, R. R. Alfano, B. A. Zilinskas, C. E. Swenberg, 9th International Congress on Photobiology and 12th Annual Meeting of the American Society for Photobiology, Philadelphia, Pa., July 1-6, 1984.
- Analysis of Fluorescence Kinetics and Energy Transfer in Isolated a Subunits of Phycoerythrin from Nostoc sp - MAM-F3, A. J. Dagen, R. R. Alfano, B. A. Zilinskas, C. E. Swenberg, 9th International Congress on Photobiology and 12th Annual Meeting of the American Society for Photobiology, Philadelphia, Pa., July 1-6, 1984.
- Energy Dynamics in a Small Subunit of a Phycobilin Studied by Picosecond Fluorescence Kinetics, A. J. Dagen, R. R. Alfano, B. A. Zilinskas, C. E. Swenberg, Topical Meeting on Ultrafast Phenomena, Monterey, Ca. June 12-15, 1984.
- Shock Waves Generation, Pressure and Temperature Measurement in GaSe, Using Picosecond Laser Technology, K. P. Leung, S. S. Yao, A. G. Doukas, R. R. Alfano, and P. Harris, Symposium on Shock-Enhanced Solid State Resistivity and the Chemistry of Shock Compressed Fluids, 7th ACS Rocky Mountain Regional Meeting, Albuquerque, NM, June 6-8, 1984.
- Generation, Pressure and Temperature Measurement of Shock Wave in Layered Semiconductor GaSe by Picosecond Laser Pulses, K. P. Leung, S. S. Yao, A. G. Doukas, R. R. Alfano, and P. Harris, (Bull. Am. Phys. Soc. 29, 724 (1984)), 1984 Spring Meeting of American Physical Society, Washington, D.C., April 23-26, 1984.
- The Primary Event in Vision Investigated by Time-Resolved Fluorescence Spectroscopy, A. G. Doukas, R. R. Alfano, R. H. Callender (invited paper, Laser '84).
- Picosecond Laser Shock Wave Research at the Institute for Ultrafast Spectroscopy and Lasers, R. R. Alfano, K. P. Leung, S. S. Yao, A. G. Doukas, (to be published by Chemical Propulsion Information Agency), 1983 ONR Workshop on Energetic Material Initiation Fundamentals, Chestertown, Maryland, August 15-17, 1983.
- Picosecond Laser Induced Shock-Wave-Pressure Measurement in Al, c-Si, and GaAs, K. P. Leung, S. Yao, R. R. Alfano, "Shock Waves in Condensed Matter - 1983" (J. R. Asay, R. A. Grafson, G. K. Straub (editors), Elsevier Science Publishers B.V. 1984), 1983 American Physical Society Topical Conference on "Shock Waves in Condensed Matter", Santa Fe, NM, July 18-21, 1983.
- Picosecond Absorption Studies of the Seven-Member Visual Pigment, J. Buchert, V. Stefancic, G. Doukas, R. R. Alfano, R. H. Callender, A. Pande, J. Pande, H. Akita, V. Balogh-Nair and K. Nakanishi, 10th

- International Conference on Photochemistry, Iraklion, Greece, September 6-12, 1981. *J. Photochem.* 17, 37 (1981).
- Fluorescence Relaxation Kinetics from the Visual Pigments, A. G. Doukas and R. R. Alfano, 10th International Conference on Photochemistry, Iraklion, Greece, September 6-12, 1981.
- Photoluminescent Spectra and Kinetics of CdCr_2Se_4 , Third Conference on Dynamical Processes in the Excited States of Ions and Molecules, Regensburg, F.R. Germany, July 1981.
- Fluorescence Relaxation Kinetics and Quantum Yield from the C-PE + C-PC Particle Isolated from the Phycobilisomes of *Nostoc* Sp., A. J. Dagen, P. Sekuler, F. Pellegrino, R. R. Alfano, B. A. Zilinskas, *Bull. Am. Phys. Society*, (KF-8) 26, 51 (1981).
- Energy Transfer and Exciton Effects in the Isolated Phycobiliproteins and Intact Phycobilisomes of the Alga *Nostoc* Sp., F. Pellegrino, D. Wong, A. G. Doukas, V. Stefancic, J. Buchert, R. R. Alfano, B. A. Zilinskas, *Bull. Am. Phys. Society*, (KF-7) 26, 50 (1981).
- Measurement of Energy Transfer Rates in Dyes using Picosecond Streak System, P. Y. Lu, Z. X. Yu, A. G. Doukas, J. Buchert, P. Sekuler, R. R. Alfano, *Bull. Am. Phys. Society*, (KF-6) 26, 50 (1981).
- Spin Relaxation Kinetics of Conduction Electrons in p-type GaAs, M. Junnarkar, R. J. Seymour, R. R. Alfano (BE4) *Bull. Am. Phys. Soc.* 26, 19 (1981).
- Picosecond Absorption Fluorescence Studies of the Isolated Phycobiliproteins from the Blue-green Alga *Nostoc* sp., A. G. Doukas, F. Pellegrino, D. Wong, V. Stefancic, J. Buchert, R. R. Alfano and A. A. Zilinskas. 5th International Congress on Photosynthesis, Halkidiki, Greece, September 7-13, 1980. Abstract p. 150.
- Picosecond Polarization Kinetics of Photoluminescence of Semiconductors and Dyes, R. J. Seymour, P. Y. Lu, R. R. Alfano, Picosecond Phenomena Conference, FA-4, June 18-20, 1980, N. Falmouth, Mass.
- Direct Measurement of Conduction Spin Relaxation in GaAs, R. J. Seymour, and R. R. Alfano, *Bull. Am. Phys. Soc.* 25, 174 (1980), New York Meeting, March 24-28, 1980.
- Fluorescence Depolarization in Malachite Green as a Function of Solvent Viscosity, F. Pellegrino, S. S. Yao, R. R. Alfano, #728, (1980) Pittsburgh Conference, March 10-14, 1980, Atlantic City, NJ.
- Visual Processes Probed by Picosecond Absorption Spectroscopy, A. G. Doukas, V. Stefancic, R. R. Alfano, #446, (1980) Pittsburgh Conference, March 10-14, 1980, Atlantic City, NJ.
- Picosecond Fluorescence and Absorption Techniques Probe the Photosynthetic Light-Harvesting Mechanism in Phycobilisomes, D. Wong, F. Pellegrino, A. G. Doukas, V. M. Stefancic, R. R. Alfano, B. A. Zilinskas, Pittsburgh Conference on Analytical Chemistry, Atlantic City, March (1980).
- Picosecond Laser Spectroscopy Measuring Techniques, R. R. Alfano, NIH Instrumentation Symposium, Oct. 4, 1979, Bethesda, MD.
- Understanding the Primary Energy Transfer Processes in Photosynthesis in Higher Plants, R. R. Alfano, *Bio-Energy Directory* (1979).
- Picosecond Fluorescence Spectroscopy of Phycobilisomes and Phycobiliproteins from *Nostoc* sp., A. Wong, F. Pellegrino, B. A. Zilinskas, and R. R. Alfano. Presented at the Seventh Annual Meeting of American Society for Photobiology, June 24-29, 1979, Asilomar, CA, THAM-C8 181-182 (1979).
- Video Imaging Systems in Picosecond Laser Spectroscopy, F. Pellegrino and R. R. Alfano. Presented at the American Chemical Society Meeting at Miami Beach Convention Center, Miami, Florida 8 (1979).
- Time Resolved Picosecond Laser Spectroscopy, F. Pellegrino, A. Kalpaxis, R. R. Alfano, *SPIE Conference Computers in Science* 148, 17 (1978).
- Direct Measurement of the Rotational Relaxation Kinetics of the Plastic Crystal-Succinonitrile using Picosecond Spectroscopy, P. P. Ho and R. R. Alfano, *IEEE QE-78*, 678 (1978). Tenth International Quantum Electronic Conference.
- Direct Measurement of Re-orientational Relaxation Kinetics of the Plastic Crystal-Succinonitrile, P. P. Ho and R. R. Alfano, *Bull. Am. Phys. Soc.* 23, 280 (1978).
- The Primary Photochemistry of Rhodopsin, T. Monger, R. R. Alfano, R. Callender, *Bull. Am. Phys. Soc.* 23, 283 (1978).
- Time Resolved Fluorescence Spectroscopy of Spinach Chloroplast, F. Pellegrino, W. Yu, R. R. Alfano, 5th Annual Meeting of Am. Soc. of Photobiology, May 14, 1977 (invited) SAM-BS 5, 86 (1977).
- Picosecond Fluorescence Streak Camera Spectroscopy, W. Yu, F. Pellegrino, M. Grant, R. R. Alfano, R. Eno, 28th yr Pittsburgh Conference on Analytical Chemistry, p. 487, Feb. 28, 1977.
- Numerical Simulation of Self-Phase Modulation Near Electronic Resonance of a Crystal, R. A. Fisher, R. R. Alfano, J. Gersten, *Bull. Am. Phys. Soc.* 21, 1284 (1976).

- Rotational Relaxation Times of Anisotropic Molecules in Mixed Liquids, R. R. Alfano, P. Ho, and W. Yu, *Opt. Comm.* 18, 193 (1976).
- Stimulated Raman Scattering in Glass Formers, A. P. Defonzo, J. Tauc, R. R. Alfano, *Bull. Am. Phys. Soc.* 21, 338 (1976).
- Fission of a Singlet State of Azulene in Mixed Liquids, Kazuo Aoki and R. R. Alfano, *Bull. Am. Phys. Soc.* 21, 670 (1976).
- Ultrafast Phenomena, R. R. Alfano (invited), *Bull. Am. Phys. Soc.* 21, 122 (1976).
- Exciton Caging, S. Arnold, R. R. Alfano, M. Pope, W. Yu, P. P. Ho, R. Selsby, J. Tharrats, C. E. Swenberg, *Bull. Am. Phys. Soc.* 21, 76 (1976).
- Primary Fluorescent Kinetics in Photosynthesis, W. Yu, F. Pellegrino, R. R. Alfano, *Bull. Am. Phys. Soc.* 21, 57 (1976).
- Relaxation of the Optical Kerr Effect of Anisotropic Molecules in Mixed Liquids, P. P. Ho, W. Yu, R. R. Alfano, *Bull. Am. Phys. Soc.* 21, 19 (1976).
- Fluorescence from the Chromophore of the Purple Membrane, Biology Meeting Washington, 1976.
- Photosynthesis Probed Directly with Picosecond Pulses, *Bull. Am. Phys. Soc.* 20, 336 (1975).
- Vibrational Decay Routes in Pure and Mixed Liquids, R. R. Alfano, VIII International Quantum Electronics Conf., San Francisco, California, Cat. No. CHO-858-1 QECON Digest, p. 68, June 10, 1974.
- Effect of Additives on Quantum Efficiency and Laser Operation of 4-Methylumbelliferone Liquid Dyes, J. Gersten, S. Ahmed, and R. R. Alfano, *Bull. Am. Phys. Soc.* 18, 611 (1973).
- Emission Kinetics of Photosystem I and Photosystem II Fluorescence on a Picosecond Time Scale, M. Seibert and R. R. Alfano, *Am. Soc. for Photobiol.* (May 1973), Sarasota, Florida MAM-C3.
- Picosecond Fluorescent Kinetics of INVIVO Chlorophyll, M. Seibert, R. R. Alfano, S. L. Shapiro, *Biophys. Soc.* 17th Ann. Meeting, Feb. 27, 1973 (FPMB 15).
- Direct Measurement of Decay Route in Liquid with Picosecond Laser Pulses, R. R. Alfano and S. L. Shapiro, *Bull. Am. Phys. Soc.* 18, 62 (1973).
- Nonlinear Optical Studies with Picosecond Pulses, R. R. Alfano and S. L. Shapiro, June 10, 1972, Boulder, Colorado.
- Dynamics of Ultrafast Decay Processes of the Erythrosin Molecule in Different Solvents, R. R. Alfano, VII Int'l Quantum Electronics Conf., Montreal, Canada, Cat. No. CHO-603-1 QECON Digest, p. 10, May 8-11, 1972.
- Interaction of Picosecond Laser Pulses with Matter, R. R. Alfano, GTE Labs. Tech. Report TR 72-230.1, April 1972.
- Optical Phonon Lifetime Measured Directly with Picosecond Pulses, R. R. Alfano, Int'l. Conf. on Phonons, Rennes, France, July 1971.
- Molecule Vibrational Lifetime Measured Directly in Liquid Nitrogen with Picosecond Pulses, R. R. Alfano and S. L. Shapiro, *Bull. Am. Phys. Soc.* 16, 833 (1971).
- Nonlinear Optical Properties of Liquid Lasers, R. R. Alfano, A. Lempicki, and S. L. Shapiro, IEEE/OSA Conference on Laser Engineering and Applications, Washington, D.C., June 1971.
- Picosecond Spectroscopy using the Inverse Raman Effect, R. R. Alfano, and S. L. Shapiro, *Bull. Am. Phys. Soc.* 16, 592 (1971).
- Direct Measurement of the Lifetime of an Optical Phonon, R. R. Alfano and S. L. Shapiro, *Bull. Am. Phys. Soc.* 16, 53 (1971).
- Direct Measurement of the Lifetime of an Optical Phonon, R. R. Alfano, *Bull. Am. Phys. Soc.* 15, 1324 (1970).
- Observation of Self-Phase Modulation, Small-Scale Filaments and Four-Photon Nondegenerate Scattering in Solids and Liquids, R. R. Alfano, and S. L. Shapiro, 7th Int'l Quantum Electronics Conf., Kyoto, Japan, September 1970.
- Emission in the Region from 4000 to 7000Å via Four Photon Coupling in Glass, R. R. Alfano, *Bull. Am. Phys. Soc.* 15, 507 (1970).
- Observation of Self-Phase Modulation in Crystals and Glasses, R. R. Alfano, and S. L. Shapiro, *Bull. Am. Phys. Soc.* 15, 506 (1970).

OTHER SEMINARS

- Seeing In and Through Scattering Walls with Smart Photons, R. R. Alfano, Princeton University Seminar, Princeton, NJ, April 6, 2001.

- Capturing Light to Image through Scattering Walls for Biomedical Photonics, R. R. Alfano, invited talk at NY Academy of Sciences, New York, NY, November 17, 2000.
- Optical Imaging Study of Human Prostate Tissues, W. B. Wang, J. Ali, R. R. Alfano, J. H. Vitenson, J.M. Lombardo, The Soc. For Urology and Engr. Inc. 14th Annual Meeting, Atlanta, GA, April 29, 2000.
- Capturing Early and Diffusive Light for Imaging Applications, R. R. Alfano, MIT Seminar on Optics &QE, April 12, 2000.
- Optical Biopsy for Non-invasive Cancer Detection, R. R. Alfano, NASA Occupational Health Program Workshop on Skin Cancer Screening, Early Detection, and Prevention, Cocoa Beach, FL, March 22 - 23, 2000.
- Preparation of Optical Composites, Leslie L. Isaacs, R. R. Alfano, V. Petricevic, B. P. Wang, J. Ying, Materials Research Society 1999 Fall Meeting, Boston, MA, November 29 – December 3, 1999.
- Introduction to Light: Spectral, Temporal, Vector Properties, and Medical Applications, R. R. Alfano, Lecture Series: Introduction to Photonics for Medical Research, NYEEI, New York, NY, May 20, 1999.
- Linear and Nonlinear Optical Biopsy and Imaging, R. R. Alfano, Boston University, April 8, 1998.
- Mediphotonics: At the Cutting Edge of Medicine, R. R. Alfano, CUNY Alumni Association meeting, CUNY Grad Ctr., April 17, 1996.
- Advances in Time and Space Optical Imaging of Biomedical Media, R. R. Alfano, FDA and NIH Mental Health sponsored conference on Current and Emerging Techniques for Monitoring Brain Structure & Function, March 28-29, 1996, NIH, Bethesda, MD.
- Mediphotonics - the future medical diagnostic and therapeutic instruments, R. R. Alfano, Alumni Assoc. of CCNY meeting, CUNY Graduate Center, November 28, 1995.
- Light Adds a New Dimension to Medical Diagnostics, R. R. Alfano, New and Emerging Technologies for the Detection and Treatment of Breast Cancer, Roundtable Panel Discussion of the Legislative Commission on Science and Technology, Copiague, NY, Nov. 15, 1995.
- Advances in Time-resolved Optical Imaging, R. R. Alfano at NY State Section of APS Spring meeting – Physics in Medicine - 72nd Semiannual Symposium, GE Corporate R&D Center, Schenectady, NY, April 7-8, 1995.
- Snake Light Imaging, R. R. Alfano, Integration of Medical Optical Imaging and Spectroscopy (MOI/MOIS) and Magnetic Resonance Imaging (MRI), Univ. of Penn. School of Medicine, December 2, 1994.
- Optical Biopsy Approaches, R. R. Alfano, Lester Wolfe Workshops in Laser Biomedicine - Optical "Biopsy" sponsored by MIT Laser Biomedical Research Center, MGH Wellman Laboratories, MIT Industrial Liaison Program, & Harvard-MIT Division of Health Sciences and Technology, MIT, Nov. 15, 1994.
- Presentation on CUNY Photonic Research and Development Programs, R. R. Alfano, at Board of Visitors Reorganization Meeting, GSUC, June 30, 1994.
- Science behind Optical Biopsy Approach based on Optical Spectroscopy, R. R. Alfano, Westergaard Med-Tech Conference, NY, April 1994.
- Absorption, CW Fourier, and Temporal Spatial Kerr Fourier Gated Optical Imaging of Hidden Objects in Thick Scattering and Biological Media, R. R. Alfano at Engineering Foundation's Conference on Future Directions for Lasers in Medicine and Surgery III, Palm Coast, FL, February 27-March 4, 1993.
- Optical Spectroscopy for Medical Applications, R. R. Alfano, Memorial Sloan-Kettering presentation, October 5, 1992.
- Fluorescence Spectroscopy of Breast Cancer, R. R. Alfano, J. Cleary, Radiation Oncology/Medical Oncology grand rounds, New York Medical Center, January 29, 1992.
- Light Scattering in Random Media, R. R. Alfano, Polytechnic University Physics Department Colloquium, Fall 1991, Brooklyn, NY, November 21, 1991.
- Photon Migration and Light Scattering for Imaging Applications, R. R. Alfano, G. E. Research and Development Center, Schenectady, NY, November 14, 1991.
- Photon-Migration and Imaging in Turbid Media, R. R. Alfano, 1991-1992 NEC Research Institute Colloquium Series, Princeton, NJ, November 12, 1991.
- Fluorescence and IR-Raman Spectroscopy for Cancer Detection, R. R. Alfano, Laser Diagnosis of Disease: An Introduction, MIT Laser Biomedical Research Center, Cambridge, MA, April 23, 1991.
- Cancer Diagnosis by Laser Spectroscopy, R. R. Alfano, SDIO 4th Annual MFEL Conference, Dallas, Texas, September 22-24, 1989.
- New Optical Medical Technologies, R. R. Alfano, Moderator, SUE, Fourth Annual Meeting, Anatole Hotel, Dallas, Texas, May 6, 1989.

- Update on Fluorescence Spectroscopy in Cancer and Normal Tissues, R. R. Alfano, G. R. Nagamatsu, SUE, Fourth Annual Meeting, Anatole Hotel, Dallas, Texas, May 6, 1989.
- The Use of Lasers in Medical Diagnostics, R. R. Alfano, CCNY Engineering School Alumni Forum, March 29, 1989.
- Light Sheds Light on Cancer, R. R. Alfano, New York Academy of Medicine, May 10, 1988.
- Ultrafast Spectroscopy, Lasers, Techniques, Clocks, and Applications (Coupled Phase Modulation and Cancer), R. R. Alfano, Rensselaer Polytechnic Institute, March 9, 1988.
- The ABC of Lasers, R. R. Alfano, CCNY Comfortable Physics Alumnae Homecoming, City College of New York, May 28, (1987).
- Status of Ultrafast Supercontinuum, EE. Dept, Massachusetts Institute of Technology, April (1986).
- Symposium of the Division of Condensed Matter Physics: Time Resolved Optical Probes of Electron Heating, Session presided over by R. R. Alfano, APS meeting, April 4, (1986).
- Continuum Generation, R. R. Alfano, Columbia University Resonance Seminar, October 18, 1985.
- Ultrafast Photonics: Survey of Picosecond and Femtosecond Phenomena, R. R. Alfano, Fairleigh Dickinson University, Teaneck, NJ, October 2, 1985.
- Picosecond Relaxation Kinetics of Highly Photogenerated Carriers in Semiconductors, Third Topical Meeting on Picosecond Phenomena, Garmisch-Partenkirchen, F.R. Germany, June 16-18, 1982.
- Experimental Aspects of Biological Physics in the Picosecond Domain - invited, Dallas, APS March 8-12, 1982.
- Recent Developments in Subpicosecond Fluorescence Spectroscopy, D. L. Rosen A. G. Doukas, Y. Budansky, A. Katz, and R. R. Alfano, 25th Anniversary Meeting of SPIE, Los Angeles, CA, January 25-29, 1982.
- Subpicosecond Tunable Laser Fluorescence Spectroscopy, D. L. Rosen, A. G. Doukas, Y. Budansky, A. Katz, and R. R. Alfano, Annual Meeting of the American Physical Society, New York, NY, December 3-5, 1981.
- Picosecond Clocks in Photobiology, R. R. Alfano, W. Yu, Biology colloquia, November 8, 1981.
- Picosecond Processes in Biology, R. R. Alfano, Chemistry Colloquia, Dec. 3, 1980, Queens College.
- Energy Transfer Mechanism in Semiconductors and Dyes, R. R. Alfano, New York University, Solid State physics Seminar, May 5, 1980.
- Fluorescence Depolarization in Malachite Green as a Function of Solvent Viscosity, Pittsburgh Conference, March 10-14, 1980, Atlantic City, NJ.
- NIH Instrumentation Symposium, Picosecond Spectroscopy, Bethesda, MD., October 4, 1979, Chairman.
- Picosecond Laser Spectroscopy Measuring Techniques, NIH Instrumentation Symposium, Oct. 4, 1979, Bethesda, MD (invited).
- Picosecond Studies in Different States of Condensed Matter, Columbia Univ. Chemistry Department, Nov. 1978.
- Picosecond Laser Spectroscopy Reviewed, Spex Industries, Metuchen, NJ., Sept. 7, 1978.
- Using TV Imaging Systems for Picosecond Fluorescence and Absorption Time Resolved Kinetic Studies, F. Pellegrino and R. R. Alfano, American Chemical Society, Miami, Florida, #40, Image Detectors in Chemistry, Sept. 12, 1978.
- Time Resolved Picosecond Laser Spectroscopy, F. Pellegrino, A. Kalpaxis, R. R. Alfano, SPIE Conference on Computers in Science, August 29, 1978.
- Direct Measurements of the Rotational Relaxation Kinetics of the Plastic Crystal Succinotrile using Picosecond Spectroscopy, P. P. Ho, and R. R. Alfano, XQE Conference, May 30, 1978, Atlanta, Georgia.
- Time Resolved Fluorescence Spectroscopy of Spinach Chloroplast, invited, F. Pellegrino and R. R. Alfano, Fifth Annual Scientific Meeting American Society of Photobiology, Puerto Rico, May 13, 1977.
- The Primary Photochemistry of Rhodopsin, T. Monger and R. R. Alfano, invited, Chemical Applications of Lasers, Nov. 30, 1977, North Carolina.
- Picosecond Laser Spectroscopy in Liquids and Dyes, Allied Chemical, July 18, 1977.
- Ultrafast Techniques, Phillips Laboratories, Oct. 22, 1976.
- Ultrafast Clocks, Brooklyn College Physics Dept., Sept. 30, 1976.
- Ultrafast Laser Spectroscopy, Yale University Chemistry Dept., May 11, 1976.
- Picosecond Laser Clocks, Hunter College Physics Dept., April 7, 1976.
- Ultrafast Laser Clocks, City College Physics Dept., March 24, 1976.
- Picosecond Laser Techniques, Rockefeller University, Biology Dept., Feb. 20, 1976.
- Ultrashort Phenomena (invited), Feb. meeting APS, NYC 1976.
- Photosynthesis Probed Directly with Picosecond Laser Pulses (invited), March Meeting APS, Denver 1975.

- Fluorescent Kinetic Emission from PSI and PSII Subchloroplast Fractions of Spinach, W. Yu, R. R. Alfano and M. Seibert, Biological Conference, Philadelphia, Pa., February 1975.
- Nonlinear Optical Effects and Transient Phenomena Studied with Ultrashort Laser Pulses, R. R. Alfano, Queens College Physics Dept., Nov. 25, 1974.
- Study of Nonlinear Optical Effects and Transient Phenomena with Picosecond Laser Pulses, R. R. Alfano, University of Penn. Chemistry Dept., Nov. 21, 1974.
- Picosecond Laser Applications to Biology, R. R. Alfano and W. Yu, Gordon Research Conf., Lasers in Medicine and Biology, MA 1974 (invited).
- Vibrational Decay Routes in Pure and Mixed Liquids, R. R. Alfano, IEEE-VIII Quantum Electronics Conf., San Francisco 1974 (invited).
- Vibrational Decay Routes in Liquids, R. R. Alfano, Gordon Research Conf., Quantum Electronics, Santa Barbara, CA, 1974 (invited).
- Decay Routes of Molecular Vibrations in a Liquid, R. R. Alfano and S. L. Shapiro Am. Phys. Soc. Meeting, New York 1973.
- Nonlinear Optical Studies with Picosecond Pulses, R. R. Alfano and S. L. Shapiro, Conf. of Precision Electromagnetic Measurements, Boulder, Colorado, June 26-29, 1972.
- Nonlinear Processes measured directly with Picosecond Pulses, Naval Research Laboratory, Washington, D.C., 1972.
- Nonlinear Optical Studies with Picosecond Pulses, R. R. Alfano and S. L. Shapiro Conf. of Precision Electromagnetic Measurements, Boulder, Colorado, June 26-29, 1972.
- Interaction of Picosecond Laser Pulses with Matter, The City College Physics Department Solid State Seminar, April 1972.
- Nonlinear Processes measured directly with Picosecond Pulses, EOOO Sylvania, Mountain View, California, November 1971.
- Ultrafast Lifetimes and Nonlinear Processes measured directly with Picosecond Laser Pulses, City College of New York, EE Dept., October 29, 1971.
- Laser Interaction with Matter, R. R. Alfano and S. L. Shapiro, Picosecond Studies, Gordon Conf. August 27, 1971 (invited).
- Phonon Lifetimes, Naval Research Laboratory, Washington D.C., April 28, 1971.
- Interaction of Picosecond Laser Pulses with Matter, GTE Seminar, Sept. 1970.
- Interaction of Picosecond Laser Pulses with Matter, Columbia University Resonance Physics Seminar, December 1970.

WORK IN PROGRESS**CURRENT AND PLANNED RESEARCH**

A. To study ultrafast processes in liquids, solids, semiconductors, and photovisual materials using picosecond and femtosecond laser pulses - in particular:

- 1) vibrational dephasing decay routes in pure and mixed liquids
- 2) optical phonon decay routes
- 3) exciton lifetimes and e-h plasmas in semiconductors
- 4) vision kinetics
- 5) spin relaxation in semiconductors
- 6) intervalley scattering
- 7) ultrafast processes in microstructures

B. To measure nonlinear optical effects - in particular:

- 1) self- and cross-phase modulation
- 2) four-photon mixing
- 3) stimulated Raman scattering

C. Development of Tunable Solid State lasers.

D. Medical Diagnostics using Optical Spectroscopy.

E. Photon Migration in Random Media.

F. Optical Imaging in Random and Turbid Media.