

CURRICULUM VITAE

Bruce Jason Tromberg

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Positions Held

July 2007-present: Director, Beckman Campuswide Organized Research Unit, UC Irvine

October 2003-present: Director, Beckman Laser Institute and Medical Clinic, UC Irvine

October 2003-June 2006: Chief, Beckman Division, Department of Surgery, UC Irvine

July 2002-present: Professor, Departments of Biomedical Engineering and Surgery, UC Irvine.

May 2002 – June 2005: Vice Chair, Department of Biomedical Engineering, UC Irvine.

October 2002-September 2003: Interim Director, Beckman Laser Institute and Medical Clinic, UC Irvine

January 2002 – June 2002: Acting Director, Beckman Laser Institute and Medical Clinic

October 2000 – September 2004: Associate Director, Center for Biomedical Engineering, UC Irvine.

July 1998-July 2002: Associate Professor, School of Engineering, Electrical and Computer Engineering, UC Irvine.

Summer 1998: Visiting Professor, Institute for Applied Optics, Swiss Federal Institute of Technology, EPFL, Lausanne, Switzerland.

April 1997-present: Director, Laser Microbeam and Medical Program (LAMMP), UC Irvine (NIH-Biomedical Technology Resource Center).

July 1995 – July 2002: Associate Professor, Departments of Surgery and Physiology and Biophysics, University of California, Irvine.

January 1995-March 1997: Associate Director, Laser Microbeam and Medical Program, Beckman Laser Institute and Medical Clinic, UC Irvine.

September 1991-June 1995: Assistant Professor, Department of Physiology and Biophysics, University of California, Irvine; joint appointment with Department of Surgery.

January 1990 - June 1995: Assistant Professor, Department of Surgery, University of California, Irvine.

Education

March 1988 - December 1989: Hewitt Foundation Postdoctoral Fellow, Photomedicine, Beckman Laser Institute and Medical Clinic, University of California, Irvine.

1986-88: Department of Energy/Oak Ridge Associated Universities Predoctoral fellow, Oak Ridge National Laboratory, Oak Ridge, Tennessee.

March 1988: Ph.D., Chemistry, University of Tennessee, Knoxville. Dissertation: *Development of Antibody-Based Fiber Optic Sensors.*

December 1983: M.S., Chemistry, University of Tennessee, Knoxville. Thesis: *Laser-Based Optical Fiber Fluoroprobes in Clinical Analysis.*

May 1979: B.A., Chemistry and Psychology, Vanderbilt University, Nashville, Tennessee.

Honors and Awards

April 2008: McIntire Lecture, Rice University Department of Biomedical Engineering.

February 2008: Keynote Address, First International Congress on Biophotonics, Sacramento, CA.

July 2007: Plenary Lecture, Association of Pathology Chairs Annual Meeting, Colorado Springs.

July 2007: Plenary Lecture, Asia-Pacific Rim Symposium on Biophotonics, Cairns, Australia.

December 2006: Elected Fellow, International Society for Photo-Optical Instrumentation Engineers (SPIE).

October, 2006: Founders Series Lecture, Vanderbilt University Institute of Imaging Science.

March 2006: Elected Fellow, American Institute for Medical and Biological Engineers (AIMBE).

May 2005: Research Associates Athalie Clarke Award for Outstanding Health Science Researcher, University of California, Irvine.

April 2005: Sigma Xi Honor Society.

September 2004: Joint NSF-Egypt National Research Center, Egypt-American Workshop on Lasers in Chemistry, Materials, and Biology, Cairo, Egypt.

July 2004: U.S. Chair, Gordon Research Conference, Lasers in Biology and Medicine.

July 2003: Elected board member, International Society for Photo-Optical Instrumentation Engineers (SPIE).

April 2003: Joint NSF-Humboldt Foundation lecture, German-American Frontiers on Engineering, Ludwigsberg, Germany.

January 2003: Plenary speaker, NIH/NIBIB Biomedical Imaging Research Opportunities Workshop.

December 2002: Member, NIH/NIBIB Workshop on Future Research Directions.

May 2001: OE Magazine Technology Innovator Award.

Spring 2001: Chairman elect, Optical Society of America, Bio-Optics Working Group.

January 2001: Member, Beckman Foundation Grants Advisory Council

November 2000: Coherent-Biophotonics “Young Investigator in Biophotonics” Award.

April 2000: Avon Foundation Breast Cancer Research Scholar.

September 1999: Cornelius Hopper Innovation Award, California Breast Cancer Research Symposium.

July 1999: Editor - in - Chief, Journal of Biomedical Optics.

July 1997: Elected Co-chairman, Biannual meeting, The Engineering Foundation, *Advances in Optical Technology for Medicine and Surgery*, Snowbird, Utah.

October 1996: Royal Society Lecture, Symposium on Near Infrared Spectroscopy and Imaging of Living Systems, London, England.

May 1996: Rank Prize Funds Lecture, Diagnostic and Therapeutic Applications of Tissue Optical Properties, Symposium on Photodynamic Therapy, Grasmere, England.

January 1994: National Institutes of Health FIRST Award (5 year).

May 1993: Selected for 9-member National Science Foundation panel on Non-Invasive Medical Diagnostics; conducted workshops and lectures in China.

August 1992: Whitaker Foundation Young Investigator Award (3 year).

March 1988: Hewitt Foundation Postdoctoral Fellowship at the Beckman Laser Institute, University of California, Irvine.

1988: Co-recipient of Martin Marietta Energy Systems Outstanding Publication Award, Oak Ridge National Laboratory.

1988: National Research Council Postdoctoral Fellowship at the U.S. Naval Research Laboratory, Washington, D.C. (not accepted).

1986-1988: Department of Energy-Oak Ridge Associated Universities Pre-Doctoral Fellowship at Oak Ridge National Laboratory.

1987: Research and Development top 100 technological innovations in 1987 (R&D-100 award) for dissertation research on antibody-based fiber optic sensors.

June 1986-1987: Tennessee Science Alliance Academic Achievement Award.

June 1986: John A. Dean Award, Outstanding Analytical Graduate Student.

Professional Societies

Optical Society of America (OSA), The International Society for Optical Engineering (SPIE), Biomedical Optics Society (BiOs), Society for Molecular Imaging, SIGMA XI (The Scientific Research Society)

Service Activities

Editorial

Editor-in-Chief, Journal of Biomedical Optics. June 1999 – present.

Editorial Board Member, Molecular Imaging, January 2002-present.

Associate Editor, Lasers in Surgery and Medicine 1995 – 1997.

Associate Editor, Journal of Biomedical Optics 1995 – 1999.

Guest Editor, Applied Optics/Journal of the Optical Society of America-A, Special Issue on Photon Migration and Imaging in Diffuse Media, 1996/1997.

Guest Editor, Optical Engineering, February 1993 Special Issue on Biomedical Optics.

Journal Review

Applied Optics, Optics Letters, Photochemistry and Photobiology, Lasers in Surgery and Medicine, Review of Scientific Instruments, Physics in Medicine and Biology, Proceedings of the National Academy of Science, Cancer Research, Biophysical Journal, Nature Medicine, Nature Biotechnology

Grant/Program Review

Keck Foundation, National Cancer Institute of Canada, Swiss National Science Foundation, NSF, Arnold and Mabel Beckman Foundation

National Institutes of Health:

Laser Special Study Section, 1992-1994: *Ad Hoc* reviews for Diagnostic Radiology Study Section, MRI/Optical Imaging Study Section, General Clinical Resource Center Program, 1994 – 1999. Member, NIH Biomedical Engineering and Instrumentation Program, Division of Research Resources, review group, chair Applied Physics Track, October 1993; Biotechnology Resource Program, 1997-present; Member, Laboratory for Integrative Medicine and Biophysics, NICHD external review board, 2000, 2004, and 2008;

Member, National Institute of Biomedical Imaging and Bioengineering, Program Progress Review Group, Optical Imaging, 2007- present;

NIH Bioengineering Research Partnerships study section, February 2008

National Advisory Committees and Boards

Society for Nuclear Medicine, Optical Imaging Working Group, 2007 - present

Science & Technology International, Science Advisory Board, 2007 – present

American College of Radiology Imaging Networks, Experimental Imaging Sciences Committee, 2007-present.

Britton Chance Center for Biomedical Photonics, Huazhong University of Science and Technology, China, Business & Scientific Advisory Board, 2007 – present.

Cornell University, Department of Biomedical Engineering, External Advisory Board, 2007-present.

Hewitt Foundation for Medical Research, Board of Directors, 2005-present.

Scientific Advisory Board, Modulated Imaging, Inc. 2005-present.

National Cancer Institute, Network for Translational Research in Optical (NTROI) Steering Committee Co-Chair, 2003-2008

NSF Center for Biophotonics Science and Technology, UC Davis, Scientific Advisory Board, 2004-present.

Washington University Small Animal Imaging Research Center, Scientific Advisory Board, 2004-2008.

International Society for Optical Engineering (SPIE), Board of Directors, 2003-2006.

Beckman Foundation Grants Advisory Council, 2001-present.

Xenogen/Caliper Corporation, Scientific Advisory Board, 2000 – present.

International Society for Optical Engineering (SPIE), Publications Committee, 1999-present.

Laboratory for Fluorescence Dynamics, NIH Biotechnology Resource, External Advisory Board, University of Illinois and UC Irvine, 1998-present.

SPIE/OSA Joint Congressional Position Paper, committee on Biomedical Optics, 2003.

Editorial Advisory Board, OE magazine, 2003-2004.

Optical Society of America, Bio-Optics Advisory Committee, 1999-2003 (Chair 2001-2002).

Joint Working Group on Functional Imaging in Cancer, U.S. Department of Health and Human Services, Office of Women's Health and National Cancer Institute 1997/1998.

Advisory Council on Optical Technologies, U.S. Public Health Service, 1997.

Conference Organization

National Institutes of Health Workshop on Optical Diagnostic Imaging from Bench to Bedside, Co-Chair, Sept. 2006

NCI Network for Translational Research in Optical Imaging (NTROI), Co-Chair, Workshop on Optical Imaging in Translational Research, NIH, Bethesda, MD, Nov. 2005, Oct. 2006, Oct. 2007.

NTROI Multi-Dimensional Diffuse Optical Imaging in Breast Cancer, Workshop & Retreat Chair, Newport Beach, CA, June 2004, 2005, 2006, 2007.

The Society of Photo-Optical Instrumentation Engineers, BiOs, *Photon Migration and Imaging in Tissues*, Conference Co-Chair, San Jose, CA, January 2001, 2003, 2005, 2007, 2009.

Optical Imaging 2004, NIH: Optical Diagnostic Imaging from Bench to Bedside at the NIH, Program Organizer and Committee Chair, 2004.

Society for Molecular Imaging (SMI) Third Annual Meeting of SMI: Optical Tomography and Low Light Imaging Session Organizer & Co-Chair, St. Louis, MO, 2004.

Gordon Research Conference on Lasers in Biology and Medicine, U.S., Chair, 2004.

Optical Society of America, National Meeting, *Optical Technologies in Biology and Medicine*, Overall Chair/Organizer, Tucson, AZ, 2003.

Optical Society of America Topical Meeting, *Biomedical Optics*, Overall Conference Co-Chair, Miami, FL, Spring 2002.

United Engineering Foundation, *Advances in Optics for Biotechnology, Medicine and Surgery*, Organizing Chair/Session Chair, Canada, July 2001.

Gordon Research Conference on Lasers in Biology and Medicine, Advanced Microscopy Methods Session Chair, July 2000.

Optical Society of America Topical Meeting Conference Co-Chair: *Photon Migration and Imaging*, Miami, FL, April 2000.

United Engineering Foundation, *Advances in Optics for Biotechnology, Medicine and Surgery*, Organizing Chair/Session Chair, Hawaii, July 1999.

United Engineering Foundation, *Advances in Optical Technology for Medicine and Surgery*, Co-chairman, Snowbird, UT, July 1997.

Alexander Von Humboldt University, First International Symposium on Optical Techniques for Breast Tumor Detection, Session Co-Chair on Optical Property Measurements, Berlin, June 1997.

Optical Society of America National Meeting, Technical Program Committee Chair, Long Beach, CA, 1997.

Biomedical Optics, Biomedical Optics Society, Conference co-chair, organizing committee: "*Functional Imaging and Optical Manipulation of Living Cells*" & "*Photon Migration and Imaging in Random Media and Tissues*" San Jose, CA, 1993-1999.

Gordon Research Conference on Lasers in Biology and Medicine, Microscopy Session Chairman, 1996.

Optical Society of America topical meeting, Conference Program Committee/organizer: *Biomedical Optical Spectroscopy and Diagnostics*, Orlando, FL, March 1996, March 1998.

Optical Society of America, Conference On Lasers And Electro-Optics (CLEO), Technical Program Committee, 1996, 1997.

American Society for Photobiology National Meeting, Laser Diagnostics Co-Chair, Atlanta, GA, June 1996.

Optical Society of America National meeting (OSA/ILS '95), Conference Program Committee/organizer: *Photon Migration Spectroscopy for Physiological Monitoring and Functional Imaging*, Portland, OR, 1995.

American Society for Lasers in Surgery and Medicine, National Meeting, Poster Section Chairman, San Diego, CA, April 1995.

American Society for Lasers in Surgery and Medicine, National Meeting, *Basic Science and Safety*, Chair, New Orleans, LA, April 1993.

University

School of Medicine, Clinical Research Enterprise Taskforce – 2008 - present

College of Health Sciences, Representative Assembly, 2007 - present

Chair, School of Engineering Dean Search Committee, 2007 – 2008

Institute for Clinical and Translational Science (ICTS), Translational technology core leader and steering committee member, 2006-present

Systems Biology Center Executive Committee, 2007 – present

Chair, Biomedical Engineering chair review committee, 2007.

Health Sciences Campaign Planning Committee, 2007

School of Engineering, Dean Review Committee, 2006

School of Engineering Annual Research Symposium, *Prosperity Through Technology*, May 2006, Co-organizer and Session chair, Ophthalmology and Vision Science.

Callt2 Division Council Member, 2005- present.

UCI Center for Imaging Genetics, Scientific Advisory Committee, 2005-present.

Vice-chair, UCI School of Medicine Vision 2010 Committee, 2004-2005.

Chao Cancer Center Executive Committee, 2004-2006.

Co-Leader, Onco-Imaging and Spectroscopy Program, Chao Family Comprehensive Cancer Center, 2004-present.

School of Medicine Deans/Vice Chancellor Advisory Board, 2003-present.

Vice Chair, Department of Biomedical Engineering, 2002- 2005.

Co-Chair, Executive Council, Beckman Laser Institute, 2001-2002.

Member, Center for Complex Systems and Mathematics in Biology, 2001-present.

Department Chair Search Committee: Dept. of Ob/GYN, 2005 (F. Waffarn, Chair).

Planning Committee, Center for Exercise in Children, GCRC/UCIMC, 2001-2002.

Executive Committee, In Vivo Functional Onco-Imaging Center, 2000-2005.

Member, Center for Embedded Systems, 1999-2000.

Associate Director, Center for Biomedical Engineering, 2000- 2004.

College of Medicine, Representative Assembly, 2000- 2002.

Co-leader, Photomedicine Clinical Program, Chao Family Comprehensive Cancer Center, UC Irvine (NCI-designated Comprehensive Cancer Center), 1996 –2004.

Faculty Advisor for UCI Student Undergraduate Research Fellowship Program (SURF), 1993 and Pre-Graduate Mentorship Program (PGMP), 1998.

Faculty Advisor for National Science Foundation Young Scholars Program: 1993-1994

M.D./Ph.D. program admissions committee, 1992-1997.

Ph.D. advancement committee member in Physics, Electrical Engineering, Chemistry, Biosciences, Biomedical Engineering, Chemical Engineering.

Ph.D. written/oral exam committee, Electro Optics, Electrical and Computer Engineering, Spring 1999-2002.

Chair, Biomedical Optics Symposium Series, Laser Microbeam and Medical Program, Beckman Laser Institute, 1995-2005.

Member of UCI Clinical Cancer Center Faculty, 1992-present.

Co-Coordinator of UCI Clinical Cancer Center's Optical Biology Core Resource Facility, 1994-present.

Associate Director, Laser Microbeam and Medical Program (LAMMP) at the Beckman Laser Institute and Medical Clinic, 1994-1997.

Member of UCI Cancer Research Institute, 1994-present.

Member of UCI Clinical Cancer Center Clinical Trials Protocol Review and Monitoring Committee, 1995-1998.

Member of Strategic Planning Committee, UCI Clinical Cancer Center, 1997/1998; 2002/2003.

Member, Faculty Search Committee: Cell and Developmental Biology, 1998 – 1999.

Member, Faculty Search Committee: Biomedical Engineering, 1998 – 2004.

Member, Faculty Search Committee: Radiological Sciences, 1999 – 2000.

Community

AYSO Soccer Coach, recreational and APP leagues, 1994-2006 (U9-U19)

Pacific Club Soccer Coach, Administrator U10 and U14 boys, 2000-2004.

Irvine Youth Basketball League and Irvine Little League Baseball coach, 1998 – 2004.

Commissioner, AYSO, Region 144 Boys Soccer, Divisions 5, 6, 7. 1996 – 1999.

Speaker for Irvine Unified School District, NSF-sponsored Science Career Options Conference, 1992-1998.

Invited Speaker, Susan G. Komen Breast Cancer Foundation, Orange County Chapter, Annual Meeting, "Optical Techniques for the Detection of Breast Cancer", 1996.

Invited Speaker, Science and Technology in Society, Orange County Science Education Association, "Lasers in Biology and Medicine", November, 1995.

Participant in Discipline Dialogues sponsored by the Fund for the Improvement of Post-Secondary Education, 1993.

Contracts and Grants

Active - Principal Investigator

National Institutes of Health/NCRR (P41-RR001192): *Laser Microbeam and Medical Program*, 05/1/03-03/31/13, \$5,369,183

National Institutes of Health/NCI (U54 CA105480): *A Network for Translational Research in Optical Imaging: Multi-Dimensional Diffuse Optical Imaging in Breast Cancer*, 09/29/03-08/31/08, \$7,179,817

Active - Mentor

DOD- Era of Hope *Postdoctoral Award: Respiratory challenges in Breast Cancer: Potential for enhanced diagnostics and therapy*, 7/1/08- 6/30/11, \$405,099
Trainee: Jae Kim

NIBIB K25 EB007309: *A Virtual Tissue Simulator for Biomedical Optics*
8/1/08 – 7/31/13 \$580,000
Trainee: Carole Hayakawa

Hewitt Foundation *Postdoctoral Fellowship* 8/2008-7/2011: \$150,000
Trainee: Soren Konecky

Active - Co-Investigator / Center Grants

Air Force Office of Scientific Research, (F49620-00-1-0371), 01/01/04–12/31/08, *A Center for Free Electron Laser-Related Biomedical Research*. Principal Investigator, M.W. Berns, \$8,380,674. Sub-projects: 1) Photon Migration Spectroscopy for Critical Care Monitoring, and 3) Imaging Neurotrauma: subproject total \$1,910,980.

National Institutes of Health/NCI (2P30CA62203), 08/01/02-01/31/09, University of California, Irvine Cancer Center Support Grant, Co-Leader, Onco Imaging and Spectroscopy Program and Optical Biology Core Facility, Principal Investigator: F. Meyskens, \$11,798,011. Subproject total: \$18,850.

National Institutes of Health/NHLB (R01HL067954), 08/01/03-06/30/09, *Mechanisms of Subepithelial Fibrosis in Asthma*, Principal Investigator: S. George, \$1,250,000

National Institutes of Health/NCI (R21/R33-CA-101139): 6/1/03-03/31/09, *Combined MR-Diffuse Optics for Functional Imaging*, Principal Investigator: O. Nalcioglu, \$1,416,489

National Institutes of Health/NCI (R21CA129758-01): 9/17/07-08/31/10, *Spatially Modulated Near-Infrared Light for Image-Guided Cancer Surgery*, Principal Investigator: John V. Frangioni, \$271,050 (UCI total).

National Institutes of Health/NIGMS (P50GM076516-01A1): 8/1/07-7/31/12, *Systems Biology of Morphogenesis and Spatial Information Flow*, Principal Investigator: Arthur Lander, \$14,500,000.

Doris Duke Charitable Foundation, Doris Duke Clinical Interface Award 2005 (2005057): 12/1/05-11/30/10, *A Mitochondrial Basis for Metabolic Syndrome*, Principal Investigator: Doug Wallace, \$2,250,000: \$2,250,000

National Institutes of Health/NCI Phase II SBIR with Praevium Corporation: *Compact Multi-Wavelength Probe for Quantitative Tissue Spectroscopy*, 12/01/05-05/30/09, Principal Investigator: Albert Cerussi, \$200,000.

Pending

Air Force, Office of Scientific Research, 01/01/2008-12/31/2010, *Advanced Optical Technologies for Defense Trauma and Critical Care*, Principal Investigator: Michael W. Berns, Co-PI, B.J. Tromberg, 8,738,212.

National Cancer Institute, Network for Translational Research, *Monitoring Breast Cancer Chemotherapy Response Using DOSI, MRI, and Biomarkers*, 9/1/08-8/31/13, Principal Investigator, BJ Tromberg, \$7.5 million

Previous Awards

California Breast Cancer Research Program (10EB-0208): *Breast Cancer Functional Imaging with Optics and MRI*, 07/01/04 – 06/30/07, Principal Investigator: BJ Tromberg, \$500,000.

National Institutes of Health/NIBIB (R01-92063), 07/01/01-09/30/07, *Photon Migration for Measurements of Small Tissue Volumes*, Principal Investigator: V. Venugopalan, Co-PI: BJ Tromberg, \$1,341,721.

U.S. Environmental Protection Agency, (68-C-03-088), 05/01/03-12/31/04: *Development of a High-Throughput Methods for the Separation of Live and Dead/Compromised cell and/or Spores*, Principal Investigator: B. Tromberg, \$249,984,

National Institutes of Health, (P20-CA-86182) 03/01/00 – 08/28/03: *Center for In-Vivo Molecular Functional Onco-Imaging*, \$1,399,082, Principal Investigator: O. Nalcioglu, Co-PI: BJ Tromberg.

California Breast Cancer Research Program (6EB-0123), 07/01/00–06/30/03: *Non-Invasive Optical Characterization of Breast Physiology*, \$499,915, Principal Investigator: BJ. Tromberg.

National Institutes of Health, (R01-HD34091-01A1), 07/03/98 – 06/30/03, *Photodynamic Treatment of Benign Uterine Disease*, \$750,767, Principal Investigator: BJ Tromberg.

National Institutes of Health, (5P-41RR01192), 4/1/98-3/31/03, *Laser Microbeam and Medical Program*, \$5.1 million, Principal Investigator: BJ Tromberg.

DARPA, 12/01/00 – 11/30/02, *Using Hyperspectral Images for Human Identification at a Distance*, Principal Investigator: Glen Healey, Co-PI: BJ Tromberg, \$133,413.

National Science Foundation, (UCI grant # 27414) 2/1/00 - 2/1/02, *Fiber Optics Confocal Module for Biomedical Application (SBIR - Intelligent Optical Systems)*, Principal Investigator: Bruce Tromberg, \$59,302.

National Institutes of Health, (R29 GM50958), 01/01/94 - 12/31/99, *Diagnostic Applications of Photon Density Waves*, Principal Investigator: BJ Tromberg, \$500,000.

Beckman Instruments (J920331), 05/01/92 – 03/31/96, *Quantitative Clinical Analysis using Frequency Domain Photon Migration*, Principal Investigator: B.J. Tromberg, \$253,160.

California Breast Cancer Research Program (21B-0183), 06/09/96 – 05/31/97, *Non-Invasive Optical Detection of Breast Cancer*, Principal Investigator: B.J. Tromberg, \$50,000.

Department of Energy, (DE-FG-3-91-ER61227), 09/91 - 12/00, A Center of Excellence for Laser Applications in Medicine. Laser Medical Facility Program Grant. Sub-Project: *Non-Invasive Tissue Diagnostics Using Frequency Domain Photon Migration*. Principal Investigator: M.W. Berns. \$1,5000,000.

National Institutes of Health (RO1-RR06961), 09/30/94 – 09/29/97, *Optical Laser Trap for Biological Cell Studies*, Principal Investigator: B.J. Tromberg, \$107,598.

U.S. Army, (BC972457), 9/30/98-10/30/01, *Measurements of Breast Tissue Optical Properties*, Principal Investigator: B.J. Tromberg, \$122,120.

Whitaker Foundation, 08/01/92 – 07/31/95, *Properties of Photon Density Waves in Biological Tissues*, Principal Investigator: B.J. Tromberg, \$150,000.

Previous Awards - Mentor

Rothschild Foundation Fellow *Spatially Modulated Imaging of Neural Function*
09/01/05-08/31/06: \$46,700
Postdoc: David Abookasis

California Breast Cancer Research Program *Combined Optical and Ultrasound Imaging for Breast Cancer* 07/01/03-06/30/05: \$58,304
Graduate Student: Sean Merritt (Physics)

National Science Foundation Predoctoral Fellowship
Modulated Imaging of Subsurface Structure and Function 07/01/04-06/30/07
Graduate Student: David Cuccia (Biomedical Engineering)

Department of Defense *Career Development Award* 7/02-6/05
Assistant Professor: David Hsiang

Hewitt Foundation Postdoctoral Fellowship 11/2003-10/2006
Post-Doc: Julia Lyubovitsky

Hewitt Foundation Postdoctoral Fellowship 1/02 – 2/03
Post-Doc: Vanitha Sankaran

National Cancer Institute *Carcinogenesis Training Grant Postdoctoral Fellowship*
1/00–12/31/02
Post-Doc: Alvin Yeh

Hewitt Foundation Postdoctoral Fellowship 8/98 – 7/01
Post-Doc: Andrew Berger

The Whitaker Foundation Graduate Bioengineering Fellowship 1/31/96 – 05/31/99
MD/PhD Student - Tuan Pham

Swiss National Science Foundation Postdoctoral Fellowship 3/99 – 02/00
Post-Doc: Frederic Bevilacqua

Swiss National Science Foundation Postdoctoral Fellowship 2/94 – 1/95
Post-Doc: Olivier Coquoz

German National Science Foundation Postdoctoral Fellowship 3/93 – 02/95
Post-Doc: Karsten Koenig

Active Protocols

Human

1995-563 : *Measurements of Breast Tissue Optical Properties.*
P.I.- Bruce Tromberg

2002-2306: *Monitoring the Response of Chemotherapy on Breast Cancer Tumors by Photon Migration Spectroscopy*
P.I.-David Hsiang

2002-2608: *Mitochondria Inborn errors of Metabolism and ANT Defect in Mitochondrial Diseases*
P.I.-Doug Wallace

2002-2672: *Near-Infrared Transillumination of the Paranasal Sinuses*
P.I.-Brian Wong

2002-2805: *OCT-FDPM Photodynamic Detection of Oral Pathology*
P.I.-Petra Wilder-Smith

2003-3025: *OCT of Upper Aero-Digestive Tract*
P.I.-Brian Wong

2004-3626: *Distribution of Optical Properties in Adult Human Muscle*
P.I.-Albert Cerussi

2005-4675: *Mitochondria and Metabolic Syndrome in SC Chinese Cohort*
P.I.-Doug Wallace

2005-4760: *Monitoring Menstrual Cycle Functional Variation in DOS*
P.I.-Bruce J. Tromberg

2006-4775: *Monitoring Neural Tissue properties by MI*
P.I.-Mark Linskey

2006-5031: *OCT Imaging of Post Coil Aneurysm Healing*
P.I.-Mark Linskey

2008-6099: *A Pilot Study to Evaluate the Correlation between DOS and SIAscopy
Histological Exam Skin Lesion*
P.I.-David Hsiang

2008-6307: *Skin Imaging with Technologies in Development*
P.I.-Kristen Kelly

Teaching

Graduate

BME 295 "Engineering Optics for Biomedical Research", Spring 2003 - present (4 unit course).

ENGR 298/BME 298 "Seminars in Biomedical Engineering", (1 unit) Fall, Winter, Spring 2000 – spring 2008.

ECE 298 "Special Topics in Biomedical Optics (3 units) Spring 2000.

BME C270 Guest lecturer, "Biomedical Optics" course in Department of Biomedical Engineering, UCLA, (2 lecture hours), Spring 2001.

Physics 147c/Electrical and Computer Engineering 237c: *Medical Physics*, (4.5 lecture hours) *Biophysics with Light*, Spring 1997 - 1999.

Physiology and Biophysics 204c: *Optical Spectroscopy in Biophysics*, (9 lecture hours and 10 laboratory hours), Spring quarter 1991- 1995.

Physiology small group discussions: Endocrinology, June 1995, 1996.

Physiology/Biophysics 200, 299, and BME 299, Graduate Research.

Medical Student Research Elective Teaching: Summer 1991, Fall 1992.

Undergraduate

Biosci 130 "Photomedicine", (1.5 lecture hours), Fall 1995 – present.

BME 136 "Engineering Optics for Biomedical Research", (4 unit course), Spring 2003 – present.

ECE 176 "Engineering Optics for Biomedical Research", (3 unit course), Spring 2001 – 2002.

ECE 199, BioSci 199, BME 199, Undergraduate Research, Winter 1991-present.

BioSci 25, Guest Lecturer, The Biology of Cancer: Lasers in Cancer Research, Winter 1993 and 1994.

Other Teaching Activities

Biophotonics in Breast Cancer, 4 hour lecture, Ven, Sweden Biophotonics, Summer School 2004, www.biop.dk/biophotonics

Ph.D. written/oral advancement exam committee in Biomedical Engineering, Spring, 2002-present (as needed).

Ph.D. written/oral advancement exam committee in Electro Optics, Department of Electrical and Computing Engineering, Spring, 1999 – 2001.

Biomedical Optics for Diagnostics and Imaging 1/2 day short course developed for International Society for Photo-Optical Instrumentation Engineers (SPIE), Los Angeles, January 26, 1994.

Biomedical Optics 1/2 day short course for Department of Electrical Engineering, UC Irvine, June 19, 1995.

Digital Imaging and Laser Applications in Microscopy, hands-on short course with lectures and laboratories, Northwestern University, course directors: Farkas, D.L., and Tromberg, B.J., 6/25/95-6/30/95.

Postdoctoral Fellow Trainees

<u>Fellow</u>	<u>Period</u>	<u>Current Position</u>
Tatiana Krasieva, Ph.D.	1990-95	Research Scientist, Beckman Laser Institute
Tsong-Tseh Tsay, Ph.D.	1991-93	Sr. Scientist, Beckman Instruments, Inc.
Satoshi Shimizu, M.S.	1991-93	Engineer, Canon Corporation
Curtis Chapman, Ph.D.	1991-97	Faculty, Science, Mathematics, Engineering Modesto Jr. College
Rolf Steiner, M.D.	1992-93	Chairman, Dept. OB/Gyn, Chur Regional Hospital, Switzerland (co-advisor with Y. Tadir, M.D.)
Steen J. Madsen, Ph.D.	1992-94	Professor, Chair., Dept. of Health Physics, University of Nevada, Las Vegas
Karsten König, Ph.D.	1993-95	Professor, Engineering Physics, Saarbrücken University, Fraunhofer Institute
Pius Wyss, M.D.	1993-94	Prof., Dept. of OB/Gyn, University of Zurich, Switzerland (co-advisor with Y. Tadir, M.D.)
Mathias Fehr, M.D.	1994-95	Instructor, Dept. of OB/Gyn, University of Zurich, Switzerland (co-advisor with Y. Tadir, M.D.)
Attila Major, M.D.	1994-96	Dept. of OB/Gyn, University Hospital, Geneva, Switzerland (co-advisor with Y. Tadir, M.D.)
Olivier Coquoz, Ph.D.	1994-97	Sr. Scientist, Xenogen Corp., Alameda, CA
Joshua B. Fishkin, Ph.D.	1995-98	Sr. Scientist, Boeing Corp.

Rene Hornung, M.D.	1996-97	Instructor, Dept. of OB/Gyn, University of Zurich, Switzerland (co-advisor with Y. Tadir, M.D.)
Vasan Venugopalan, Sc.D.	1996-97	Asst. Prof., Dept. of Chemical Engineering, UC Irvine
Jeffrey Gross, M.D.	1996-97	Director, Dept. of Neurosurgery, Mission Regional Hospital, Mission Viejo, CA
Andrew Dunn, Ph.D.	1997-99	Asst. Professor, University of Texas at Austin, Biomedical Engineering, Cockrell School of Engineering
Vincent Wallace, Ph.D.	1997-2000	Sr. Research Fellow, School of Electrical, Electronic and Computer Engineering, The University of Western Australia
Andrew Berger, Ph.D.	1998-2000	Assoc. Prof., Dept. of Optics, Institute of Optics, University of Rochester
Albert Cerussi, Ph.D.	1999-2001	Research Scientist, BLI, UCI
Frederic Bevilacqua, Ph.D.	1999-2003	Research Scientist, IRCAM, Paris, France
Alvin Yeh, Ph.D.	2000-2003	Assist. Professor, Texas A&M
David Hsiang, M.D.	2000-2002	Assoc. Professor, Dept. of Surgery, UCI
Sam Im, M.D.	2000-2002	Medical Fellow (co-advisor with P. DiSaia, M.D.)
Anthony Durkin, Ph.D.	2001-2003	Assist. Professor, BLI, UCI
Jangwoen Lee	2002-2004	Research Scientist, BLI
Shuo Tang	2003-2006	Asst. Prof., Dept. of Electrical and Computer Engineering, Univ. of British Columbia
Julia Lyubovitsky	2003-2006	Asst. Prof., Bioengineering, UC Riverside
Philippe Zatta	2003-2005	Consultant, LabView Software
Ang Li	2005-2008	Chief Technical Officer, VoLighten, Inc.
David Abookasis	2005-2008	Research Scientist, Luminous Medical, Carlsbad, CA
Jae Kim	2006-present	DoD Postdoctoral Fellow, BLI
Mihaela Balu	2007-present	Postdoctoral Fellow, BLI
Soren Konecky	2008-present	Hewitt Postdoctoral Fellow, BLI
Zhongping Jian	2008-present	Postdoctoral Fellow, BLI

Graduate Student Trainees

<u>Student</u>	<u>Degree Awarded</u>	<u>Current Position</u>
Angelique Louie	Ph.D., (1994) Cell Biology	Assoc. Prof., UC Davis Biomedical Engineering (co-advisor with M. W. Berns, Ph.D.)
Xunbin Wei	Ph.D., (1999) Physiol./Biophysics	Professor, School of Medicine, Fudan University, Shanghai, China (primary advisor)
Tuan Pham	Ph.D., (2000) Electrical & Com-	Medical Fellow, University of British Columbia, Pediatric Surgery

	puter Engineering M.D. (2002)	
Dorota Jakobowski	Ph.D. (2002) Physics M.D. (2004)	Radiology Resident, UCSF (MSTP Program) (primary advisor)
Mariah Coleno	Ph.D., (2001) Chemical Engineering,	Scientist, BioRad Corp. (primary advisor)
Thorsten Spott	Ph.D., (1999) Electrical Eng.	Sr. Engineer, Siemens Corp. (co-advisor with L. Svaasand, Ph.D.)
Natasha Shah	M.S., (2000) Chemistry	Project Manager, Health IQ
Aikaterini Zoumi	Ph.D. (2002) Biomedical Engineering	Consultant, Biomedical Optics & Photonics, Iraklion, Crete (primary advisor)
Sean Merritt	Ph.D. (2005) Physics	Ph.D., Sr. Scientist, Massimo Corp (primary advisor)
David Cuccia	Ph.D. (2006) Biomedical Eng.	Chief Technology Officer, Modulated Imaging, Inc., Irvine, CA (primary advisor)
Jessie Weber	Biomedical Eng.	PhD student (primary advisor)
Ryan Lim	Physiology & Biophysics	PhD student (primary advisor)
Sophie Chung	Biomedical Eng.	PhD student (primary advisor)
Amaan Mazhar	Biomedical Eng.	PhD student (primary advisor)
Jing Liu	Physics	PhD student (primary advisor)
Ph. D. Committee Member		
Zhihong Pan	Ph.D. (2003) EECS	Application Scientist, Galileo Group
Joon You	Ph.D. (2005) Biomedical Eng.	COO, Modulated Imaging Inc., Irvine, CA
Stefan Carp	Ph.D. (2005) Chemical Eng.	Research Fellow, Martinos Ctr., Biomedical Imaging, Massachusetts General Hospital
Alan Lee	Ph. D. (2005) Biomedical Eng.	Graduate student
Hyle Park	Ph. D. (2005) Biomedical Eng.	Assistant Professor, Biomedical Engineering,

UC Riverside

Shenghao Tseng	Ph.D. (2006) Electrical Eng.	Principle Scientist Johnson & Johnson
Hermann Frieboes	Ph. D. (2006) Biomedical Eng.	Asst. Specialist, Dept. of Mathematics, UCI
Inseouk Seo	Ph. D. (2007) Chemical Eng.	Graduate student
Nzola deMalgahaes	Ph.D. (2008) Biomedical Eng.	Graduate student
Cyrus Gahar	Ph.D. (2008) BME	Postdoctoral Fellow UC Berkeley, LBNL
Nivedan Tiwari	Ph.D. (2008) Mechanical & Aerospace Eng.	Graduate student
Nicholas Gunn	Ph.D. (2008) Biomedical Eng.	Graduate student

Patents

Copyrights

MONARCH: Software designed to extract optical properties from frequency-domain photon migration (FDPM) data

Patents

UC Case 1992-136-1

Apparatus and Method for Qualitative and Quantitative Measurements of Optical Properties in Turbid Media Using Frequency Domain Photon Migration (FDPM)

Patent: 5,424,843

Issued: 06/13/95

Co-inventors: Bruce Tromberg, Richard Haskell, Michael W. Berns, Lars O. Svaasand

UC Case 1992-267-1

Intrauterine Device for Light Diffusion

Patent: 5,478,339

Issued: 12/26/95

Co-inventors: Yona Tadir, Bruce Tromberg, Michael Berns

UC Case 1993-097-1

Vaginal Speculum for Photodynamic Therapy

Patent: 5,458,595

Issued: 10/17/95

Co-inventors: Yona Tadir, Bruce Tromberg, Brad Monk, Glen Profeta

UC Case 1993-304-1

Flourophore-Polymer Based Illuminator for Conventional Light Microscopy

Patent: 5,734,498

Issued: 03/31/98

Co-inventors: Tatiana Krasieva, Bruce Tromberg, Alexander Dvornikov, Michael W. Berns

UC Case 1995-117-1

High Resolution Biosensor for In-situ Microtherometry

Patent: 5,631,141

Issued: 5/20/97

Co-inventors: Greg Sonek, Bruce Tromberg, Yagang Lui

UC Case 1998-044-1

Fast Controllable Laser Lysis of Cells for Analysis

Patent: 6,156,576

Issued: 12/05/00

Co-inventors: Nancy Allbritton, Bruce Tromberg, Chris Sims, Gavin Meredith, Tatiana Krasieva, Michael W. Berns,

UC Case 1998-044-2

Method and Apparatus for Detecting Enzymatic Activity using Molecules that Change Electrophoretic Mobility

Patent: 6,335,201

Issued: 01/01/02

Co-inventors: Nancy Allbritton, Chris, Sims, Gavin Meredith, Bruce Tromberg, Tatiana Krasieva, Michael W. Berns,

UC Case 2002- 071-1

Diffuse Optics for Reflectance Microscopy

Patent: 6,661,574

Issued: 12/09/03

Co-inventors: Bruce Tromberg, Tatiana Krasieva, Alexander Dvorinik, Michael W. Berns

UC Case 2002-203-2

Method and Apparatus for Performing Quantitative Analysis and Imaging Surfaces and Subsurfaces of Turbid Media using Spatially Structured Illumination

Patent: 6,958,815

Issued: 10/25/05

Co-inventors: Fred Bevilacqua, Bruce Tromberg, Anthony Durkin, David Cuccia

UC Case 1998-044-3

Method and Apparatus for detecting Enzymatic Activity using Molecules that change Electrophoretic Mobility Patent: 7,157,223

Issued: 01/02/07

Co-Inventors: Nancy Allbritton, Christopher Sims, Michael W. Berns, Gavin Meredith, Tatiana Krasieva, Bruce J. Tromberg, Chao L. Lee

UC Case 2004-505-1

Method and Apparatus for Dynamically Monitoring Multiple InVivo Tissue Chromophores

Patent: 7,248,909

Issued: 07/24/07

Co-Inventors: Jangwoen Lee, Bruce Tromberg, Albert Cerussi, Matthew Brenner

Patents Pending

UC Case 2000-461-2

Quantitative broadband absorption and scattering spectroscopy in Turbid Media by combined frequency-domain and steady-state methodologies

Patent Application filed: **7/09/02- Notice of Allowance**

Co-inventors: Andrew Berger, Fred Bevilacqua, Bruce Tromberg, Albert Cerussi, Dorota Jakubowski

UC Case 2002-431-1

Methods for assessing the condition of bone *in vivo* using non-ionizing radiation

Patent Application filed: **1/18/06**

Co-inventors: Albert Cerussi, Bruce Tromberg, Anthony Durkin, Sean Merritt, Natasha Shaw

UC Case 2005-114-2

Monitoring Temperature Non- Invasively Using Broadband Diffuse Optical Spectroscopy (DOS)

Patent Application filed: **10/07/05**

Co-Inventors: Anthony Durkin, Sean Merritt, Bruce Tromberg, Albert Cerussi

UC Case 2005-164-1

Method and Apparatus for Spatially Modulated Fluorescence Imaging and Tomography

Patent Application filed: **1/19/06**

Co-Inventors: Anthony Durkin, David Cuccia, Frederic Bevilacqua, Bruce Tromberg

UC Case 2006-070-1

Methods for Assessing the Molecular Water Binding of Deep Tissue In Vivo Using Non Ionizing Radiation

Patent Application filed: **06/04/07**

Co-inventors: Sean Merritt, Bruce Tromberg, Albert Cerussi, Anthony Durkin, SoHyun Chung

UC Case 2006-639-1

A Method for Determination of Intrinsic Spectroscopic Tumor Markers by Broadband Frequency Domain Technology

Patent Application filed: **05/16/07**

Co-Inventors: Enrico Gratton, Bruce Tromberg, Albert Cerussi, Shwayta Kukreti

UC-Case 2007-126-2

Three Dimensional Breast Anatomy Imaging System

Patent Application filed: **12/1/05**

Inventors: Bruce Tromberg, Albert Cerussi, Fred S. Azar, Ali Khamene, Frank Sauer

UC-Case 2007-230-1

Method and Apparatus for performing Qualitative and Quantitative Analysis of Produce (fruit, vegetables) using Spatially Structured Illumination

Patent Application filed: **10/29/07**

Disclosures

UC Case 2002-062-1

Perturbation/differential Monte Carlo solutions of inverse problems in particle transport
Provisional patent filed 8/24/01 decided not to pursue full application.

Co-inventors: Jerry Spanier, Vasan Vengugopalan, Fred Bevilacqua, Joon You, Carol Hayakawa, Bruce Tromberg

Status: **Copyright submission pending**

UC Case 2005-424-1

Method for the non-invasive Measurement of Cellular Apoptosis Using Endogeneous Tissue Signals

Co-inventors: Bruce Tromberg, Albert Cerussi, Dorota Jakobowski, David Hsiang, John Butler

Status: **Disclosure filed.**

UC Case 2008-325-2

An Apparatus and Method for Widefield Functional Imaging (WiFi) using Integrated Structured Illumination and Laser Speckle Imaging

Co-Inventors: Anthony Durkin, David Cuccia, Bruce Tromberg, Amaan Mazhar, Bernard Choi

Status: **Provisional Application filed: 011/06/07**

UC Case 2008-328-1

Probe for Non-linear Optical Microscopic Imaging of joints and tissues

Co-Inventors: Nivedan Tiwari, George Peavy, Bruce Tromberg, Brian Andrews, Zhongping Chen

Status: **Provisional patent application filed 11/07/07**

UC Case 2008-700-1

A fast (2D) Diffuse Optical Imaging (DOI) algorithm to recover lesions' optical spatial signature based on physiologically realistic models of lesion optical properties'

Co-Inventors: Ang Li, Jing Liu, Albert Cerussi, Bruce Tromberg

Status: **Disclosure filed**

Publications

Peer - Reviewed Journals

- J1. Huff, PB, Tromberg, BJ, Sepaniak, MJ *Sequentially Excited Fluorescence Detection in Liquid Chromatography*, Analytical Chemistry, 54, 946, 1982.
- J2. Sepaniak, MJ, Tromberg, BJ, Eastham, JF *Optical Fiber Fluoroprobes in Clinical Analysis*, Clinical Chemistry, 1678, 1983.
- J3. Tromberg, BJ, Eastham, JF, Sepaniak, MJ *Optical Fiber Fluoroprobes for Biological Measurements*, Applied Spectroscopy, 38, 38, 1984.
- J4. Fung, KW, Matthews, TG, Tromberg, BJ *Surface Emission Monitoring of Pressed-Wood Products Containing Urea-Formaldehyde Resins*, Environment International, 12, 301, 1986.
- J5. Fung, KW, Matthews, TG, Tromberg, BJ, Hawthorne, AR *Impact of Indoor Environmental Parameters on Formaldehyde Concentrations in Unoccupied Research Houses*, JAPCA, 36, 1244, 1986.
- J6. Tromberg, BJ, Sepaniak, MJ, Vo-Dinh, T, Griffin, GD *Fiber Optic Chemical Sensors for Competitive Binding Fluoroimmunoassay*, Analytical Chemistry, 59, 1226, 1987.
- J7. Vo-Dinh, T, Tromberg, BJ, Griffin, GD, Ambrose, KR, Sepaniak, MJ, Gardenhire, EM *Antibody-Based Biosensor for the Carcinogen Benzo(a)pyrene*, Applied Spectroscopy, 41, 735, 1987.
- J8. Tromberg, BJ, Sepaniak, MJ, Alarie, JP, Vo-Dinh, T, Santella, RM *Development of Antibody-Based Fiber-Optic Sensors for Detection of a Benzo[a]Pyrene Metabolite*, Analytical Chemistry, 60, 1901, 1988.
- J9. Berns, MW, Wright, WH, Tromberg, BJ, Profeta, GA, Andrews, JA, Walter, RJ *Use of Laser-Induced Optical Force Trap To Study Chromosome Movement on the Mitotic Spindle*, Proc. Nat. Acad. Sci., 86, 4539-4543, 1989.
- J10. Kimel, S, Tromberg, BJ, Roberts, WG, Berns, MW *Singlet Oxygen Generation of Porphyrins, Chlorins, and Phthalocyanins*, Photochemistry and Photobiology, 50, 175-183, 1989.
- J11. Sepaniak, MJ, Tromberg, BJ, Vo-Dinh, T *Fiber Optic Affinity Sensors in Chemical Analysis* Progress in Analytical Spectroscopy, 11, 481-509, 1988.
- J12. Tromberg, BJ, Orenstein, A, Kimel, S, Barker, S, Hyatt, J, Roberts, WG, Nelson, JS, Berns, MW *Tumor Oxygen Tension during Photodynamic Therapy*, Journal of Photochemistry and Photobiology (B), 5, 121-126, 1990.

- J13. Tromberg, BJ, Orenstein, A, Kimel, S, Barker, S, Hyatt, J, Roberts, WG, Nelson, JS, Berns, MW *In-Vivo Tumor Oxygen Tension Measurements for the Evaluation of the Efficiency of Photodynamic Therapy*, *Photochemistry and Photobiology*, 52, 375-385, 1990.
- J14. Tromberg, BJ, Svaasand, LO, Tsay, TT, Haskell, RC, *Properties of Photon Density Waves in Multiple-Scattering Media*, *Appl. Opt.*, 32, 607-616, 1993.
- J15. Svaasand, LO, Tromberg, BJ, Haskell, RC, Tsay, TT, Berns, MW, *Tissue Characterization and Imaging Using Photon Density Waves*, *Optical Engineering*, 32, 258-266, 1993.
- J16. Chapman, CF, Tadir, Y, Tromberg, BJ, Yu, K, Manetta, A, Sun C, Berns, MW, *Effect of Administration Route and Estrogen Manipulation on Endometrial Uptake of Photofrin II*, *American Journal of Obstetrics and Gynecology*, 168L, 685-692, 1993.
- J17. Wyss, P, Tadir, Y, Tromberg, BJ, Liaw, L, Krasieva, T, Steiner, R, Villalon, VP, Berns, MW *Benzoporphyrin Derivative (BPD): A Potent Photosensitizer for Photodynamic Destruction of the Rabbit Endometrium*, *Obstetrics and Gynecology*, 84: 409-414, 1994.
- J18. Haskell, RC, Svaasand, LO, Tsay, T, Feng, T, McAdams, MS, and Tromberg, BJ *Boundary Conditions for the Diffusion Equation in Radiative Transfer*, *Journal of the Optical society of America-A*, 10, 1-15, 1994.
- J19. Madsen, SJ, Wyss, P, Svaasand, LO, Haskell, RC, Tadir, Y, Tromberg, BJ *Determination of the Optical Properties of Human Uterus Using Frequency-Domain Photon Migration and Steady-State Techniques*, *Physics in Medicine and Biology*, 39, 1191-1202, 1994.
- J20. Madsen, SJ, Anderson, ER, Tromberg, BJ *A Portable High-Bandwidth Frequency Domain Photon Migration Instrument for Tissue Spectroscopy*, *Optics Letters*, 19, 1934-1936, 1994.
- J21. Liu, Y, Cheng, DK, Sonek, GJ, Berns, MW, Tromberg, BJ *A Microfluorimetric Technique for the Determination of Localized Heating in Organic Particles*, *Applied Physics Letters*, 65, 919-921, 1994.
- J22. Wyss, P, Svaasand, LO, Tadir, Y, Haller, U, Berns, MW, Wyss, MT, Tromberg, BJ, *Photomedicine of the Endometrium: Experimental Concepts*, *Human Reproduction*, 10, 221-26, 1995.
- J23. Steiner, RA, Tromberg, BJ, Wyss, P, Krasieva, T, Chandanani, N, McCullough, J, Berns, MW, Tadir, Y, *Rat Reproductive Performance Following Photodynamic Therapy with Topically-Administered Photofrin*, *Human Reproduction*, 10, 227-33, 1995.
- J24. Wyss, P, Tromberg, BJ, Wyss, MT, Krasieva, T, Liaw, L, Schell, M, Berns, MW, Tadir, Y *Photodynamic Destruction of Endometrial Tissue Using Topical 5-Aminolevulinic Acid (5-ALA)*, *American Journal of Obstetrics and Gynecology*, 171, 1176-83, 1994.
- J25. Tromberg, BJ, Haskell, RC, Madsen, SJ, Svaasand, LO *Characterization of Tissue Optical Properties Using Photon Density Waves*, *Comments on Molecular and Cellular Biophysics*, 8, 359-386, 1995.

- J26. Peavy, GM, Krasieva, TB, Tromberg, BJ, Eusantos, E.D, Berns, MW, *Variation in Distribution of a Pthalocyanine Photosensitizer in Naturally Occurring Tumors of Animals*, Journal of Photochemistry and Photobiology B: Biology, 27, 271-277, 1995.
- J27. Liu, Y Cheng, DK, Sonek, GJ, Berns, MW, Chapman, CF, Tromberg, BJ, *Evidence for Localized Cell Heating Induced by Infrared Optical Tweezers*, Biophysical Journal, 68, 2137-2144, 1995.
- J28. Chapman, CF, Liu, Y, and Sonek, GJ, Tromberg, BJ, *The use of exogenous fluorescent probes for temperature measurement in single living cells*, Photochem. Photobiol., 62, 416-425, 1995.
- J29. König, K, Liang, H, Berns, MW, Tromberg, BJ, *Cell Damage By Near-IR Microbeams*, Nature (letter), 377, 20-21, 1995.
- J30. Liu, Y, Sonek, GJ, König, K, Berns, MW, Tromberg, BJ *Two-Photon Excitation in Continuous Wave Infrared Optical Tweezers*, Optics Letters, 20, 2246-2248, 1995.
- J31. Fehr, M, Madsen, S, Svaasand, LO, Tromberg, BJ, Eusebio, J, Berns, MW, Tadir, Y *Intrauterine Light Delivery for Photodynamic Therapy of the Human Endometrium*. Human Reproduction, 10, 101-106, 1995.
- J32. Tromberg, BJ, Svaasand, LO, Fehr, MK, Madsen, SJ, Wyss, P, Sansone, B, Tadir, Y *A Mathematical Model for Light Dosimetry in Photodynamic Destruction of Human Endometrium*, Phys. Med. Biol., 40, 1-15, 1995.
- J33. König, K, Liu, Y, Sonek, GJ, Berns, MW, Tromberg, BJ *Autofluorescence Spectroscopy of Optically-trapped Cells*, Photochem. Photobiol., 62, 830-835, 1995.
- J34. Fehr, MK, Chapman, C, Krasieva, T, Tromberg, BJ, McCullough, J, Berns, MW, Tadir, Y *Selective Photosensitization of Vulvar Condylomata acuminata following Topical Application of 5-aminolevulinic acid*, Am. J. Obstet. Gynecol. 174, 951-957, 1996.
- J35. Forssen, EA, Male-Brune, R, Adler-Moore, JP, Lee, MJA, Schmidt, PG, Krasieva, T, Shimizu, S, Tromberg, BJ *Fluorescence Imaging Studies for the Disposition of Daunorubicin Liposomes (Daunoxome) Within Tumor Tissue*. Cancer Research, 56, 2066-2075, 1996.
- J36. König, K, Liang, H, Berns, MW, Tromberg, BJ *Cell Damage in Near Infrared Multimode Optical Traps as a result of Multi-Photon Absorption*. Optics Letters. 21, 1090-1092, 1996.
- J37. König, K, Krasieva, T, Bauer, E, Fiedler, U, Berns, MW, Tromberg, BJ, Greulich, KO *Cell Damage by UVA Radiation of a Mercury Microscopy Lamp probed by Autofluorescence Modifications, Cloning Assay, and Comet Assay*. J. Biomed. Optics 1, 217-222, 1996.
- J38. Steiner, RA, Tadir, Y, Tromberg, BJ, Krasieva, T, Ghazains, AT, Wyss, P, Berns, MW *Photosensitization of the Rat Endometrium Following 5-Aminolevulinic Acid Induced Photodynamic Therapy*. Lasers in Surgery and Medicine, 18, 301-308, 1996.

- J39. Brenner, M, Shankel, T, Wang, NS, Waite, TA, Wong, H, Hamilton, A, Tadir, Y, Milner, T, Boyajian J, Chung E, Tromberg BJ, Wilson AF, Berns MW. *CO₂ A Nd - Yag Laser-Induced Pulmonary Parenchymal Lung Injury in a Rabbit Model.*, American Journal of Respiratory and Critical Care Medicine, 153, 1136-1140, 1996.
- J40. Steiner, RA, Tadir, Y, Tromberg, BJ, Wyss, P, Walt, H, Haller, U *Photodynamic Therapy Of The Endometrium After Topical Intrauterine Application Of Benzoporphyrin Derivative Mono Acid And Laser Light.* Geburtshilfe und Frauenheilkunde, 56, 1-7, 1996.
- J41. Svaasand, LO, Wyss, P, Wyss, MT, Tadir, Y, Tromberg, BJ, Berns, MW *Dosimetry Model For Photodynamic Therapy With Topically Administered Photosensitizers.* Lasers In Surgery And Medicine, 18, 139-149, 1996.
- J42. Brenner, M, Shankel, T, Waite, T, Hamilton, A, Bendsza, D, Wang, NS, Milner, T, Roock W, Tadir Y, Tromberg BJ, Wilson AF, Berns MW. *Animal Model For Thoracoscopic Laser Ablation Of Emphysematous Pulmonary Bullae.* Lasers In Surgery And Medicine, 18, 191-196, 1996.
- J43. Tromberg, BJ, Coquoz, O, Fishkin, JB, Anderson, ER, Pham, D, Brenner, M, Svaasand, LO *Frequency-Domain Photon Migration (FDPM) Measurements of Normal and Malignant Cell and Tissue Optical Properties,* OSA TOPS on Biomedical Optical Spectroscopy and Diagnostics, Orlando, 3, 111-116, 1996.
- J44. König, K, Svaasand, L, Liu, Y, Sonek, G, Patrizio, P, Tadir, Y, Berns, M, Tromberg, BJ *Determination of Motility Forces of Human Spermatozoa using an 800 nm Optical Trap.* Cell. Molec. Bio. 42, 501-509, 1996.
- J45. Fehr, MK, Wyss, P, Tromberg, BJ, Krasieva, T, DiSaia, PJ, Lin, F, Berns, MW, Tadir, Y *Selective Photosensitizer Localization in the Human Endometrium following Intrauterine Application of 5 - Aminolevulinic Acid.* Am. J. Obstet. Gynecol. 175, 1253-1259, 1996.
- J46. Fehr, MK, Tromberg, BJ, Svaasand, LO, Ngo, P, Berns, MW, Tadir, Y *Structural and Functional Effects of Endometrial Photodynamic Therapy in a Rat Model.*, Am. J. Obstet. Gynecol. 175, 115-121, 1996.
- J47. Wyss, P, Steiner, R, Leacky L, Wyss, MT, Ghazarians, A, Berns, MW, Tromberg, BJ *Regeneration of the Rabbit Endometrium: a Photodynamic Therapy (PDT) Model.* Human Reproduction. 11, 1992-1997, 1996.
- J48. Svaasand, LO, Tromberg, BJ, Wyss, P, Wyss, MT, Tadir, Y, Berns, MW *Light and Drug Distribution with Topically Administered Photosensitizers.* Lasers in Medical Science. 11, 261-265, 1996.
- J49. Brenner, M, Wang, NS, Shankel, T, Waite, TA, Milner, T, Wong, H, Hamilton, A, Kono, T, Tadir, Y, Tromberg, BJ, and Wilson, AF *Comparison of Continuous Versus Pulsed CO₂ and Nd:YAG Laser-Induced Pulmonary Parenchymal Lung Injury in a Rabbit Model.* Lasers in Surgery and Medicine. 19, 416-423, 1996.

- J50. König, K, Tadir, Y, Patrizio, P, Berns, MW, Tromberg, BJ *Effects of Ultraviolet Exposure and Near Infrared Laser Tweezers on Human Spermatozoa*. Human Reproduction, 11, 2162-4, 1996.
- J51. Liu, Y, Sonek, GJ, Berns, MW, Tromberg, BJ *Physiological Monitoring of Optically Trapped Cells: Assessing the Effects of Confinement by 1064-nm Laser Tweezers using Microfluorometry*. Biophysical Journal, 71, 2158-67, 1996.
- J52. Koenig, K, So, PTC, Mantulin, WW, Tromburg, BJ, Gratton, E *Two-Photon Excited Lifetime Imaging of Autofluorescence in Cells during UVA and NIR Photostress*. J. Microscopy. 183, 197-204, 1996.
- J53. Fishkin, JB, Coquoz, O, Anderson, ER, Brenner, M, Tromberg, BJ *Frequency-Domain Photon Migration Measurements of Normal and Malignant Tissue Optical Properties in a Human Subject*. Applied Optics. 36, 10-20, 1997.
- J54. Tromberg, BJ, Coquoz, O, Fishkin, JB, Pham, T, Anderson, ER, Butler, J, Cahn, M, Gross, JD, Venugopalan, V, Pham, D *Non-Invasive Measurements of Breast Tissue Optical Properties Using Frequency-Domain Photon Migration*. Phil Trans. Royal Society London B. 352, 661-668, 1997.
- J55. König, K, Berns, MW, Tromberg, BJ *Time Resolved and Steady State Fluorescence Measurements of Beta-Nicotinamide Adenine Dinucleotide-Alcohol Dehydrogenase Complex during UVA Exposure*. Journal of Photochemistry and Photobiology, 37, 91-95, 1997.
- J56. Major, AL, Rose, GS., Chapman, CF, Tromberg, BJ, Krasieva, TB, Choe, S, Tadir, Y, DiSaia, PJ, Berns, MW *In Vivo Fluorescence Detection of Ovarian Cancer in the NuTu-19 Epithelial Ovarian Cancer Animal Model using 5-Aminolevulinic Acid* Gynecologic Oncology, 66, 122-132, 1997.
- J57. Liang, H, Vu, KT, Trang, TC, Shin, D, Tromberg, BJ, Berns, MW *Giant Cell Formation in Cells Exposed to 740 nm and 760 nm Optical Traps*. Lasers in Surgery and Medicine, 21, 159-165 1997.
- J58. Zhang, ZX, Sonek, GJ, Wei, XB, Berns, MW, Tromberg, BJ *Continuous Wave Diode Laser induced Two-Photon Fluorescence Excitation of Three Calcium Indicators*. Japanese Journal of Applied Physics, 36, L1598-L1600, 1997.
- J59. Louie, AY, Tromberg, BJ *Fluorescence Resonance Energy Transfer: FRET Studies of Ligand Binding to Cell Surface Receptors*. Journal of Fluorescence, 8, 13-20, 1998.
- J60. Zhang, ZX, Sonek, GJ, Liang, H, Berns, MW, Tromberg, BJ *Multiphoton Fluorescence Excitation in Continuous-Wave Infrared Optical Traps*. Applied Optics, 37, 2766-2673, 1998.
- J61. Berns, MW, Tadir, Y, Liang, H, Tromberg, BJ. *Laser Scissors and Tweezers*. Methods in Cell Biology, 55, 71-98, 1998.

- J62. Hornung, R, Major, AL, McHale, M, Liaw, L, Sabiniano, LA, Tromberg, BJ, Berns, MW, Tadir, Y *In Vivo Detection of Metastatic Ovarian Cancer by Means of 5-Aminolevulinic Acid-Induced Fluorescence in a Rat Model*. Journal of the American Association of GYN Laparoscopists, 5, 141-148, 1998.
- J63. Venugopalan, V, You, J, Tromberg, BJ, *Radiative Transport in the Diffusion Approximation: An Extension for Highly Absorbing Media and Small Source-Detector Separations*. Physical Review E, 58 :2395-2407, 1998.
- J64. Chance, B, Cope, M, Gratton, E, Ramanujam, N, Tromberg, B *Phase Measurement Of Light Absorption And Scatter In Human Tissue*. Review Of Scientific Instruments, 69, 3457-3481, 1998.
- J65. Sims, CE, Meredith, GD, Krasieva, TB, Berns, MW, Tromberg, BJ, Allbritton, NL *Laser-Micropipette Combination for Single-Cell Analysis*. Analytical Chemistry, 70, 4570-4577, 1998.
- J66. Hornung, R, Fehr, MK, Tromberg, BJ, Major, A, Krasieva, TB, Berns, MW, Tadir, Y *Uptake of the Photosensitizer Benzoporphyrin Derivative in Human Endometrium after Topical Application In Vivo*. Journal of the American Association of GYN Laparoscopists, 5, 367-374, 1998.
- J67. Tadir, Y, Hornung, R, Pham, T, Tromberg, BJ *Intrauterine Light Probe for Photodynamic Ablation Therapy*. Obstetrics and Gynecology, 93, 299-303, 1999.
- J68. Zhang, ZX, Sonek, GJ, Wei, XB, Sun, C, Berns, MW, Tromberg, BJ *Cell Viability and DNA Denaturation Monitoring by Two - Photon Fluorescence Excitation in CW Al:GaAs Diode Laser Optical Traps.*, Journal of Biomedical Optics, 4, 256-259, 1999.
- J69. Svaasand, LO, Spott, T, Fishkin, JB, Pham, T, Tromberg, BJ, Berns, MW *Reflectance Measurements of Layered Media with Photon-Density Waves; A Potential Tool for Evaluating Deep Burns and Subcutaneous Lesions*, Phys. Med. Biol. 44, 801-813, 1999.
- J70. Major, AL, Tromberg, BJ, Kimel, S, Pham, T, Krasieva, TB, Berns, MW, Tadir, Y, *Photodynamic Therapy of the Rat Endometrium by Systemic and Topical administration of Tin Ethyl Etiopurpurin*, J. of Gynecologic Surgery, 15, 71 – 80, 1999.
- J71. Aascher, SM, Andrews, R, Bigio, IJ, Bohorfousch, AG, Brezinski, M, Fujimoto, JG, Lam, S, Mulshine, JL, Richards-Kortum, R, Shtern, F, Svanberg, K, Tadir, Y, Tromberg, BJ *Report of the Advisory Council on Optical Technologies*. Academic Radiology. 6, S157-S191, 1999.
- J72. Wei, X, Tromberg, BJ, Cahalan, MD, *Mapping the Sensitivity of T Cells Using an Optical Trap: Polarity and Minimal Number of Receptors for Ca²⁺ Signaling* Proceedings of the National Academy of Science, 96, 8471-8476, 1999.
- J73. Bevilacqua, F, Piguët, D, Marquet, P, Gross, JD, Tromberg, BJ, Depeursinge, C *In Vivo Local Determination of Tissue Optical Properties: Applications to Human Brain*. Applied Optics, 38, 4939-4950, 1999.

- J74. Hirschberg, H, Madsen, S, Lote, K, Pham, T, Tromberg, BJ *An Indwelling Balloon Catheter for Combined Postoperative Intracavity Photo Dynamic and Brachytherapy*. J. Neuro-Oncology, 44 1, 15 – 21, 1999.
- J75. Hornung, R, Pham, TH, Keefe, KA, Berns, MW, Tadir, Y, Tromberg, BJ *Quantitative Near-Infrared Spectroscopy of Cervical Dysplasia In Vivo*, Human Reproduction, 14, 2908-2916, 1999.
- J76. Hornung, R, Fehr, MK, Monti-Frayne, J, Tromberg, BJ, Berns, MW, Tadir, Y *Minimally – Invasive Debulking of Ovarian Cancer in the Rat Pelvis by Means of Photodynamic Therapy using the Pegylated Photosensitizer PEG-m-THPC*, British J. of Cancer, 81, 631-637, 1999.
- J77. Hornung, R, Fehr, MK, Monti-Frayne, J, Krasieva, TB, Tromberg, BJ, Berns, MW, Tadir, Y *Highly Selective Targeting of Ovarian Cancer with the Photosensitizer PEG-m-THPC in a Rat Model*. Photochemistry And Photobiology, 70, 624-629, 1999.
- J78. Tromberg, BJ, Shah, N, Lanning, R, Cerussi, A, Espinoza, J, Pham, T, Svaasand, L, Butler, J. *Non-Invasive In Vivo Characterization of Breast Tumors using Photon Migration Spectroscopy*. Neoplasia, 2, 1-15, 2000.
- J79. Dunn, AK, Wallace, VP, Coleno, M, Berns, MW, Tromberg, BJ *Influence of Optical Properties on Two-Photon Fluorescence Imaging in Turbid Samples*, Applied Optics, 39, 1-8, 2000.
- J80. Pham, TH, Coquoz, O, Fishkin, JB, Anderson, E, Tromberg, BJ *A Broad Bandwidth Frequency Domain Instrument for Quantitative Tissue Optical Spectroscopy*. Review of Scientific Instruments, 71 , 1 – 14, 2000.
- J81. Soughayer, JS, Krasieva, T, Jacobson, SC, Ramsey, JM, Tromberg, BJ, Allbritton, NL *Characterization of Cellular Optoporation with Distance.*, Analytical Chemistry, 72, 1342 – 1347, 2000.
- J82. Berger, AJ, Venugopaln, V, Durkin, AJ, Pham, T, Tromberg, BJ, *Chemometric Analysis of FDPM Data: Quantitative Measurements of Optical Properties and Chromophore Concentrations in Multicomponent Turbid Media*. Applied Optics, 39, 1659 –1667, 2000.
- J83. Holboke, MJ, Tromberg, BJ, Li, X, Shah, N, Fishkin, J, Kidney, D, Butler, J, Chance, B, Yodh, AG *Three-Dimensional Diffuse Optical Mammography with Ultrasound Localization in a Human Subject*. Journal of Biomedical Optics, 5, 1-11, 2000.
- J84. Wei, X, Si, M, Imagawa, DK, Ji, P, Tromberg, BJ, Cahalan, MD *Perillyl Alcohol Inhibits TCR-Mediated $[Ca^{2+}]_i$ Signaling, Alters Cell Shape and Motility, and Induces Apoptosis in T Lymphocytes*, Cellular Immunology, 201, 6-13, 2000.
- J85. Madsen, SJ, Sun, CH, Tromberg, BJ, Wallace, VP, Hirschberg, H *Photodynamic Therapy of Human Glioma Spheroids using 5-Aminolevulinic Acid*. Photochem & Photobio, 72, 128-134, 2000.

- J86. Pham, TH, Spott, T, Svaasand, LO, Tromberg, BJ *Quantifying the Properties of Two-Layer Turbid Media using Frequency Domain Diffuse Reflectance*, Applied Optics, 39, 1-13, 2000.
- J87. Pham, TH, Bevilacqua, F, Spott, T, Dam, JS, Tromberg, BJ, Andersson-Engels, S. *Quantifying the Absorption and Reduced Scattering Coefficients of Tissue-Like Turbid Media over a Broad Spectral Range using non-Contact Fourier-Transform Hyperspectral Imaging*. Applied Optics, 39, 6487-6497, 2000.
- J88. Bevilacqua, F, Berger, AJ, Cerussi, AE, Jakubowski, D, Tromberg, BJ *Broadband Absorption Spectroscopy in Turbid Media by Combined Frequency-Domain and Steady-State Methods*. Applied Optics, 39, 6498-6507, 2000.
- J89. Cerussi, AE, Berger, AJ, Bevilacqua, F, Shah, N, Jakubowski, D, Butler, J, Holcombe, RF, Tromberg, BJ *Sources of Absorption and Scattering Contrast for Near-Infrared Optical Mammography*. Academic Radiology, 8, 211 – 218, 2001.
- J90. Shah, N, Cerussi, A, Eker, C, Espinoza, J, Butler, J, Fishkin, J, Hornung, R, Tromberg, B *Non-Invasive Functional Optical Spectroscopy of Human Breast Tissue*. . Proceedings of the National Academy of Science, 98, 4420-4425, 2001.
- J91. Agarwal, A, Wallace, VP, Coleno, M, Wu, WY, Sun, CH, Tromberg, BJ, George, SC *Two-Photon Laser Scanning Microscopy of Epithelial Cell-Modulated Collagen Density in Engineered Human Lung Tissue*. Tissue Engineering, 7, 191-202, 2001.
- J92. Pham, T, Hornung, R, Berns, M, Tadir, Y, Tromberg, B *Monitoring Tumor Response During Photodynamic Therapy Using Near-Infrared Photon Migration Spectroscopy*, Photochem and Photobiology, 73, 669-677, 2001.
- J93. Coquoz, O, Svaasand, LO, Tromberg, BJ *Optical Property Measurements of Turbid Media in a Small Volume Cuvette using Frequency-Domain Photon Migration (FDPM)*, Applied Optics, 40, 6281-6290, 2001.
- J94. Wong, BJF, Wallace, V, Coleno, M, Benton, HP, Tromberg, BJ *Two-photon Excitation Laser Scanning Microscopy of Human, Porcine, and Rabbit Nasal Septal Cartilage*, Tissue Engineering, 7, 599-606, 2001.
- J95. Pham, TH., Eker, C, Durkin, A, Tromberg, BJ, Andersson-Engels, S *Quantifying The Optical Properties And Chromophore Concentrations Of Turbid Media By Chemometric Analysis Of Hyperspectral, Diffuse Reflectance Data Collected Using A Fourier Interferometric Imaging System*, Applied Spectroscopy, 55, 1035-1045, 2001.
- J96. Madsen, SJ, Sun, CH, Tromberg, BJ, Hirschberg, H *Development of a Novel Indwelling Balloon Applicator For Optimizing Light Delivery In Photodynamic Therapy*, Lasers in Surgery and Medicine, 29,406-412,2001.

- J97. Hayakawa, CK, Spanier, J, Bevilacqua, F, Dunn, AK, You, JS, Tromberg, BJ, Venugopalan, V *Use Of Perturbation Monte Carlo Methods To Solve Inverse Photon Migration Problems In Heterogeneous Tissues*. Optics Letters, 26,1335-1357, 2001.
- J98. Pham, T, Hornung, R, Ha, HP, Burney, T, Serna, D, Powell, L, Brenner, M, Tromberg, BJ *Non-Invasive Monitoring of Hemodynamic Stress Using Quantitative Near-Infrared Frequency-Domain Photon Migration Spectroscopy*, Journal of Biomedical Optics, 7, 34 – 44, 2002.
- J99. Cerussi, AE, Jakubowski, D, Shah, N, Bevilacqua, F., Lanning, R, Berger, AJ, Hsiang, D, Butler, J, Holcombe, RF, Tromberg, BJ *Spectroscopy Enhances the Information Content of Optical Mammography*. Journal of Biomedical Optics, 7, 60 – 71, 2002.
- J100. Hirschberg, H, Sun, CH, Tromberg, BJ, Madsen, SJ *ALA- and ALA-ester-mediated Photodynamic Therapy of Human Glioma Spheroids*, Journal of Neuro-Oncology, 57, 1-7, 2002.
- J101. Zoumi, A, Yeh, A, Tromberg, BJ *Imaging Cells And Extracellular Matrix In Vivo Using Second-Harmonic Generation And Two-Photon Excited Fluorescence*, PNAS, 99, 11014 – 11019, 2002.
- J102. Keefe, KA, Tadir, Y, Tromberg, BJ, Berns, MW, Osann, K, Hashad, R, Monk, BJ *Photodynamic Therapy of High-Grade Cervical Intraepithelial Neoplasia with 5-Aminolevulinic Acid*, Lasers in Surgery and Medicine, 31, 289-293, 2002.
- J103. Madsen, SJ, Sun, CH, Tromberg, BJ, Yeh, AT., Sanchez, R, Hirschberg, H *Effects of Combined Photodynamic Therapy and Ionizing Radiation on Human Glioma Spheroids*, Photochem. And Photobiol., 76, 411-416, 2002.
- J104. Chan, JK, Monk, BJ, Cuccia, D, Pham, H, Kimel, S, Gu, M, Hammer-Wilson, MJ, Liaw, LL, Osann, K, DiSaia, PJ, Berns, M, Tromberg, B, Tadir, Y *Laparoscopic Photodynamic Diagnosis of Ovarian Cancer using 5-Aminolevulinic Acid in a Rat Model*, Gynecologic Oncology, 87, 64 – 70, 2002.
- J105. Yeh, A, Nassif, N, Zoumi, A, Tromberg, B *Selective Corneal Imaging using Combined Second Harmonic Generation and Two-Photon Excited Fluorescence*, Optics Letters, 27, 2082 – 2084, 2002.
- J106. Gulsen, G, Yu, H, Wang, J, Nalcioglu, O, Merritt, S, Bevilacqua, F, Durkin, AJ, Cuccia, DJ, Lanning, R, Tromberg, BJ *Congruent MRI and Near-Infrared Spectroscopy for Functional and Structural Imaging of Tumors*, Technology in Cancer Research and Treatment, 1, 497-505, 2002.
- J107. Cuccia, DJ, Bevilacqua, F, Durkin, AJ, Merritt, S, Tromberg, BJ, Gulsen, G, Yu, H, Wang, J, Nalcioglu, O *In Vivo Quantification of Optical Contrast Agent Dynamics in Rat Tumors by use of Diffuse Optical spectroscopy with magnetic resonance imaging coregistration*. Applied Optics, 42, 2940-2950, 2003.

- J108. LaMorte, VJ, Zoumi, A, Tromberg, BJ *Spectroscopic Approach for Monitoring Two-Photon Excited Fluorescence Resonance Energy Transfer from Homodimers at the Subcellular Level*. Journal of Biomedical Optics, 8, 357-361, 2003.
- J109. Madsen, SJ, Sun, CH, Tromberg, BJ, Hirschberg, H *Repetitive 5-Aminolevulinic Acid-Mediated Photodynamic Therapy on Human Glioma Spheroids*. Journal of Neuro-Oncology, 62, 243-250, 2003.
- J110. Merritt, S, Bevilacqua, F, Durkin, AJ, Cuccia, DJ, Lanning, R, Tromberg, BJ, Gulsen, G, Yu, H, Wang, J, Nalcioglu, O *Coregistration of Diffuse Optical Spectroscopy and Magnetic Resonance Imaging in a Rat Tumor Model*. Applied Optics, 42, 2951-2959, 2003.
- J111. Merritt, S, Gulsen, G, Chiou, G, Chu, Y, Chengw, D, Cerrussi, AE, Durkin, AJ, Tromberg, BJ, Nalcioglu, O. *Comparison of Water and Lipid Content Measurements using Diffuse Optical Spectroscopy and MRI in Emulsion Phantoms*. Technology in Cancer Research and Treatment, 2, 563-569, 2003.
- J112. Si, MI, Ji, P, Tromberg, BJ, Lee, M, Kwok, J, Ng, SC, Imagawa DK. *Farnesyltransferase Inhibition: a Novel Method of Immunomodulation*, International Immunopharmacology, 3, 475-483, 2003.
- J113. Shah, N, Cerussi, AE, Jakubowski, D, Hsiang, D, Butler, J, Tromberg, BJ *Functional Imaging of Early Markers of Disease: The Role of Diffuse Optical Spectroscopy in the Clinical Management of Breast Cancer*, NCI Journal of Disease Markers, 19, 95-105, 2003.
- J114. Yeh, AT, Choi, B, Nelson, JS, Tromberg, BJ *Reversible Dissociation of Collagen in Tissues*. Journal of Investigative Dermatology, 121, 1332-1335, 2003.
- J115. Pan ZH, Healey G, Prasad M, Tromberg B *Face Recognition In Hyperspectral Images*. Ieee Transactions On Pattern Analysis And Machine Intelligence, 25, 1552-1560, 2003.
- J116. Jakubowski, DB, Cerussi, AE, Bevilacqua, FE, Shah, N, Hsiang, D, Butler, J, Tromberg, BJ *Monitoring Neoadjuvant Chemotherapy in Breast Cancer using Quantitative Diffuse Optical Spectroscopy: a Case Study*. Journal of Biomedical Optics, 9, 230-238, 2004.
- J117. Yeh, AT, Kao, B, Jung, WG, Chen, Z, Nelson, JS, Tromberg, BJ *Imaging Wound Healing using OCT and Multiphoton Microscopy in an In Vitro Skin Equivalent Tissue Model*. Journal of Biomedical Optics, 9, 248-253, 2004.
- J118. Shah, N, Cerussi, AE, Jakubowski, D, Hsiang, D, Butler, J, Tromberg, BJ *Spatial Variations In Optical And, Physiological Properties Of Healthy Breast Tissue*, Journal of Biomedical Optics, 9, 534-540, 2004.
- J119. Zoumi, A, Lu, X, Kassab, GS, Tromberg, BJ *Imaging Coronary Artery Microstructure Using Second-Harmonic and Two-Photon Fluorescence Microscopy*, Biophys. J. 87, 2778-2786, 2004.

- J120. Cuccia, D, Bevilacqua, F, Durkin, AJ, Tromberg, BJ *Modulated Imaging: Quantitation and Tomography of Turbid Media in the Spatial Frequency Domain*, Optics Letters 30, 11, 1354-1356, 2005.
- J121. Yeh, AT, Hammer-Wilson, M, Van Sickle, D, Benton, H, Zoumi, A, Tromberg, BJ, Peavy, G *Nonlinear Optical Microscopy of Articular Cartilage*, Osteoarthritis and Cartilage, 13 (4) 345-352, 2005.
- J122. Tseng, S, Hayakawa, C, Tromberg, BJ, Spanier, J, Durkin, AJ, *Quantitative Spectroscopy of Superficial Turbid Media*, Optics Letters, Optical Society of America, 30, 3165-3167, 2005.
- J123. Shah, N, Gibbs, J, Wolverton, D, Cerussi, A, Hylton, N, Tromberg, BJ, *Combined Diffuse Optical Spectroscopy and Contrast-Enhanced MRI for Monitoring Breast Cancer Neoadjuvant Chemotherapy: A Case Study* J. Biomed. Opt., 10(5), 051503, 2005.
- J124. Wilder-Smith, P, Krasieva, T, Jung, W, Zhang, J, Chen, Z, Osann, K, Tromberg, B, *Noninvasive Imaging of Oral Premalignancy and Malignancy*, J. Biomedical Optics, 10(5), 051601, 2005.
- J125. Cerussi, A, VanWoerkom, R, Waffarn, F, Tromberg, BJ, *Noninvasive Monitoring of Red Blood Cell Transfusion in Low Birth-weight Infants using Diffuse Optical Spectroscopy* J. Biomed. Opt., 10(5), 051401, 2005.
- J126. Chiu, L, Sun, CH, Yeh, AT, Torkian, B, Karamzadeh, A, Tromberg, B, Wong, B *Photodynamic Therapy on Keloid Fibroblasts in Tissue-Engineered Keratinocyte-Fibroblast Co-culture*. Lasers Surgery Med. Sept: 37 (3) 231-44, 2005.
- J127. Hsiang, D, Shah, N, Yu, H, Su, MY, Cerussi, A, Butler, J, Baick, C, Mehta, R, Nalcioglu, O, Tromberg, B *Coregistration of Dynamic Contrast Enhanced MRI and Broadband Diffuse Optical Spectroscopy for Characterizing Breast Cancer* Technology Cancer Research Treatment, 4, 549-558, 2005.
- J128. Tromberg, BJ, Cerussi, A, Shah, N, Compton, M, Fedyk, A, Hsiang, D, Butler, J, Mehta, M *Diffuse Optics in Breast Cancer: Detecting Tumors in Pre-Menopausal Women and Monitoring Neoadjuvant Chemotherapy* Breast Cancer Research, 7, 279-285, 2005.
- J129. Lee, J, El-Abaddi, N, Cerussi, AE, Duke, A, Brenner, M, Tromberg, BJ *Non-invasive in vivo Monitoring of Methemoglobin Formation and Reduction with Broadband Diffuse Optical Spectroscopy*, Applied Physiology, 100, 615-622, 2006.
- J130. Lyubovitsky, J, G., Krasieva, T.B., Spencer, J.A., Andersen, B., Tromberg, B.J. *Imaging Corneal Pathology in a Transgenic Mouse Model using Nonlinear Microscopy*. J. Biomed. Opt. 11, 014013, 2006.
- J131. Tang, S., Krasieva, T.B., Chen, Z., Tempea, G., Tromberg, B.J. *Effect of Pulse Duration on Two-Photon Excited Fluorescence and Second Harmonic Generation in Nonlinear Optical Microscopy*. J. Biomed. Opt., 11(2), 020501, 2006.

- J132. Tang, S., Krasieva, T.B., Chen, Z., Tromberg, B.J., *Combined Multiphoton Microscopy and Optical Coherence Tomography using a 12-fs Broadband Source*. J. Biomed. Opt. 11(2), 020502, 2006.
- J133. Lee, J., Saltzman, D.J., Cerussi, A.E., Gelfand, D.V., Milliken, J., Waddington, T., Tromberg, B.J., Brenner, M. *Broadband Diffuse Optical Spectroscopy Measurement of Hemoglobin Concentration during Hypovolemia in Rabbits*. Physiology Meas. 27(8), 757-67, 2006.
- J134. Madsen, S.J., Sun, C.H., Tromberg, B.J., Cristini, V., De Magalhaes, N., Hirschberg, H., *Multicell Tumor Spheroids in Photodynamic Therapy*. Lasers Surg. Med., 38(5), 555-64, 2006.
- J135. Cerussi, A., Shah, N., Hsiang, D., Durkin, A., Butler, J., Tromberg, B.J., *In Vivo Absorption, Scattering, and Physiologic Properties of 58 Malignant Breast Tumors determined by Broadband Diffuse Optical Spectroscopy*. J. Biomed. Opt. 11(4), 044005, 2006
- J136. Frieboes, H.B., Zheng, X., Sun, C.H., Tromberg, B., Gatenby, R., Cristini, V., *An Integrated Computational/Experimental Model of Tumor Invasion*. Cancer Res. 66(3), 1597-604, 2006.
- J137. Raub, C.B., Suresh, V., Krasieva, T., Lyubovitsky, J., Mih, J.D., Putnam, A.J., Tromberg, B.J., George, S.C., *Noninvasive Assessment of Collagen Gel Microstructure and Mechanics using Multiphoton Microscopy*. Biophys J., 92(6), 2212-22, 2007.
- J138. Cerussi, A., Hsiang, D., Shah, N., Mehta, R., Durkin, A., Butler, J., Tromberg, B., *Predicting response to Breast Cancer Neoadjuvant Chemotherapy using Diffuse Optical Spectroscopy*, Proc Natl Acad Sci, 104(10), 4014-9, 2007.
- J139. Tang, S., Sun, C.H., Krasieva, T.B., Chen, Z., Tromberg, B., *Imaging Subcellular Scattering Contrast by using Combined Optical Coherence and Multiphoton Microscopy*, Opt Lett, 32(5), 503-5, 2007.
- J140. Kukreti S., Cerussi A., Tromberg B., Gratton E., *Intrinsic Tumor Biomarkers Revealed by Novel Double-Differential Spectroscopy Analysis of Near-infrared Spectra*, J. Biomed. Opt. 12(2), 020509, 2007.
- J141. Lee, J., Mukai, D., Kreuter, K., Mahon, S., Tromberg, B., Brenner, M., *Potential Interference by Hydroxocobalamin on Cooximetry Hemoglobin Measurements during Cyanide and Smoke Inhalation Treatments*, Ann Emerg Med. 49(6), 802-5, 2007.
- J142. Li, A., Kwong, R., Cerussi, A., Merritt, S., Hayakawa, C., Tromberg, B., *Method for Recovering Quantitative Broadband Diffuse Optical Spectra from Layered Media*, Appl. Opt. 46(21), 4828-33, 2007.
- J143. Lee, J., Cerussi, A.E., Saltzman, D., Waddington, T., Tromberg, B.J., Brenner, M., *Hemoglobin Measurement Patterns during Noninvasive Diffuse Optical Spectroscopy Monitoring of Hypovolemic Shock and Fluid Replacement*, J. Biomed Opt., 12(2), 024001, 2007.

J144. Zhou, C., Choe, R., Shah, N., Durduran, T., Yu, G., Durkin, A., Hsiang, D., Mehta, R., Butler, J., Cerussi, A., Tromberg, B., Yodh, A., *Diffuse Optical Monitoring of Blood Flow and Oxygenation in Human Breast Cancer during Early Stages of Neoadjuvant Chemotherapy*, J. Biomed Opt., 12(5), 051903, 2007.

J145. Lee, J., Armstrong, J., Kreuter, K., Tromberg, BJ., Brenner, M., *Non-invasive In Vivo Diffuse Optical Spectroscopy Monitoring of Cyanide Poisoning in a Rabbit Model*, Physiol Meas. 28(9), 1057-66, 2007.

J146. Lyubovitsky, JG., Krasieva, TB., Xu, X., Andersen, B., Tromberg, BJ., *In Situ Multiphoton Optical Tomography of Hair Follicles in Mice*, J. Biomed Opt., 12(4) 044003, 2007.

J147. Raub, CB., Unruh, J., Suresh, V., Krasieva, T., Lindmo, T., Gratton, E., Tromberg, BJ., George, SC., *Image Correlation Spectroscopy of Multiphoton Images Correlates with Collagen Mechanical Properties*, Biophys J., 94(6) 2361-73, 2008

J148. Jung, W., Tang, S., McCormic, DT., Xie, T., Ahn, YC., Su, J., Tomov, IV., Krasieva, TB., Tromberg, BJ., Chen, Z., *Miniaturized Probe Based on Microelectromechanical System Mirror for Multiphoton Microscopy*, Opt. Lett., 33(12) 1324-6, 2008.

J149. Tromberg, BJ., Pogue BW., Paulsen, KD., Yodh, AG., Boas, DA, Cerussi, AE., *Assessing the Future of Diffuse Optical Imaging Technologies for Breast Cancer Management*, Med Phys., 35(6) 2443-51, 2008

J150. Li, A., Liu, J., Tanamai, W., Kwong, R., Cerussi, AE., Tromberg, BJ., *Assessing the Spatial Extent of Breast Tumor Intrinsic Optical Contrast using Ultrasound and Diffuse Optical Spectroscopy*, J. Biomed Opt., 13(3) 030504, 2008.

J151. Sur, BW., Nguyen, P., Sun, CH., Tromberg, BJ., Nelson, EL., *Immunophototherapy using PDT Combined with Rapid Intratumoral Dendritic Cell Injection*, Photochemistry and Photobiology, 84: 1257-1264, 2008.

Invited Editorial

E1. Tromberg, BJ, Yodh, A, Sevick, E, Pine, D *Diffusing Photons in Turbid Media: Introduction to the Feature*. Applied Optics, 36, 9, 1997.

E2. Tromberg, BJ, *Optical Scanning and Breast Cancer*, Academic Radiology, 12 (8) 923-924, 2005.

Book Chapters, invited

B1. Matthews, TG, Reed, TJ, Tromberg, BJ, Daffron, CR, Hawthorne, AR, "Formaldehyde Emission From Combustion Sources and Solid Formaldehyde-Resin-Containing Products," in *Formaldehyde: Analytical Chemistry and Toxicology*, V. Turoska, Ed., American Chemical Society, 131-150, 1985.

B2. Vo-Dinh, T, Griffin, GD, Ambrose, KR, Sepaniak, MJ, Tromberg, BJ, "Fiber-optic Immunofluorescence Spectroscopy For Chemical and Biological Monitoring," in *Polycyclic*

Aromatic Hydrocarbons: A Decade of Progress, M. Cooke and A. J. Dennis, eds., Battelle Press, Columbus, Ohio 885-900, 1985.

B3. Sepaniak, MJ, Tromberg, BJ, Alarie, JP, Boyer, J, Hoyte, A, Vo-Dinh, T, *Design Considerations for Antibody-Based Fiber Optic Chemical Sensors*, ACS Symposium Series on Chemical Sensors and Micro-Instrumentation, American Chemical Society, 319-330, 1989.

B4. Tromberg, BJ, Kimel, S, Orenstein, A, Nelson, JS, Berns, MW, *Oxygen Monitoring During Photodynamic Therapy*, in SPIE Institutes for Advanced Optical Technologies, SPIE Optical Engineering Press, Bellingham, WA, 64-70, 1990.

B5. Tadir, Y, Fisch, B, Tromberg, BJ, Wright, WW, Ovadia, J, Berns, MW, *Future Applications of Lasers to Gynecology and Reproduction*, in Current Techniques in Laser Surgery, G. Bastert and D. Wallwiener eds., Springer-Verlag: Berlin, 23-32, 1992.

B6. Tadir, Y, Tromberg, BJ, Wyss, P, Steiner, R, Madsen, SJ, Svaasand, LO, Villalon, VP, Berns, MW, *Photomedicine of the Female Genital Tract*, from Annual Progress in Reproductive Medicine 1993, eds. R.H. Asch and J.W.W. Studd, Parthenon Publishing Group: New York and London, 1994.

B7. Tadir, Y, Tromberg, BJ, Krasieva, T, Steiner, R, Chapman, J, Berns, MW, *Endometrial Photosensitization: Experimental Models*. In: An Atlas of Laser Operative Laparoscopy and Hysteroscopy. Eds. Donnez, J. and Nisolle, M., Parthenon Pub. Group, United Kingdom, pp. 361-64, 1994.

B8. Tadir, Y, Neev, Y, Tromberg, BJ, Berns, MW, *Laser Technology in Reproductive Medicine*. In: Reproductive Endocrinology, surgery and Technology. Eds. Adashi, Rock, and Rosenwaks. Raven Press. New York, pp. 1969-1990, 1995.

B9. Tadir, Y, Tromberg, BJ, Wyss, P, Steiner, R, Madsen, S., Svaasand, LO, Villalon, VP, Berns, M. W. *Photomedicine of the Female Genital Tract*. In: Annual Progress in Reproductive Medicine 1994, R. H. Asch, J. W. Studd (eds.). New York: Parthenon Publishing Group, 1995.

B10. Tromberg, BJ, Coquoz, O, Fishkin, JB, Butler, J, *Noninvasive Characterization of Tissue Optical Properties Using Frequency Domain Photon Migration* in Photomedicine in Gynecology and Reproduction, P. Wyss, Y. Tadir, U. Haller, and B. Tromberg eds., Basel, Karger, 2000.

B11. Wallace, VP, Dunn, AK, Coleno, ML, Tromberg, BJ *Two-Photon Microscopy in Highly Scattering Tissue* in Methods In Cellular Imaging, Oxford University Press, Editor: Ammasi Periasamy, 2001.

B12. Cerussi, AE, Tromberg, BJ "Photon Migration Spectroscopy," Biomedical Optics Handbook, Tuan Vo-Dinh, Ed., CRC Press (Boca Raton, FL), 2002.

B13. Tadir, Y, Tromberg, BJ, Berns, MW, *Biotechnology of Human Reproduction*, In "Laser techniques in assisted reproductive technologies", editors Revelli H, TurKaspa I, Holte JG, Massobrio M, Parthenon Press, 403-412, 2003.

B14. Jakubowski, D, Bevilacqua, F, Merritt, S, Cerussi, A, Tromberg, BJ, *Quantitative Absorption and Scattering Spectra in Thick Tissues using Broadband Diffuse Optical Spectroscopy*, J. Fujimoto and D. Farkas ed., Biomedical Optical Imaging, Oxford University Press, in press.

B15. Tromberg, BJ, *Current and Emerging Applications of Multiphoton Microscopy*, B. Masters, P. So ed., Handbook of Biomedical Nonlinear Optical Microscopy, Oxford University Press, 707-714, 2008.

B16. Tromberg, BJ, Shah, N, Klifa, C, Cerussi, A, Hylton, N, Li, A, *Diffuse Optical Spectroscopy (DOS) in Breast Cancer: Co-registration with MRI and Predicting Response to Neoadjuvant Chemotherapy*, F. Azar and X. Intes, Translational multimodality Optical Imaging, Artech House Publishing, 163-183, 2008.

Proceedings papers

P1. Vo-Dinh, T, Tromberg, BJ, Sepaniak, MJ, Griffin, GD, Ambrose, KR, Santella, RM, *Immunofluorescence Detection for Fiber Optics Chemical and Biological Sensors in Fluorescence Detection II*; E. R. Menzell, ed., Proc. Soc. Photo-Opt. Instrum. Eng., 87-94, 1988.

P2. Tromberg, BJ, Sepaniak, MJ, Vo-Dinh, T, *Development of Antibody-Based Fiber Optic Sensors*, in Optical Fibers in Medicine III; A. Katzir, ed., Proc. Soc. Photo-Opt. Instrum. Eng., 906, 1988.

P3. Tromberg, BJ, Burke, TG, Doroshov, JH, Berns, MW, *Synchronous Luminescence Studies of Anthracycline Drug Location in Model Membranes* in Fluorescence Detection III; Proc. Soc. Photo-Opt. Instrum. Eng., 1054, 152-159, 1989.

P4. Tromberg, BJ, Kimel, S, Roberts, WG, Berns, MW, *Photosensitizing Efficiencies of Porphyrins, Chlorins, and Phthalocyanins*, in Photodynamic Therapy: Mechanisms, T. J. Dougherty, ed., Proc. Soc. Photo-Opt. Instrum. Eng., 1065, 190-196, 1989.

P5. Orenstein, A, Kimel, S, Tromberg, BJ, Nelson, JS, Berns, MW, *Monitoring the Efficiency of Photodynamic Therapy in Tissue* in Laser-Tissue Interaction, S. Jacques, ed., Proc. Soc. Photo-Opt. Instrum. Eng. 1202, 88-92 1990.

P6. Tromberg, BJ, Dvornikov, T, Berns, M, *Indirect Spectroscopic Detection of Singlet Oxygen During Photodynamic Therapy* in Laser-Tissue Interaction II, S. Jacques, ed., Proc. Soc. Photo-Opt. Instrum. Eng. 1427, 101-108 1991.

P7. Tromberg, BJ, Svaasand, LO, Tsay, TT, Haskell, RC, Berns, MW, *Optical Property Measurements in Turbid Media Using Frequency Domain Photon Migration*, in Future Trends in Biomedical Applications of Lasers, L. O. Svaasand, ed., Proc. Soc. Photo-Opt. Instrum. Eng. 1525, 52-58 1991.

P8. Svaasand, LO, Tromberg, BJ, *On the Properties of Optical Waves in Turbid Media*, in Future Trends in Biomedical Applications of Lasers, L. O. Svaasand, ed., Proc. Soc. Photo-Opt. Instrum. Eng. 1525, 41-51, 1991.

- P9. Tsay, TT, Tromberg, BJ, Cho, E, Vu, K, Svaasand, LO, *Monitoring Photochemistry in Tumors Using Frequency Domain Photon Migration*, in Laser Tissue Interaction III, JA. Katzir, ed., Proc. Soc. Photo-Opt. Instrum. Eng., 1646, 213-218, 1992.
- P10. Svaasand, LO, Tromberg, BJ, Tsay, TT, Haskell, RC, Berns, MW, *On the Properties of Photon Density Waves in Tissues*, in Advances in Biological Heat and Mass Transfer, ASME 1991, HTD-Vol. 189/BED, 18, 85-89, 1992.
- P11. Tromberg, BJ, Peterson, KA, Krasieva, TB, Shimizu, S, Jeung, A, Chapman, C, Rella, C, Dlott, DD, Fayer, MD, Schwettman, HA, Berns, MW, *Free-electron Laser Microscopy for the Investigation of Transient Local Heating in Single Living Cells*, in Free-electron Laser Spectroscopy in Biology, Medicine, and Material Science, H. A. Schwettman, ed., Proc. Soc. Photo-Opt. Instrum. Eng., 1854, 154-161 1993.
- P12. Svaasand, LO, Haskell, RC, Tromberg, BJ, McAdams, M, *Properties of Photon Density Waves at Boundaries*, in Proceedings of the International Society for Optical Engineering, B. Chance and R. Alfano, eds., 1888, 214-226, 1993.
- P13. Tromberg, BJ, *Non-Invasive Imaging of Tissue Optical Properties*, in Proceedings of the Chinese-American Workshop on Non-Invasive Medical Diagnostics, P.A. Lewin, ed., National Science Foundation, Wash., D.C. 1993.
- P14. Tadir, Y, Tromberg, BJ, Krasieva, T, Berns, MW, *Photodynamic therapy towards selective endometrial ablation*, in Lasers in Urology, Gynecology, and General Surgery, C. Daly, W. Grundfest, D. Johnson, R. Lanzafame, R. Steiner, Y. Tadir, G. Watson, eds., Proc. Soc. Photo-Opt. Instrum. Eng., 1879, 247-252, 1993.
- P15. Tromberg, BJ, Svaasand, LO, Madsen, SJ, Haskell, RC, and Chapman, C, *Frequency-Domain Photon Migration Spectroscopy in Turbid Media*, in Advances in Optical Imaging and Photon Migration, B. Chance and R. Alfano, eds., Proceedings of The Optical Society of America, 21, 93-95, 1994.
- P16. Madsen, SJ, Wyss, P, Svaasand, LO, Haskell, RC, Tadir, Y, Tromberg, BJ, *The Optical Properties of the Human Uterus at 630 nm*, in Advances in Optical Imaging and Photon Migration, B. Chance and R. Alfano, eds., Proceedings of The Optical Society of America, 21, 262-264, 1994.
- P17. Koenig, K, Schneckenburger, H, Walt, H, Leeman, T, Wyss, MT, Ruck, A, Tromberg, BJ, *Microscopic studies on ALA-incubated Tumor Cells and Tumor Spheroids*, in Optical Methods for Tumor Treatment and Detection, ed., Proc. Soc. Photo-Opt. Instrum. Eng., 2133, 238-248, 1994.
- P18. Koenig, K., Schneckenburger, H, Hemmer J, Tromberg BJ, Steiner R, *In-vivo Fluorescence Detection and Imaging of Porphyrin producing Bacteria in Human Skin and in the Oral Cavity for Diagnosis of Acne Vulgaris*, in Advances in Laser and Light Spectroscopy to Diagnose Cancer and Other Diseases, ed., Proc. Soc. Photo-Opt. Instrum. Eng., 2135, 129-138, 1994.

- P19. Louie, A, Tromberg, BJ, Berns, MW, *Fluorescence Energy Transfer Studies on the Macrophage Scavenger Receptor* in Light Tissue Interaction, S. Jacques, ed., Proc. Soc. Photo-Opt. Instrum. Eng., 2134A, 206-209, 1994.
- P20. Peavy, GM, Krasieva, TB, Tromberg, BJ, Berns, MW, *Treatment Considerations for Photodynamic Therapy in the Cat*. Proc. Soc. Photo-Opt. Instrum. Eng., 2128:, 568-575 1994.
- P21. Coquoz, O, Madsen, SJ, Svaasand, LO, Anderson, ER, Haskell, RC, Tromberg, BJ, *Optical Monitoring of Cellular Physiology using Frequency-domain Photon Migration (FDPM)*. Symposium on Photon Migration Spectroscopy for Physiological Monitoring and Functional Imaging. Optical Society of America, Portland, OR, 1995.
- P22. Madsen, SJ, Svaasand, LO, Fehr, MK, Tadir, Y, Tromberg, BJ, *Light Distribution in the Endometrium During Photodynamic Therapy*, in Optical and Imaging Techniques in Biomedicine, Proc. Soc. Photo-Opt. Instrum. Eng., 2323, 147-155 1995.
- P23. Koenig, K, Liu, Y, Sonek, GJ, Berns, MW, Tromberg BJ, *Photoinduced Modifications of Cells in an Optical Trap* in Optical and Imaging Techniques in Biomedicine, Proc. Soc. Photo-Opt. Instrum. Eng., 2329, 147-155, 1995.
- P24. Madsen, SJ, Anderson, EA, Haskell, RC, Tromberg, BJ, "A high-bandwidth frequency-domain photon migration instrument for clinical use," *Optical Tomography: Photon Migration and Spectroscopy of Tissue and Model Media: Theory, Human Studies, and Instrumentation*, Proc. Soc. Photo-Opt. Instrum. Eng., 2389, 257-263 1995.
- P25. König, K, Liu, Y, Krasieva, T, Patrizio, P, Tadir, Y, Sonek, GJ, Berns, MW, Tromberg, BJ, *Fluorescence Imaging and Spectroscopy of Motile Sperm Cells and CHO Cells in an Optical Trap ("laser Tweezers")*, in Proc. Soc. Photo-Opt. Instrum. Eng., 2391, 238-249, 1995.
- P26. Svaasand, LO, Fehr, M, Madsen, S, Tadir, Y, Tromberg, BJ, *Dosimetry for Photodynamic Therapy of Endometrial Tissue*. in Optical Tomography: Photon Migration and Spectroscopy of Tissue and Model Media: Theory, Human Studies, and Instrumentation, Proc. Soc. Photo-Opt. Instrum. Eng., 2389, 533-542, 1995.
- P27. Haskell, RC, Svaasand, LO, Madsen, SJ, Rojas, FE, Feng, TC, Tromberg, BJ, *Phase Velocity Limit of High-frequency Photon Density Waves* in Optical Tomography: Photon Migration and Spectroscopy of Tissue and Model Media: Theory, Human Studies, and Instrumentation, Proc. Soc. Photo-Opt. Instrum. Eng., 2389, 284-290, 1995.
- P28. Liu, Y, Sonek, GJ, Chapman, CF, Tromberg, BJ, Patrizio, P, Tadir, Y, Berns, MW, *Microthermometry of Laser-heated Chinese Hamster Ovary Cells and Sperm Cells*. Proc. Soc. Photo-Opt. Instrum. Eng., 2391, 484-490, 1995.
- P29. Anderson, ER, Madsen, SJ, Haskell, RC, Tromberg, BJ, *Multi-Wavelength, High Bandwidth, Laser Diode Frequency Domain Photon Migration Instrument using a Network Analyzer*. Symposium on Photon Migration Spectroscopy for Physiological Monitoring and Functional Imaging, Optical Society of America, Portland, OR, 1995.

P30. Forssen, EA, Malè-Brune, R, Adler-Moore, J, Lee, M, Frank, K, Dvornikova, T, Tromberg, BJ, *In Vitro and In Vivo Fluorescent Imaging Methods for Evaluating the Biological Disposition of Daunorubicin Liposomes*. Proc. Amer. Assoc. Cancer Research, 36: 309, 1995.

P31. Fehr, M, Svaasand, LO, Tromberg, BJ, Ngo, P, Berns, MW, Tadir, Y, *Differential Cell Photosensitivity in Photodynamic Therapy of the Rat Endometrium* in Photochemotherapy: Photodynamic Therapy and Other Modalities, Proc. Soc. Photo-Opt. Instrum. Eng., 2625, 58-69 1996.

P32. Köenig, K, So, P, Mantulin, W, Gratton, E, Krasieva, TB, Berns, MW, Tromberg, BJ, *Two-photon Excited Cellular Autofluorescence induced by Continuous Wave and Femtosecond NIR Microirradiation* in Optical and Imaging Techniques for Biomonitoring, Proc. Soc. Photo-Opt. Instrum. Eng., 2628, 12-19, 1996.

P33. Köenig, K, Krasieva, TB, Bauer, E, Fiedler, U, Berns, MW, Tromberg, BJ, Greulich, K, *UVA induced Oxidative Stress in Single Cells Probed by Autofluorescence Modifications, Cloning Assay, and Comet Assay* in Optical and Imaging Techniques for Biomonitoring, Proc. Soc. Photo-Opt. Instrum. Eng., 2628, 43-45, 1996.

P34. Bigio, IJ, Johnson, T, Mourant, J, Tromberg, BJ, Tadir, Y, Fehr, M, Nisson, H, Darrow, V, *Determination of the Cervical Transformation Zone using Elastic-scattering Spectroscopy* in Advances in Laser Light Spectroscopy to Diagnose Cancer and Other Diseases III, Proc. Soc. Photo-Opt. Instrum. Eng., 2679, 85-91, 1996.

P35. Negulescu, PA, Krasieva, TB, Tromberg, BJ, Cahalan, MD, *Polarized T-cell Sensitivity to Antigen revealed with an Optical Trap* in Optical Diagnostics of Living Cells and Biofluids, Proc. Soc. Photo-Opt. Instrum. Eng., 2678, 123-128, 1996.

P36. Sonek, GJ, Liu, Y, Berns, MW, Tromberg, BJ, *Micromanipulation and Physiological Monitoring of Cells using Two-photon Excited Fluorescence in CW Laser Tweezers* in Optical Diagnostics of Living Cells and Biofluids, Proc. Soc. Photo-Opt. Instrum. Eng., 2678, 62-68, 1996.

P37. Köenig, K, Krasieva, TB, Liu, Y, Berns, MW, Tromberg, BJ, *Two-photon excitation in living cells induced by low-power cw laser beam* in Optical Diagnostics of Living Cells and Biofluids, Proc. Soc. Photo-Opt. Instrum. Eng., 2678, 30-37, 1996.

P38. Tadir, Y, Fehr, M, Tromberg, BJ, *Photomedicine and photodynamic therapy in gynecologic endoscopy* J. AAGL, Proc. World Congress of Gynecol. Laparos, 1996.

P39. Köenig, K, Svaasand LO, Tadir, Y, Tromberg, B, Berns, M, *Optical determination of motility forces in humans spermatozoa with laser tweezers*, in Optical Biopsies and Microscopic Techniques, Proc. of SPIE Vol. 2926, 1996

P40. LaMorte, VJ, Krasieva, TB, Evans, RM, Berns, MW, Tromberg, BJ, *Laser microbeam ablation of GFP-labeled Nuclear Organelles in a Living Cell* in Functional Imaging and Optical Manipulation of Living Cells. SPIE., Vol. 2983, 17-21, 1997.

P41. Wei, X, Zhang, Z, Krasieva, TB, Negulescu, PA, Berns MW, Cahalan, MD, Sonek, GJ, Tromberg, B J, *Laser trapping microscopy as a diagnostic technique for the study of cellular response and laser-cell interactions*, in Functional Imaging and Optical Manipulation of Living Cells , SPIE, Vol. 2983, 22-28, 1997.

P42. Köenig, K, Liang, H, Kimel, S, Svaasand, LO, Tromberg, BJ, Krasieva, T, Berns, MW, Halbhuber, K, So, PTC, Mantulin, WW, Gratton, E, *Cell damage in UVA and CW/Femtosecond NIR microscopes*, in Functional Imaging and Optical Manipulation of Living Cells. SPIE., Vol. 2983, 37-44, 1997.

P43. Ito, S, Nagae, T, Ishimaru, S, Chau, S, Dang, T, Sabiniano, L, Zempo, M, Booth, M, Liaw, LL, Krasieva, T, Tromberg, B, Liew, J, Berns, M, Wilson, S, *Effect of photodynamic therapy in intimal hyperplasia by phthalocyanine conjugated to the scavenger-receptor ligand, maleylated, bovine serum albumin* in Medical Imaging, Physiology and Function from Multidimensional Images, Proc. of SPIE Vol. 3033. 280 – 297, 1997

P44. Wei, X, Krasieva, TB; Zhang, Z, Negulescu, PA, Sun, C, Cahalan, MD, Tromberg, BJ, *Mapping the polarity for T cell activation with an optical trap* in Optical Investigations of Cells in Vito and In Vivo SPIE, Vol. 3260, 24-29, 1998.

P45. Krasieva, TB, Chapman, CF, LaMorte, VJ, Venugopalan, V, Berns, MW, Tromberg, BJ , *Cell permeabilization and molecular transport by laser microirradiation* in Optical Investigations of Cells in Vito and In Vivo, SPIE, Vol. 3260, 38-44, 1998.

P46. Köenig, K, Tromberg, BJ, Tadir, Y, Berns, MW, *How safe is the gamete micromanipulation by laser tweezers?*, in Optical Investigations of Cells in Vito and In Vivo, SPIE, Vol. 3260, 30-36, 1998.

P47. Wei, X, Krasieva, TB, Negulescu, PA, Zhang, Z, Sun, C, Berns, MW, Sonek, GJ, Cahalan, MD, Tromberg, BJ, *“Antigen Recognition by T-lymphocyte Studied with an Optical Trap,”* in *Optical and Imaging Techniques for Biomonitoring III*. Proc. Soc. Photo-opt. Instrum. Eng., 3196, 1998.

P48. Spott, T, Svaasand, LO, Fishkin, JB, You, J, Pham, T, Tromberg, BJ, *Reflectance tomography of two-layered turbid media with diffuse photon density wave*, BIOS Proc. Soc. Photo-opt. Instrum. Eng., 3566, 1998.

P49. Wei, X, Krasieva, T, Zhang, Z, Negulescu, P, Sun, CH, Berns, M, Cahalan, Tromberg, B, *Mapping the polarity and stimulus density requirements for T-cell activation*, in Biomedical Optics and Lasers: Diagnostics and Treatment, Proc. of SPIE Vol. 3548, 11-16, 1998

P50. Spott, T, Svaasand, LO, Fishkin, JB, Tromberg, BJ, *Optical Parameter Determination by Diffuse-Photon Density Waves*, BIOS Proc. Soc. Photo-opt. Instrum. Eng, 3597, 1999.

P51. Bevilacqua, F, Tromberg, BJ, Depeursinge, CD, *Superficial Tissue Optical Property Determination using Spatially Resolved Measurements Close to the Source: Comparison with Frequency-Domain Photon-Migration Measurements*, BIOS Proc. Soc. Photo-opt. Instrum. Eng., 3597, 1999.

- P52. Madsen, S, Sun, CH, Chu, E, Hirschberg, H, Tromberg, B, *Effects of photodynamic therapy on human glioma spheroids* in Optical Methods for Tumor Treatment and Detection: Mechanisms and Techniques in Photodynamic Therapy VIII, Proc. of SPIE Vol. 3592, 1999.
- P53. Madsen, S, Svaasand, LO, Hirschberg, H, Tadir, Y, Tromberg, B, *Optical dosimetry in photodynamic therapy of human uterus and brain*, in Laser-Tissue Interaction X: Photochemical, Photothermal, and Photomechanical, Proc. of SPIE Vol. 3601, 1999
- P54. Coleno, M, Wallace, VP, Dunn, A, Berns, MW, Tromberg, BJ, *Two-Photon Excited Imaging and Activation of Photosensitizers in Tissues*, BIOS Proc. Soc. Photo-opt. Instrum. Eng., 3604, 1999.
- P55. Wei, X, Krasieva, T, Cahalan, M, Tromberg, B, *Polarity and sensitivity of T lymphocyte studied by an optical trap* in Optical Diagnostics of Living Cells II, Proc. of SPIE Vol. 3604, 13 – 17, 1999.
- P56. Dunn, A, Wallace, VP, Coleno, M, So, P, Tromberg, BJ, *Study of the Spatial Point Spread Function with Depth in Two-Photon Microscopy*, BIOS Proc. Soc. Photo-opt. Instrum. Eng., 3605, 1999.
- P57. Kim, CC, Wallace, VP, Coleno, M, Dao, X, Tromberg, BJ, Wong, B, *Two-Photon Excitation Laser Scanning Microscopy of Rabbit Nasal Septal Cartilage Following Nd:YAG Laser Mediated Stress Relaxation* in Optical Diagnostics of Living Cells III., Proc. Soc. Photo-opt. Instrum. 3921, 2000.
- P58. Kim, C, Wallace, V, Coleno, M, Dao, X, Tromberg, B, Wong, B, *Two-photon excitation laser scanning microscopy of porcine nasal septal cartilage following Nd:YAG Laser-mediated stress relaxation* in Lasers in Surgery: Advanced Characterization, Therapeutics, and Systems, Proc of SPIE Vol. 3907, 2000
- P59. Bevilacqua, F, You, JS, Tromberg, BJ, Venugopalan, V, *Sampling of Tissue Volume by Frequency-Domain Photon Migration* OSA Biomedical Topical Meetings, April, 2000.
- P60. Berger, AJ, Venugopalan, V, Durkin, AJ, Pham, TH, Tromberg, BJ, *Chemometric Analysis of FDPM Data: Using Training Sets Instead of Diffusion Theory*, OSA Biomedical Topical Meetings, April, 2000.
- P61. Healey, G, Pan, Z, Tromberg, B, *Models for recognizing faces in hyperspectral images* in Algorithms for Multispectral, Hyperspectral, and Ultraspectral Imagery VII, Proc. of SPIE Vol. 4381, 2001
- P62. Madsen, SJ, Sun, CH, Tromberg, BJ, Hirschberg, H, *Fluence rate effects in human glioma spheroids: implications for photodynamic therapy of brain tumors* in Optical Methods for Tumor Treatment and Detection: Mechanisms and Techniques in Photodynamic Therapy X, Thomas J. Dougherty, Editor, Proceedings of SPIE Vol. 4248, 2001.

P63. Madsen, SJ, Svaasand, LO, Tromberg BJ, Hirschberg, H, *Characterization of the light distribution from an intracranial balloon applicator for photodynamic therapy* in Laser-Tissue Interaction X!!: Photochemical, Photothermal and Photomechanical, Donald D. Duncan, Steven L. Jacques, and Peter C. Johnson, Editors, Proceedings of SPIE Vol. 4257, 2001.

P64. Cerussi, AE, Bevilacqua, F, Shah, N, Jakubowski, DB, Berger, AJ, Lanning, RM, Tromberg, BJ, *The Effects of Water and Lipids on NIR Optical Breast Measurements* in Optical Tomography and Spectroscopy of Tissue IV, Britton Chance, Robert ER. Alfano, Bruce J. Tromberg, Mamoru Tamura, Eva M. Sevick-Muraca, Editors, Proceedings of SPIE Vol. 4250, 2001.

P65. Wallace, V, Coleno, M, Yomo, T, Sun, CH, Tromberg, B, *Two-photon imaging of collagen remodeling in RAFT tissue cultures* in Multiphoton Microscopy in the Biomedical Sciences, Proc. of SPIE Vol. 4262, 2001

P66. Berger, AJ, Bevilacqua, F, Jakubowski, DB, Cerussi, AE, Butler, JA, Hsiang, D, Tromberg, BJ, *Broadband Absorption Spectroscopy by Combining Frequency-Domain and Steady-State Techniques* in Optical Tomography and Spectroscopy of Tissue IV, Britton Chance, Robert ER. Alfano, Bruce J. Tromberg, Mamoru Tamura, Eva M. Sevick-Muraca, Editors, Proceedings of SPIE Vol. 4250, 2001.

P67. Pan, Z, Healey, G, Prasad, M, Tromberg, B, *Recognizing faces in hyperspectral images* in Algorithms and Technologies for Multispectral, Hyperspectral, and Ultraspectral Imagery VIII, Proc. of SPIE Vol. 4725, 2002

P68. Zoumi, A, Yeh, A, Tromberg, B, *Combined two-photon excited fluorescence and second-harmonic generation backscattering microscopy of turbid tissues* in Multiphoton Microscopy in the Biomedical Sciences II, Proc. of SPIE Vol. 4620, 2002

P69. Yang, V, Gzarnota, G, Vitkin, A, Kolios, M, Sherar, M, Boer, J, Tromberg, B, Wilson, B, *Ultrasound backscatter microscopy/spectroscopy and optical coherence (Doppler) tomography for mechanism-specific monitoring of photodynamic therapy in vivo and in vitro* in Optical Methods for Tumor Treatment and Detection: Mechanisms and Techniques in Photodynamic Therapy XI, Proc. of SPIE 4612, 2002

P70. Madsen, S, Sun, CH, Tromberg, B, Hirschberg, H, *Photodynamic therapy of human glioma spheroids: a comparative study of the effectiveness of 5-aminolevulinic acid and its esters* in Optical Methods for Tumor Treatment and Detection: Mechanisms and Techniques in Photodynamic Therapy XI, Proc. of SPIE Vol. 4612, 2002

P71. Madsen, S, Rodenbush, R, Sun, CH, Tromberg, B, Hirschberg, H, *Effect of low-fluence-rate PDT on glioma spheroids* in Optical Methods for Tumor Treatment and Detection: Mechanisms and Techniques in Photodynamic Therapy XI, Proc. of SPIE Vol. 4612, 2002

P72. Madsen, S, Sun, CH, Tromberg, B, Hirschberg, H, *Development of an in vivo model for the study of photodynamic therapy and anti-angiogenic treatments* in Optical Methods for Tumor Treatment and Detection: Mechanisms and Techniques in Photodynamic Therapy XII, Proc. of SPIE Vol. 4952, 2003

- P73. Pan, Z Healey, G, Prasad, M, Tromberg, B, *Illumination-invariant face recognition in hyperspectral images* in Optical Methods for Tumor Treatment and Detection: Mechanisms and Techniques in Photodynamic Therapy XII, Proc. of SPIE Vol 5093, 2003
- P74. Pan, Z, Healey, G, Prasad, M, Tromberg, B, *Hyperspectral face recognition for homeland security* in Infrared Technology and Applications XXIX, Proc. of SPIE Vol. 5074, 2003
- P75. Hanna, NM, Mina-Araghi, R, Lee, J, Cerussi, A, Poggemeyer, H, Krutzik, M, Jones, B, Tromberg, B, Brenner, M *Non-invasive hemodynamic monitoring using near infrared frequency domain photon migration in rabbit hemorrhagic shock model*. Journal of Investigative Medicine 51:171, 2003.
- P76. Pan, Z, Healey, G, Prasad, M, Tromberg, B, *Hyperspectral face recognition under variable outdoor illumination* in Algorithms and Technologies for Multispectral, Hyperspectral, and Ultraspectral Imagery X, Proc. of SPIE Vol. 5425, 2004
- P77. Brewer, MB, Yeh, A, Torkian, B, Sun, CH, Tromberg, BJ, Wong, BJ, *Multiphoton imaging of excised normal skin and keloid scar: preliminary investigations*, Lasers in Surgery XIV, Proc. of SPIE Vol. 5312, pp. 204-208, 2004.
- P78. Khfa, CS, Shah, N, Gibbs, J, Tromberg, BJ, Hylton, NM, *Characterization of breast composition using magnetic resonance imaging and diffuse optical spectroscopy*, Breast Cancer Research and Treatment, 88: S163-S164 Suppl 1, 2004.
- P79. Armstrong, J, Lee, JW, Duke, A, Beydoun, H, Kreuter, K, Waddington, T, Tromberg, B, Brenner, M, *Non-invasive monitoring of cyanide toxicity using diffuse optical spectroscopy in a rabbit model*, Chest 126 (4): 874S-875S Suppl. S, 2004.
- P80. Duke A, Lee J, El-Abaddi N, Hanna N, Cerrusi AE, Brenner M, Tromberg BJ *Evaluation Of Non-Invasive Diffuse Optical Spectroscopy For Diagnosis And Treatment Of Methemoglobinemia In A New Zealand Rabbit Model*, Journal of Investigative Medicine, 52, S111-S112, 2004.
- P81. Kreuter, K, Lee, J, Armstrong, J, Tromberg, B, Mahon, S, Mukai, D, Brenner, M, *Non-invasive detection of cyanide toxicity and treatment using diffuse optical spectroscopy*, Journal of Investigative Medicine 53 (1): S113-S113 200 Suppl. S, 2005.
- P82. Mih, JD, Tromberg, BJ, George, SC, *The airway epithelium is a fibrotic trigger*, Faseb Journal 19 (5): A1538-A1538 Part 2 Suppl. S, 2005.
- P83. Wilder-Smith, P, Krasieva, T, Jung, W, You, S.J., Chen, Z, Osann, K, Tromberg, B, *Noninvasive imaging or oral premalignancy and malignancy*, Advanced Biomedical and Clinical Diagnostic Systems III, Proc. of SPIE Vol. 5692. 2005
- P84. Lyubovitsky, J, Krasieva, T, Spencer, J, Anderson, B, Tromberg, B, *Corneal damage revealed by endogenous cellular fluorescence and second harmonic signals from collagen in Multiphoton Microscopy in the Biomedical Sciences V*, Proc. of SPIE Vol. 5700, 2005
- P85. Tang, S, Krasieva, T, Chen, Z, Tromberg, B, *Combined multiphoton and optical coherence*

microscopy in Multiphoton Microscopy in the Biomedical Sciences V, Proc. of SPIE Vol. 5700, 2005

P86. Mahmood, U, Dehdari, R, Cerussi, A, Nguyen, Q, Kelley, T, Tromberg, B, Wong, B, *Near infrared transillumination of the maxillary sinuses: overview of methods and preliminary clinical results* in Photonic Therapeutics and Diagnostics, Proc. of SPIE Vol. 5686, 2005

P87. Madsen, S, Sun, CH, Tromberg, B, Ni, J, Hirschberg, H, *Addition of ionizing radiation or hyperthermia enhances PDT efficacy in glioma spheroids* in Photonic Therapeutics and Diagnostics, Proc. of SPIE Vol. 5686, 2005

P88. De Magalhães, N, Sun, CH, Madsen, S, Hirschberg, H, Tromberg, B, *Development of a brain tumor model for investigating the effects of photodynamic and anti-angiogenic therapies* in Photonic Therapeutics and Diagnostics, Proc. of SPIE Vol. 5686, 2005

P89. Pan, Z, Healey, G, Tromberg, B, *Multiband and spectral eigenfaces for face recognition in hyperspectral images* in Biometric Technology for Human Identification II, Proc. of SPIE Vol. 5779, 2005

P90. Tang, S, Krasieva, T, Chen, Z, Tempea, G, Tromberg, B, *Increasing efficiency of two-photon excited fluorescence and second harmonic generation using ultrashort pulses* in Multiphoton Microscopy in the Biomedical Sciences VI, Proc. of SPIE Vol. 6089, 2006

P91. DeMagalhães, N, Liaw, LH, Li L, Liogys, A, Madsen, S, Hirschberg, H, Tromberg, B, *Investigating the effects of combined photodynamic and anti-angiogenic therapies using a three-dimensional in-vivo brain tumor system* in Photonic Therapeutics and Diagnostics II, Proc. of SPIE Vol. 6078, 2006

P92. Weber, JR, Cuccia, DJ, Tromberg, BJ, *Modulated imaging in layered media* in IEEE Eng. Med. Biol. Soc, 6674-6, 2006

P93. Chung, SH, Cerussi, A, Merritt, S, Hsiang, D, Mehta, R, Tromberg, B, *Tissue bound water studies on breast tumors using diffuse optical spectroscopy* in Optical Tomography and Spectroscopy of Tissue VII, Proc. of SPIE Vol. 6434, 2007

P94. Abookasis, D, Mathews, M, Lay, C, Cuccia, D, Frostig, R, Linskey, M, Tromberg, B, *Mapping tissue chromophore changes in cerebral ischemia: a pilot study* in Photonic Therapeutics and Diagnostics III, Proc. of SPIE Vol. 6424, 2007

P95. Abookasis, D, Mathews, M, Lay, C, Frostig, R, Tromberg, B *Modulated imaging: a novel method for quantifying tissue chromophores in evolving cerebral ischemia* in Medical Imaging 2007: Physiology, Function, and Structure from Medical Images, Proc. of SPIE Vol. 6511, 2007

P96. Azar, F, de Roquemaurel, B, Cerussi, A, Hajjioui, N, Li, A, Tromberg, B, Sauer, F, *A 3D visualization and guidance system for handheld optical imaging devices* in Medical Imaging 2007: Visualization and Image-Guided Procedures, Proc. of SPIE Vol. 6509, 2007

P97. Klifa, C, Hattangadi, J, Watkins, M, Li, A, Sakata, T., Tromberg, B., Hylton, N., Park, C,

Combination of magnetic resonance imaging and diffuse optical spectroscopy to predict radiation response in the breast: an exploratory pilot study in Multimodal Biomedical Imaging II, 64310C, Proc. of SPIE Vol. 6431, 2007

P98. Barton, J., Tang, S., Lim, R., Tromberg, B., *Simultaneous optical coherence and multiphoton microscopy of skin-equivalent tissue model* in Optical Tomography and Coherence Techniques III, Proc. of SPIE Vol. 6627, 2007

P99. Abookasis, D., Mathews, M., Owen, C., Binder, D., Linskey, M., Frostig, R., Tromberg, B., *Using NIR spatial illumination for detection and mapping chromophore changes during cerebral edema* in Photonic Therapeutics and Diagnostics IV, Proc. of SPIE Vol. 6842, 2008

P100. Jung, W., Tang, S., Xie, T., McCormick, D., Ahn, YC., Su, J., Tomov, I., Krasieva, T., Tromberg, B., Chen, Z., *Miniaturized probe using 2 axis MEMS scanner for endoscopic multiphoton excitation microscopy* in Endoscopic Microscopy III, Proc. of SPIE Vol. 6851, 2008

P101. Raub, C., Kim, P., Putnam, A., Lowengrub, J., Tromberg, B., George, S., *Correlations between second harmonic signal, microstructure, and mechanics of contracting collagen gels* in Optics in Tissue Engineering and Regenerative Medicine II, Proc. of SPIE Vol. 6858, 2008

P102. Lyubovitsky, J., Xu, X., Sun, CH., Andersen, B., Krasieva, T., Tromberg, B., *Characterization of dermal structural assembly in normal and pathological connective tissues by intrinsic signal multiphoton optical microscopy* in Imaging, Manipulation, and Analysis of Biomolecules, Cells, and Tissues VI, Proc. of SPIE Vol. 6859, 2008

Invited Lectures

Seminars/Colloquia

C1. Beckman Instruments, Diagnostic Systems Group, *Development of Antibody-Based Fiber Optic Sensors*, Brea, CA, June 1, 1989.

C2. Southern California Pharmacology Group, City of Hope National Medical Center, *Tumor Oxygen Tension During Photodynamic Therapy*, Duarte, CA, December 1, 1989.

C3. University of California, Irvine Department of Chemistry, Physical Chemistry Seminar Series, *Optical Spectroscopy in Cancer Therapy and Diagnosis*, April 17, 1990.

C4. Vestar Pharmaceutical Company, Inc., *Laser-Based Optical Imaging and Therapeutics in Cancer*. San Dimas, CA, June 28, 1990.

C5. UCI Drug Resistance Affinity Group Winter Retreat, *Measurement of Anthracycline Efflux From Single Multidrug Resistant MCF-7 Cells*, January 7, 1991.

C6. Beckman Instruments, Diagnostic Systems Group, *Optical Spectroscopy in turbid media: Frequency-domain photon migration*,. Brea, CA, May 3, 1991.

C7. Beilinson Medical Center, Department of Obstetrics and Gynecology, Tel Aviv University, *Principles of Photodynamic Therapy*, Tel Aviv, Israel, May 29, 1991.

C8. Technion-Israel Institute of Technology, Department of Chemistry Colloquium, *Optical Properties in the Multiple-scattering Regime Using Frequency-domain Photon Migration*, Haifa, Israel, May 30, 1991.

C9. University of Tennessee, Knoxville, Department of Chemistry Colloquium, *Optical Spectroscopy in Tissues*, Knoxville, TN, August 9, 1991.

C10. Stanford University, Hansen Experimental Physics Lab Lecture Series, *Photon Migration in Biological Tissue*, Stanford, CA, December 2, 1991.

C11. Advanced Monitoring Development Group, Health and Safety Research Division Seminar Series, Oak Ridge National Laboratory, Oak Ridge, TN *Photon Flux Measurements in Biological Tissues*, March 30, 1992.

C12. University of California, Irvine, Department of Chemistry, Physical Chemistry Seminar Series, *Propagation of Photon Density Waves in Biological Tissues*, April 21, 1992.

C13. Kaiser Permanente, *General Surgical Applications of Lasers*, Panorama City, California, April 22, 1992.

C14. University of California, Irvine, Annual Cancer Research Symposium, *Optical Spectroscopy in Cancer Diagnosis*, May 2, 1992.

C15. University of California, Irvine, Drug Resistance Affinity Group Summer Retreat, *Imaging and Pharmacokinetics in Single Multi-drug Resistant Cells*, June 13, 1992.

C16. Spectroscopic Approaches to Analysis of Biological Tissue, Conference Organized for Corporate Office of Science and Technology, Johnson and Johnson Corporation, *Determination of Tissue Optical Properties Using Frequency-Domain Photon Migration*, Albuquerque, New Mexico, July 1 and 2, 1992.

C17. Johnson Foundation Seminars, University of Pennsylvania, *Properties of Photon Density Waves in Biological Tissues*, Philadelphia, PA, August 13, 1992.

C18. Photomedicine Lecture Series, Wellman Laboratories of Photomedicine, Massachusetts General Hospital, Harvard University, *Properties of Photon Density Waves in Tissues*, Boston, MA, October 13, 1992.

C19. University of California, Irvine, College of Medicine, Department of Radiology, General Seminar, *Photon Migration in Radiology*, May 27, 1993.

C20. Optical Society of San Diego, *Medical Diagnostics Using Photon Density Waves*, San Diego, CA, February 17, 1994.

- C21. Lawrence Livermore National Laboratory, *Medical Diagnostics Using Photon Density Waves*, LLNL laser colloquium, Livermore, CA, June 7, 1994.
- C22. University of California, Irvine, College of Medicine, Department of Pathology, Seminar, *Optical Properties of Tissues*, October 17, 1994.
- C23. Southern California Confocal Microscopy Users Group, Advanced Confocal Imaging Workshop, *Two-Photon Processes in Laser Microbeams*, April 25, 1995.
- C24. University of California, Los Angeles, Mathematics Department, Colloquium on *Mathematical Modelling in Biology and Medicine Tissue Characterization using Photon Migration*, Los Angeles, CA, November 8, 1995.
- C25. University of California, Irvine, Radiological Sciences Department, Winter Colloquia *Non-Invasive Optical Diagnosis in Medicine*, March 5, 1996.
- C26. Oncotech, Inc., *Diagnostic Applications of Tissue of Properties*, Irvine, CA, March 27, 1996.
- C27. Oregon Health Sciences University, OMLC Lecture Series, *Diagnostic and Therapeutic Applications of In-Vivo Tissue Optical Properties*, August 23, 1996.
- C28. University of California, Irvine, Department of Epidemiology and Biostatistics Lecture Series, *Non-Invasive Optical Detection of Breast Cancer*, March 1997.
- C29. National Institutes of Health, NCCR annual council meeting, *Optical Detection of Breast Tumors using Frequency Domain Photon Migration*, Washington, D.C., May, 1997.
- C30. Food and Drug Administration, Center for Devices and Radiological Health, Electro-Optics Branch, *Frequency-Domain Photon Migration for Non-invasive Characterization of Breast Tumors*, May, 1997.
- C31. Swiss Federal Institute of Technology (EPFL), *Quantitative Measurements of Breast Tissue Optical and Physiological Properties*, Lausanne, Switzerland, June, 1997.
- C32. Boehringer-Mannheim, *Factors Affecting Accuracy and Precision in Calculating Optical Properties using Frequency Domain Photon Migration*, Mannheim, Germany, June, 1997.
- C33. Max Delbruck Center for Molecular Medicine, Robert Roessle Hospital, *Combining Optical and Molecular Techniques for Imaging and Manipulating Function in Living Cells*, Berlin, Germany, June, 1997.
- C34. NCCR BECON (bioengineering consortium), *Monitoring and Imaging Tissue Function Using Biophotonic Devices*, February, 1998.
- C35. UCI College of Medicine Faculty Research Poster Session, *Non-Invasive Optical Detection of Breast Cancer Using Frequency-Domain Photon Migration (FDPM)*, April, 1998.

- C36. Joint Photomedicine Lecture Series, Wellman Laboratories, Harvard Medical School and MIT, *Optical and Physiological Properties of Breast Tumors*, June, 1998.
- C37. FDA workshop on Biomedical Optics, Baltimore, *Principles of Light Propagation in Tissue: Diagnostic and Therapeutic Techniques*, September, 1998.
- C38. Johnson & Johnson Corporate Office: Medical Optics Symposium, *Principles of Tissue Optical Spectroscopy for Biomedical Diagnostics*, San Jose, CA, January, 1999.
- C39. Cedars-Sinai Clinical Neuroscience Lecture, *Near-Infrared Optical Diagnostics in Human Tissues: Applications to Brain and Breast Functional Imaging*, Los Angeles, CA, February, 1999.
- C40. Lund Institute of Technology, Department of Physics, *Imaging, Wound Healing and Collagen Synthesis in Artificial Tissues Using 2-Photon Microscopy*, Lund, Sweden, May, 1999.
- C41. SIAM Math-In-Industry Workshop, Claremont Graduate School, *Characterizing Tissue Function Using Near Infrared Spectroscopy And Imaging*, June, 1999.
- C42. Molecular Imaging Symposium, Mt. Zion Cancer Center, UCSF, *Functional Imaging in Tissues Using Quantitative Near infrared Optical Spectroscopy*, June, 1999.
- C43. NTNU, Norwegian Technical University, *Two-Photon Imaging in Thick Tissues*, Trondheim, Norway, August, 1999.
- C44. Inter-Institute Workshop on In Vivo Optical Imaging at the NIH, *Photon Migration Spectroscopy of Normal and Tumor Containing Breast Tissue: Effect of Menopausal Status, Menstrual Cycle and Malignant Transformation*, Bethesda, MD, September, 1999.
- C45. Fluorescence Optical Techniques in Modern Biology Symposium, Cedars-Sinai Medical Center, *Applications of Two-Photon Microscopy to Imaging in Tissues*, October, 1999.
- C46. UCSF Breast Oncology Program research meetings, *Detecting Breast Cancer with Light*, December, 1999.
- C47. UCLA Crump Institute for Biological Imaging, *Detecting Breast Cancer with Light*, February, 2000.
- C48. Oregon Medical Laser Center's Advisory Board Meeting,, *The Future of Photons for Medical Diagnosis*, June, 2000.
- C49. Advanced Optical Technologies in Medical Diagnostics, Berlin, Germany, June, 2000.
- C50. NIH Workshop on Benchtop to Bedside Technologies, *Biomedical Optics as the Translational Research Ideal*, September, 2000.
- C51. UCI, Department of Physiology and Biophysics 2000-2001 Seminar Series, October, 2000.

- C52. UCI/AVON Breast Cancer Research and Care Symposium, *Photon Migration Spectroscopy as a New and Unique Diagnostic Modality*, New York City, November, 2000.
- C53. University of Arizona, Workshop on Angiogenesis: Detection, Therapy, and Function, *Photomedicine and Cancer: Unique Opportunities for Translational Research*, November, 2000.
- C54. Beckman Institute Workshop, University of Illinois, Urbana-Champaign, *Lasers in Biology and Medicine*, November, 2000.
- C55. Duke University, Fitzpatrick Photonics Center Convocation, *Photonics in Biology and Medicine*, April, 2001.
- C56. UCLA Crump / General Electric / LSI Molecular Imaging Seminar Series, *Functional Diffuse Optical Spectroscopy Of Human Breast Tissue*, February, 2002. (webcast at <http://video.crump.ucla.edu/>)
- C57. University of Tennessee, Dept. of Chemistry departmental seminar series, *Functional Diffuse Optical Spectroscopy of Thick Tissues: Towards the Development of Optical Mammography*, February, 2002.
- C58. Oak Ridge National Laboratory, *Functional Diffuse Optical Spectroscopy of Thick Tissues: Towards the Development of Optical Mammography*, February, 2002.
- C59. Chao Family Comprehensive Cancer Center: Advances in the Therapy of Cancer, *Non-Invasive Chemotherapy Monitoring of Breast Cancer using Bedside Optical Probes*, June, 2002.
- C60. NIH Interagency workshop on Optical Imaging: *The Role of Optical Methods in the Clinical Management of Breast Cancer*, September, 2002.
- C61. Cedars Sinai Department of Surgery Colloquium: *Modern Techniques in Optical Imaging*, November, 2002
- C62. NIH Biomedical Imaging Research Opportunities Workshop, *Optical Imaging Across Spatial Scales*, January, 2003.
- C63. UPenn BCMCXC Symposium, *Development of Diffuse Optical Spectroscopy for Quantitative Characterization of Thick Tissues*, July, 2003.
- C64. The City of Hope Comprehensive Cancer Center, *The Role of Optical Imaging in Breast Cancer Detection*, December, 2003.
- C65. Washington University Small Animal Imaging Resource Advanced Symposium: Molecular Imaging of Cancer, *Functional Optical Imaging of Breast Cancer*, March, 2004.
- C66. Rice University Dept. of Bioengineering Seminar Series, *Multi-Dimensional Optical Imaging*, March, 2004.

- C67. University of Tennessee Dept. of Chemistry Honors Day, *Tissue Optical Spectroscopy: Turning People into Cuvettes*, May, 2004.
- C68. UCLA Dept. of Physics and Astronomy Seminar Series, *Multi-Dimensional Optical Imaging in Thick Tissues: Contrast across spatial scales*, May, 2004.
- C69. Northwestern University Biomedical Engineering Seminar, *The Role of Diffuse Optics in Breast Cancer Detection*, May, 2004.
- C70. Beckman Fellows Symposium, California Institute of Technology, *Optical Spectroscopy & Imaging in Thick Tissues*, May, 2004.
- C71. National Cancer Institute/NTROI Breast Cancer Retreat, *Broadband Measurements of Malignant Tumors: Development of a Tissue Optical Index*, June, 2004
- C72. Medical Free Electron Laser/AFOSR Investigator Meeting, Harvard Medical School, *Optical Technologies in Wound Healing: Imaging Across Spatial Scales*, December, 2004
- C73. University of Texas, Austin, Biomedical Engineering Departmental Seminar, March, 2005.
- C74. NIH NCRR/NIBIB joint P41 Center Principal Investigators Meeting, *Multi-Dimensional Optical Imaging: Contrast Across Spatial Scales*, June, 2005
- C75. Medical Free Electron Laser/AFOSR, Stanford University, *Diffuse Optical Spectroscopy for Monitoring Wounds and Trauma*, September, 2005
- C76. NIH National Center for Research Resources Advisory Council Meeting, *Translating Optical Technologies from Bench to Bedside* May 18, 2006
http://www.ncrr.nih.gov/about_us/advisory_council/minutes/20060518.asp
- C77. Founders Series Lecture, Vanderbilt University Institute of Imaging Science, *Medical Imaging in Thick Tissues using Diffuse Optics*, October, 2006
<http://vuiis.vanderbilt.edu/seminars2006.php>
- C78. Biomedical Photonics Symposium in Toyko, Biomedical Photonics in 21st Century: Potential in Optical Device, plenary lecture: *Medical Imaging with Light*, December 2006
- C79. Molecular Imaging Program Seminar Series, Stanford University, *Medical Imaging in Thick Tissues using Diffuse Optics*, June 2007
http://mips.stanford.edu/public/mi_seminar.adp
- C80. Washington University, Department of Biomedical Engineering 10th Anniversary Symposium lecture: *Medical Imaging in Thick Tissues using Diffuse Optics*, June 2007
- C81. Broadcom Corporation, *Engineering Optical Technologies in Medicine*, Newport Beach, CA, July 31, 2007

C82. Rice University, McIntire Lecture, *Medical Imaging in Thick Tissues using Diffuse Optics*, April 2008

C83. University of Arizona, Optical Science College Colloquium, *Medical Imaging in Thick Tissues using Diffuse Optics*, May 2008
<http://www.optics.arizona.edu/Colloquium/08-05-01.htm>

C84. Stanford University, OSA Student Chapter, *Multi-Dimensional Optical Imaging in Thick Tissues: Contrast across Spatial Scales*, May 2008
<http://event.stanford.edu/events/141/14131/>

Professional Meetings

PM1. International Society for Photo-optical Instrumentation Engineers, *Synchronous Fluorescence Studies of Anthracycline Anti-tumor Drugs*, Los Angeles, CA, January 1989.

PM2. International Society for Photo-optical Instrumentation Engineers, *Singlet Oxygen Generation of Porphyrin and Phthalocyanin Photosensitizers*, Los Angeles, CA, January 1989.

PM3. American Society for Photobiology, Workshop on Photodynamic Therapy, *Transcutaneous Oxygen Electrodes for the Evaluation of the Efficiency of Photodynamic Therapy*, Boston, MA, July 1989.

PM4. International Society for Photo-Optical Instrumentation Engineers Institute on Photodynamic Therapy, *Oxygen Monitoring During Photodynamic Therapy*, San Diego, CA, January 1990.

PM5. International Society for Photo-Optical Instrumentation Engineers, Laser-Tissue Interaction Session: *Monitoring the Efficiency of Photodynamic Therapy in Tissue*, Los Angeles, January 1990.

PM6. American Society for Photobiology National Meeting, Vancouver, *Fiber Optic Chemical Sensors in Bio-Analysis*, British Columbia, June 1990.

PM7. International Society for Photo-Optical Instrumentation Engineers, Laser-Tissue Interaction Session: *Indirect Spectroscopic Detection of Singlet Oxygen During Photodynamic Therapy*, Los Angeles, CA, January 1991.

PM8. MedTech-91, *Determination of Tissue Optical Properties Using Multifrequency Phase and Modulation Spectroscopy*, Berlin, Germany, May 1991.

PM9. Pacific Conference on Chemistry and Spectroscopy, *Optical Property Measurements in the Multiple-scattering Regime Using Frequency-domain Photon Migration*, Anaheim, CA, October 1991.

PM10. International Society for Photo-optical Instrumentation Engineers, Laser-Tissue Interaction Session: *Monitoring Photochemistry in Tumors Using Frequency Domain Photon Migration*, Los Angeles, CA, January 1992.

PM11. International Society for Photo-optical Instrumentation Engineers, Photon Migration and Imaging in Random Media: *Properties of Photon Density Waves at Boundaries*, Los Angeles, CA, January 1993.

PM12. American Urological Association, Eighty-Eighth Annual Meeting, *Diagnostic Applications of Lasers*, San Antonio, Texas, May 1993.

PM13. Optical Society of America, Advances in Optical Imaging and Photon Migration Topical Meeting, *Frequency-Domain Photon Migration Spectroscopy in Turbid Media*, Orlando, Florida, March 1994.

PM14. American Society for Lasers in Surgery and Medicine Annual Meeting, *Principles of Laser-Based Diagnostics*, Toronto, Canada, April 1994.

PM15. Gordon Research Conference on Lasers in Medicine and Biology, *What Does Microirradiation Really Do To Cells?*, Meriden, NH, July 1994.

PM16. International Society for Photo-optical Instrumentation Engineers, Photon Migration and Imaging in Random Media: *Frequency Domain Photon Migration in Small Volumes*, San Jose, CA, February 1995.

PM17. American Society for Lasers in Medicine and Surgery, *Light and Drug Dosimetry during Photodynamic Therapy*, San Diego, April 1995.

PM18. Life Sciences Industry Council: Second Annual Technology Showcase, *Photon Migration: A new optical technique for non-invasive medical diagnostics*, Irvine, CA, September 1995.

PM19. Engineering Foundation, *Frequency-Domain Photon Migration for Tissue Spectroscopy*, Snowbird, Utah, July 1995.

PM20. Rank Prize Funds Lecture, *Diagnostic and Therapeutic Applications of Tissue Optical Properties*, Grasmere, England, May 1996.

PM21. American Society for Photobiology National Meeting, *Monitoring Tissue Optical and Physiological Properties Using Frequency-Domain Photon Migration*, Atlanta, GA, June 1996.

PM22. Optical Society of America, Topical Meeting on Biomedical Optical Spectroscopy and Diagnostics, *Frequency-Domain Photon Migration (FDPM) Measurements of Tissue Optical Properties for Biomedical Diagnostics*, Orlando, FL, 1996.

PM23. Biomedical Optics Society, Annual Meeting, *Characterization of Breast Tumor Optical and Physiological Properties using Frequency Domain Photon Migration*, San Jose, CA, February, 1997.

PM24. Humboldt University, First International Symposium on Advances in Optical Techniques for Breast Tumor Detection, *Relationship between Optical and Physiological Properties in Breast Tumors*, Berlin, June, 1997.

PM25. Engineering Foundation Meeting, *Advances in Optical Technologies for Medicine and Surgery, Photon Migration Methods for Characterizing Breast Tumor Optical and Physiological Properties*, July, 1997.

PM26. Radiological Society of North America, *Non-Invasive Optical Detection of Breast Cancer Using Frequency-Domain Photon Migration (FDPM)*, Chicago, IL, December, 1997.

PM27. First World Congress of Photomedicine in Gynecology, *Frequency Domain Photon Migration for Tissue Diagnostics, and Light and Photosensitizer Dosimetry in the Endometrium*. Zurich, Switzerland; February 1998.

PM28. Optical Society of America, *Non-invasive Characterization of Breast Lesion Optical and Structural Properties using multi-wavelength, multi-frequency photon density waves co-registered with ultrasound imaging*, Orlando, Florida, March 1998.

PM29. Optical Society of America, *Optical and Physiological properties of Tumors*, Baltimore, Maryland, October 1998.

PM30. International Society for Photo-optical Instrumentation Engineers, *The Future of Optical Tomography*, San Jose, February 1999.

PM31. International Society for Photo-Optical Instrumentation Engineers, *In-vivo Measurements of Human Breast Optical Properties Reveal Menopausal-Dependent Absorption and Scattering Variations*, San Jose, February 1999.

PM32. United Engineering Foundation, *Two-Photon Imaging in Thick Tissues: How Deep Can We Go?* Kona, Hawaii, August 1999.

PM33. Optical Society of America, Annual Meeting, *Strategies for Optimizing Sensitivity of Remitted Light Signals to Dysplastic Transformation*, Santa Clara, California, September 1999.

PM34. Optical Society of America, Annual Meeting, *Photon Migration Spectroscopy of Normal and Tumor-Containing Breast Tissues: Effects of Menopausal Status, Estrous Cycle and Malignant Transformation*, Santa Clara, California, September 1999.

PM35. Optical Society of America, Biomedical Topical Meeting, *Intralipid or Patient, IRB or Not to Be*, Miami, Florida, April 2000.

PM36. Gordon Research Conference on Lasers in Biology and Medicine, *Advances in Intravital Imaging*, June 2000.

PM37. Radiological Society of North America, *Optical Imaging: A New Diagnostic Technique*", Chicago, IL, November 2000.

PM38. A. E. Profio Memorial Lecture, International Photodynamic Association 8th World Congress on Photodynamic Medicine, *Optical Diagnostics: Past, Present, and Future*, Vancouver, June 2001.

PM39. Association of University Radiologists 50th Anniversary meeting, *Optical Diagnostics*, Phoenix, AZ, April 2002.

PM40. Society of Nuclear Medicine: Modern Imaging Technology: Basic Science in Medical Applications workshop, *Modern Techniques in Optical Imaging*, Los Angeles, CA, June 2002.

PM41. SPIE-Biomedical Optics Society Annual Meeting, “Hot Topics” Lecture: *Optical Methods in Breast Cancer*, San Jose, CA, January 2003

PM42. ASLMS Optical Diagnostic Imaging Workshop, *Diffuse Optical Spectroscopy and Imaging*, Anaheim, CA, April 2003.

PM43. German-American Frontiers of Engineering Symposium, *Quantitative In-Vivo Optical Imaging*, Germany, April 2003.

PM44. Society for Molecular Imaging Annual Meeting, *Defining Contrast in Optical Mammography Using Broadband Diffuse Optical Spectroscopy (DOS)*, San Francisco, CA, August 2003.

PM45. 2nd Annual UCSD Symposium on Biomedical Imaging and Bioengineering, *The Role of Optical Imaging in Breast Cancer Detection*, San Diego, CA, November 2003.

PM46. American Institute of Medical and Biological Engineers (AIMBE) Annual Event: Imaging and Bioengineering: Partners for the Future, *Multi-Dimensional Tissue Optical Imaging*, Washington, DC, February 2004.

PM47. UC Systemwide Bioengineering Symposium, *Optics in Breast Cancer Detection*, Irvine, CA, June 2004.

PM48. National Science Foundation US - Egypt workshop, *Laser Chemistry and Applications to Materials and Biomedical Research*, Cairo, Egypt, October 2004.

PM49. International Conference on Tumor Progression and Therapeutic Resistance, *Functional Optical Imaging of Breast Cancer*, Philadelphia, PA, November 2004.

PM50. SPIE 18th Annual Symposium-Photonics West, *Workshop on Molecular Imaging*, San Jose, CA, January 2005.

PM51. St. Andrews University Cancer Colloquium, *The Role of Optics in Breast Cancer Detection and Clinical Management*, St. Andrews, Scotland, February 2005.

PM52. International Laser Safety Conference 2005, *Medical Imaging Using Lasers*, Marina del Rey, CA, March 2005

PM53. Institut Pasteur EuroConference, *Tissue repair and ulcer/wound healing: Molecular mechanisms, therapeutic targets and future directions*, Paris, France, March 2005

PM54. National Cancer Institute Special Programs of Research Excellence (SPORE) Investigators Workshop, *Clinical Trials Consortium: Optical Technologies in Breast Cancer*, Washington D.C., July 2005

PM55. Molecular Imaging in 2020, *Monitoring and Predicting Chemotherapeutic Response in Breast Cancer*, Jackson Hole, WY, September 2005

PM56. American Institute for Medical and Biological Engineering (AIMBE) 15th Annual Event, Plenary Session Lecture, *Optical Imaging Across Spatial Scales*, Washington, DC, February 2006.

PM57. Biophotonics in Australia: Showcase and Strategic Planning, Plenary Session Lecture, *Medical imaging in Thick Tissues using Diffuse Optics*, Sydney, Australia, February 2006
<http://www.physics.mq.edu.au/research/fluoronet/BIA/talkAbstract.htm>

PM58. Optical Diagnostic Imaging from Bench to Bedside at the National Institute of Health, *Overcoming Barriers to the Translation of Optical Technologies*, Bethesda, MD, September 25-27 2006.

PM59. Association of Pathology Chairs, New Frontiers for Pathology Education, Plenary lecture, *Optical Imaging: Gross Examination without an Excised Specimen*, Colorado Springs, CO, July 18-21 2007

PM60. 3rd Asian and Pacific Rim Symposium on Biophotonics, Plenary lecture, *Multi-Dimensional Optical Imaging in Thick Tissues: Contrast Across Spatial Scales*, Cairns, Australia, July 9-11 2007

PM61. Advanced Technology Applications for Combat Casualty Care (ATACCC), *In-Vivo Optical Imaging of Cerebral Ischemia and Perfusion in a Brain Injury Model*, St. Petersburg, FL, August 2007

PM62. San Antonio Breast Cancer Symposium Plenary Session Lecture, Molecular Imaging Mini Symposium: *Non-Invasive Optical Methods for Breast Cancer Detection and Management*, December 13-16, 2007

PM63. The International Society of Optical Engineering (SPIE), Hot Topics Plenary Session, *Monitoring and Predicting Chemotherapy Using Diffuse Optics*, San Jose, CA, January 19 2008
<http://events.rice.edu/index.cfm?month=04-25-2008&action=month>

PM64. 1st International Congress on Biophotonics (ICOB), Keynote Address: *Engineering Optics from Benchtop to Bedside*, Sacramento, CA, February 3 -7 2008

PM65. Optical Society of America, Biomedical Topical Meeting, Invited lecture, *Clinical Translational Impact of Diffuse Optics in Breast Cancer*, St. Petersburg, FL, March 16 – 19, 2008

PM66. Experimental Biology Meeting, Microscopy Symposium, *Label-free Molecular Imaging of Blood Vessels using Multi-dimensional Non-linear Microscopy*, San Diego, CA, April 6, 2008