

CURRICULUM VITAE

[ORCID entry](#) (with partial funding information)

[Scopus entry](#) (authorId=7004146000)

[Researcher ID](#) (ResearcherID: F-1767-2010)

Select outreach activities <http://web.physics.ryerson.ca/mkolios/outreach.html>

a. NAME: KOLIOS, Michael, Professor, Tenured
Member of the Graduate Faculty: Yes

b. DEGREES:

Ph.D., Medical Physics, Department of Medical Biophysics, U of Toronto 1998

M.Sc., Medical Physics, Department of Medical Biophysics, U of Toronto 1994

B.Sc. Physics, (Hons., Minor: Computer Science), Department of Physics, U of Waterloo
1991

c. EMPLOYMENT HISTORY:

Effective Sep 2012 – Full Professor, Department of Physics, Ryerson University

2013- Associate Dean, Research and Graduate Studies, Faculty of Science

2012-13 Interim Associate Dean, Research and Graduate Studies, Faculty of Science

2011- Affiliate Scientist, St. Michael's Hospital, Toronto, Canada

2001-13 Adjunct Professor, Department of Medical Biophysics, Full Member School
Graduate Studies, University of Toronto

2001-12 Associate Professor, Department of Physics (prior Mathematics, Physics and
Computer Science), Ryerson University

1999- Adjunct Professor, Department of Electrical and Computer Engineering,
Ryerson University

1999-01 Adjunct Professor, Department of Medical Biophysics and Associate Member
School Graduate Studies, University of Toronto

1997-01 Assistant Professor, Department of Mathematics, Physics and Computer
Science, Ryerson University

d. HONOURS:

Joseph H. Holmes Basic Science Pioneer Award, the American Institute of Ultrasound in
Medicine (AIUM), 2016

YSGS Outstanding Contribution to Graduate Education Award, Ryerson University,
2016

Sarwan Sahota Award, Ryerson University, 2012

Canada Research Chair, Tier II, Biomedical Applications of Ultrasound, 2009-2014

Ryerson Teaching Award, Ryerson University, 2009

Teaching Excellence Award, Faculty of Engineering and Applied Science, Ryerson
University, 2008

Japan Association for the Advancement of Medical Equipment fellowship (*JAAME fellowship*), 2008
Canada Research Chair, Tier II, Biomedical Applications of Ultrasound, 2004-9
Research Excellence Award, Faculty of Engineering and Applied Science, Ryerson University, 2007
Premier's Research Excellence Award, Round 5, 2000
Ryerson University, *Competitive Merit Award*, 1998-2008
Canadian Organization of Medical Physicists *Young Investigators Award* - 3rd prize (1997)
Ontario Graduate Scholarship (1997)
North American Hyperthermia Society Conference *Travel Award* (1997)
National Cancer Institute of Canada Senior Doctoral *Travel Award* (1997)
University of Toronto Open *Doctoral Fellowship* (1994-1997)
VII International Congress of Hyperthermic Oncology *Travel Award* (1996)
Radiation Research Society Conference *Travel Award* (1995)
Hellenic-Canadian Federation *Milionis Student Award* (1991)
Atomic Energy of Canada *National Studentship* (1990)

e. SCHOLARLY AND PROFESSIONAL ACTIVITIES:

Grant Reviewer (select)

1. U.S. National Institutes of Health (NIH), study section charter member (Biomedical Imaging Technology A, 2012-2016)
2. Canadian Institutes of Health Research (CIHR), Grant reviewer and panel member, Medical Physics and Imaging - MPI (2009-2012), Ad hoc reviewer 2006-2009, Foundation Grant reviewer (2015/2016)
3. U.S. National Institutes of Health (NIH), ad-hoc reviewer 2005, 2008-12
4. NSERC grant reviewer (panel 29, 2003-16)
5. Ministry of Research and Innovation, Early Researcher Award competitions reviewer and panel member, 2008-10
6. Austrian Science Fund (FWF), Grant reviewer, 2015-6
7. ISTEP Canada 2011 Ontario (Canada)-India R&D Proposal – reviewer
8. NSERC Strategic Project Grants reviewer, 2010
9. The Office of the Congressionally Directed Medical Research Programs (CDMRP), Breast Cancer Research Program Concept Award – Grant reviewer, 2010
10. SHARCNET Dedicated Resources (2009) - reviewer
11. Seeds4Hope / Windsor & Essex County Cancer Centre Foundation - reviewer
12. US-Israel Binational Science Foundation (2008)
13. International Science and Technologies Partnerships Canada Inc. (ISTP) 2008
14. Canadian Institutes of Health Research, Grant reviewer, MPI 2007,09
15. Canadian Institutes of Health Research, Internal reviewer, MPI 2006

Journal Reviewer (select)

1. Photoacoustics (editorial board member)
2. Ultrasonic Imaging (editorial board member)

3. IEEE Transactions of Ultrasonics, Ferroelectrics and Frequency Control (associate editor)
4. Ultrasound in Medicine and Biology
5. Cancer Research
6. Journal of Biomedical Optics
7. Scientific Reports
8. Journal of Biophotonics
9. IEEE Transactions of Medical Imaging
10. Journal of the Acoustical Society of America
11. Journal of Applied Physics
12. Medical and Biological Engineering and Computing
13. Medical Physics
14. Physics in Medicine and Biology
15. Optics Letters
16. Journal of Biomechanical Engineering

Conference Abstract Reviewer (select)

- Abstracts reviewer for the IEEE Ultrasonics Symposium (2008-present)
- Abstract reviewer for the AIUM Convention (2003-present)
- Abstract reviewer for the European Conference on Biomedical Optics (2011-present)
- Abstract reviewer for the 2011 Joint AAPM/COMP Meeting
- Abstracts reviewer for the World Congress on Medical Physics and Biomedical Engineering / 11th internal congress of the IUPESM (2009)
- Abstracts reviewer for the 2009 Annual AAPM meeting (2009)
- Conference abstract / papers reviewer & session chair, 2000 World Congress on Medical Physics and Biomedical Engineering
- Conference papers reviewer, International Mechanical Engineering Congress and Exposition (IMECE), American Society of Mechanical Engineers (ASME), Bioengineering Division, Committee on Heat and Mass Transfer in Biotechnology (K-17), 1995.

Selected Leadership/Committee positions (select)

1. Member of the IEEE International Ultrasonics Symposium Technical Program Committee (2008-present)
2. Chair of the High Frequency Ultrasound Pre-Clinical and Clinical Imaging Section, American Institute of Ultrasound in Medicine (AIUM), 2005-007 and 2011-2013
3. Member of the Bioeffects committee of the AIUM (2006-2012)
4. Graduate Program Director, Biomedical Physics program, Ryerson University (July 1 2010 – 2012)
5. Elected Member of the Ryerson University Senate (2009-11)
6. 2006 IEEE International Ultrasonics Symposium Finance Chair
7. Assistant Chair, Physics, Department of Mathematics, Physics and Computer Science, Ryerson University, 2003-2005
8. Vice-chair, High-frequency and Ophthalmology section, American Institute of Ultrasound in Medicine (AIUM), 2003-2005

9. Councilor of Communications (chair of Communications Committee) and member of executive, Canadian Organization of Medical Physicists (COMP), 2000-3
10. Secretary and member of the executive, Ryerson Faculty Association (RFA), 1998-01

Professional Society Memberships

1. Canadian Organization of Medical Physicists (COMP)
2. Canadian Association of Physicists (CAP)
3. Institute of Electronic and Electrical Engineers (IEEE)
4. American Institute of Ultrasound in Medicine (AIUM)

f. GRADUATE SUPERVISIONS:

Completed: **26 M.Sc., 8 Ph.D.**

In progress: **8 Ph.D., 5 M.Sc.**

Completed:

1. Xuegang Su, M.A.Sc., Pulse encoding techniques for improving SNR for high frequency ultrasound, Ryerson University, Sept. 2001- Jan 2004.
2. [Ralph Baddour](#), M.Sc., Theoretical development of ultrasound backscatter models for high frequency ultrasound imaging, University of Toronto, Co-supervisor, Jan. 2001 - Jan 2004
3. [Noushin Farnoud](#), M.A.Sc., Autoregressive signal analysis for ultrasound signal classification, Ryerson University, Supervisor, Sept. 2001 - Aug. 2004
4. [Roxana Vlad](#), M.Sc., Ultrasound monitoring of organ preservation for transplantation, University of Toronto, Supervisor, Sept. 2002 - Dec. 2004
5. [Adam Tunis](#), M.Sc., Monitoring Structural Changes in Cells and Tissues with High Frequency Ultrasound Signal Statistics, University of Toronto, Supervisor, Sept. 2002-Jan. 2005
6. [Neeta Parmar](#), M.A.Sc., Acoustic transmission imaging for the detection of lesions during thermal therapies, Ryerson University, Supervisor, Sept. 2003 - April 2005.
7. [Omar Falou](#), M.A.Sc., Finite element modeling of acoustic wave scattering from fluid, rigid and elastic spheres, Ryerson University, Supervisor, Sept. 2003 - Dec. 2005
8. [Darren Morofke](#), M.A.Sc., Evaluation of Velocity Estimation Algorithms for Doppler Optical Coherence Tomography, Nov. 2005 - Sept. 2006, (co-supervised with Dr. Victor Yang)
9. [Ellie Soleimankhani](#), M.A.Sc., An investigation of the use of transmission ultrasound to guide minimally invasive thermal therapy, Sept. 2005 - Oct. 2007
10. [Robin Castelino](#), M.A.Sc., Optoacoustic imaging for thermal lesion detection, Sept. 2005 - Jan.2008, Supervisor (co-supervised with Dr. Bill Whelan)
11. [Ahmed El Kaffas](#), M.Sc., Measuring the mechanical properties of apoptotic cells using particle tracking microrheology, Sept. 2006 - Sept. 2008, Supervisor (co-supervised with Dr. Carl Kumaradas)
12. [Sara Iradjji](#), M.Sc., Optimization of Subharmonic Generation from Ultrasound Contrast Agents at High-Frequency Ultrasound, Sept. 2006 - Sept. 2008

13. [Roxana Vlad](#), **Ph.D.**, Quantitative ultrasound characterization of responses to radiotherapy in vitro and in vivo, University of Toronto, (co-supervised with Dr. Gregory Czarnota), Dec. 2004 - Apr.2009
14. Antonio Mauro, M.Sc. High Speed Rotary System for Catheter Based 3-D Imaging with Optical Coherence Tomography (OCT), Jan. 2007 - June 2009 co-supervisor (supervisor: Dr. Victor Yang)
15. [Eric Strohm](#), M.Sc., Acoustical microscopy for the elucidation of mechanical properties of cells, Ryerson University, Sept. 2007 - Aug. 2009
16. [Devesh Bekah](#), M.Sc., Particle tracking microrheology in cells, Sept. 2008 - Sept 2010
17. [Omar Falou](#), **Ph.D.**, Finite element modeling of acoustic wave scattering from fluid, rigid and elastic spheres, Ryerson University, (co-supervised with Dr. Carl Kumaradas), Dec. 2005 - Sept. 2010
18. [Jason Zaley](#), M.Sc., Fast Ultrasound Beamforming for Optoacoustic Imaging, Sept. 2008 – Oct. 2010
19. [Mehrnaz Tabibi](#), M.Sc., Optoacoustic Imaging of Gold nanorod Based Photothermal Therapy, Ryerson University, (co-supervised with Dr. Carl Kumaradas), Sept. 2007- Dec. 2010
20. [Amin Jafari Sojahrood](#), M.Sc., Optimization of bubble dynamics in medical ultrasonics, Ryerson University, Sept. 2009 – Jan. 2012
21. Eno Hysi, M.Sc., Photoacoustic Detection of Erythrocyte Aggregation, Ryerson University, Sept. 2010 - July 2012
22. [Marjan Razani](#), M.Sc., OCT shear wave elastography, Sept. 2010 - July 2012
23. [Timothy Luk](#), M.Sc., Real-time *in vivo* brain tumor microvasculature imaging using combined laser scanning confocal fluorescence microscopy and optical coherence tomography in preclinical window-chamber models (co-supervised with Dr. Victor Yang), Ryerson University, Sept. 2009 – Jan. 2013
24. [Chester Santiago](#), M.Sc., Kinetic Stability of Perfluorocarbon Emulsions for Cancer Therapy and Imaging, Sept. 2010 - May 2013 (co-supervised with Dr. Derick Rousseau)
25. [Eric Strohm](#), **Ph.D.**, High Frequency Photoacoustic Characterization of Single Cells, Ryerson University, Sept. 2010 - Dec. 2013
26. [Muhannad Fadhel](#), M.Sc., Acoustic Impedance Imaging of Cancer Cells, Ryerson University, Sept. 2011 - Dec. 2013
27. Yan Jie Wang, M.Sc., Synthesis and Characterization of Theranostic Agents for Photoacoustic Imaging and Therapy, Ryerson University, Sept. 2012 - Dec. 2014
28. [Barry Vuong](#), **Ph.D.**, The Integration of Optical Coherence Tomography and Ultrasound Imaging Platforms, (co-supervised with Dr. Victor Yang) Sept. 2009 – Apr. 2015
29. [Ping Gong](#) (**Ph.D.**, Biomedical Physics, Ryerson University) Novel ultrasound beamforming techniques (co-supervised with Dr. Yuan Xu) Sept. 2012 – Jan. 2016
30. [Fayruz Kibria](#) (M.Sc., Biomedical Physics, Ryerson University), Sept. 2012 – Jan. 2016
31. [Marjan Razani](#) (**Ph.D.**, Biomedical Physics, Ryerson University), Biomedical Application of OCT elastography Sept. 2012 – June 2016

32. [Borna Maragheshi](#) (**Ph.D.**, Biomedical Physics, Ryerson University) B/A imaging for thermal therapies (co-supervised with Dr. Jahan Tavakkoli) Sept. 2011 – June 2016
33. [Golnaz Farhat](#), (**Ph.D.**, Medical Biophysics, University of Toronto) Ultrasound and OCT spectroscopy for the determination of cell structural changes during cancer therapy (co-supervised with Dr. Gregory Czarnota) Jan. 2007 – August 2016
34. [Fayruz Kibria](#) (M.Sc., Biomedical Physics, Ryerson University), High Frequency Photoacoustic Detection of Red Blood Cell Aggregation Sept. 2012 – Jan. 2016

In progress:

1. [Amin Jafari Sajarhood](#) (**Ph.D.**, Biomedical Physics, Ryerson University), (co-supervised with Dr. Raffi Karshafian) Jan. 2013 – present
2. [Nusrat Surovy](#) (M.Sc., Biomedical Physics, Ryerson University) Sept. 2013 - present
3. [Michael Moore](#) (**Ph.D.**, Biomedical Physics, Ryerson University) Sept. 2013 - present
4. [Muhannad Fadhel](#) (**Ph.D.** Biomedical Physics, Ryerson University) Jan. 2014 – present
5. Eno Hysi (**Ph.D.** Biomedical Physics, Ryerson University) Sept. 2014 – present
6. [Vaskar Gnyawali](#) (**Ph.D.** Mechanical Engineering, Ryerson University) Characterization of red blood cells using microfluidics and ultrasound (co-supervised with Dr. Scott Tsai) Sept. 2014 - present
7. Ying Li (**Ph.D.**, Biomedical Physics, Ryerson University) Compressed sensing in synthetic aperture ultrasound imaging (co-supervised with Dr. Yuan Xu) Sept. 2014 - present
8. Ruben Pinto (M.Sc., Biomedical Physics, Ryerson University) Sept. 2014 - present
9. [Yan Jie Wang](#), (**Ph.D.** Biomedical Physics, Ryerson University) Sept. 2015 – present
10. [Ahmed Khiari](#) (M.Sc., Biomedical Physics, Ryerson University) Sept. 2015 - present
11. [Jason Zaley](#) (**Ph.D.** Biomedical Physics, Ryerson University) Sept. 2015 – present
12. [Nico Arezza](#) (M.Sc., Biomedical Physics, Ryerson University) Sept. 2016 - present
13. Grace Fishbein (M.Sc., Biomedical Physics, Ryerson University) Sept. 2016 - present

Supervisory Committee:

Completed: **41 M.Sc., 6 Ph.D.**

In progress: **8 Ph.D., 4 M.Sc.**

Completed:

1. General Leung, M.Sc., *MRI and Breast Conservation Surgery*, Jan. 2002 - Dec. 2003
2. Michaela Pop, M.Sc., *Theoretical and Experimental Investigation of RF lesion formation*, Sept. 2001- Dec. 2003
3. Gloria Spirou, M.Sc., *An investigation of pulsed & frequency domain photoacoustics and their applicability to biomedical studies*, Sept. 2002 - Aug. 2005
4. Claire McCann, **Ph.D.**, *A novel radiofrequency coil for interstitial thermal therapy*, Jan. 2003 - March 2007
5. Claudia Leavens, **Ph.D.**, *Medical Novel pulse compression algorithms based on Golay codes for ultrasound imaging of blood flow*. Sept. 2001-Oct. 2007
6. Toby Lam, (M.Sc., Medical Biophysics, UofT) *Nonlinear parameter (B/A) imaging*, Sept. 2004 - Oct. 2007

7. Monika Tucholska (M.Sc., Molecular Science, Ryerson University) *The member of the RAS superfamily of small GTPases RAP and its putative GTPase activating proteins and guanine nucleotide exchange factors in raw 264.7 macrophages* Sept. 2006 – July 2008
8. Eli Lechtman (M.Sc., Biomedical Physics, Ryerson University) *New Algorithms for Computed Tomography Image Reconstruction to Eliminate Artifacts* Sept. 2006 – Aug. 2008
9. Syed Haider (M.Sc., Biomedical Physics, Ryerson University) *Magneto Acousto Electrical Tomography: A Potential Imaging Method for Current Density & Electrical Impedance.* Sept. 2006 - Sept. 2008
10. Nazanin Nayebi (M.Sc., Biomedical Physics, Ryerson University) *Synthetic Aperture Imaging: Applications in High-Frequency Ultrasound.* Sept. 2006 - Sept. 2008
11. Bane Debeljevic, (M.Sc., ECE, Ryerson University) *Development of analysis platform for high frequency ultrasound imaging,* Sept. 2006 - 2008 (did not complete)
12. Veronica Barbisan (M.Sc., Molecular Science, Ryerson University) *Fc Receptors in Raw Cells* Sept. 2007 - July 2009
13. Sharam Mashouf (M.Sc., Biomedical Physics, Ryerson University) *An Enhanced Numerical Model to Simulate Nonlinear Continuous Wave Ultrasound Propagation and the Resulting Temperature Response* Sept. 2007 - Sept. 2009
14. Melissa Martinez (M.Sc., Biomedical Physics, Ryerson University)
15. Mike Papanicolau (M.Sc., ECE, Ryerson University) *Development of analysis platform for low frequency ultrasound imaging,* Sept. 2006 - Sept. 2009
16. Veronika Petrenko (M.Sc., Molecular Science, Ryerson University) *Activated Supramolecular Fc Receptor Complex from Human Neutrophils* Sept. 2007 - Aug. 2009
17. Veronica Barbisan (M.Sc., Molecular Science, Ryerson University) *Fc Receptors in Raw Cells* Sept. 2007 - July 2009
18. Judith Weidman (M.Sc., Biomedical Physics, Ryerson University) *The combined effects of heating and low intensity pulsed ultrasound on bone cells.* Sept. 2007 - Jan. 2010
19. Otilia Cristina Nasui (M.Sc., Biomedical Physics, Ryerson University) *Monitoring Vascular Changes Induced by Photodynamic Therapy Using Contrast-Enhanced Micro-Computed Tomography* Sept. 2008 - Aug. 2010
20. Adrian Mariampillai, (**Ph.D.**, Medical Biophysics, UofT) *Development of a High Resolution Microvascular Imaging Toolkit for Optical Coherence Tomography,* Sept. 2005 – Aug. 2010
21. Michaela Pop (**Ph.D.**, Medical Biophysics, UofT), *Magnetic Resonance Imaging in Radio-frequency Ablation of Cardiac Arrhythmias,* Dec. 2003 - Aug. 2010
22. Helen Moise (M.Sc., Biomedical Physics, Ryerson University) *In-Vivo Measurement of Strontium Incorporation and Retention in Human Bone Using an X-Ray Fluorescence System* (Setp. 2008 - Sept. 2010)
23. Ozkan Doganay (M.Sc., Biomedical Physics, Ryerson University), *Monitoring Electric Field Induced Changes in Biological Tissue by Using Ultrasound,* Sept. 2008 – Oct. 2010
24. Shahrhad Jabbarly Aslany (M.Sc., Biomedical Physics, Ryerson University), *Use of HIFU (High Intensity Focussed Ultrasound) on Nerves,* Sept. 2008 – Jan. 2011

25. Benjamin Lee (M.Sc., Biomedical Physics, Ryerson University), *Signal processing techniques for operator independent doppler ultrasound - potential for use in transcranial doppler ultrasound* Sept 2008 - Sept. 2011
26. Golafsoun Ameri (M.Sc., Biomedical Physics, Ryerson University), *Synthetic Aperture Imaging in Acoustic Microscopy*, Sept. 2009 - Oct. 2011
27. Siavash Rahimian (M.Sc., Biomedical Physics, Ryerson University), *An Acoustic Backscatter-Based Method for Estimating Attenuation towards Monitoring Lesion Formation in High Intensity Focused Ultrasound* – Sept. 2009 - Dec. 2011
28. Tetyana Yatsenko (M.Sc., Biomedical Physics, Ryerson University), *Effects of Plasma Membrane Cholesterol Content on Ultrasound and Microbubble Mediated Sonoporation*, Sept. 2009 – June 2012
29. Sonal Bahdane (M.Sc., Biomedical Physics, Ryerson University), *High Intensity Focused Ultrasound and Microbubble Induced Tissue Ablation: Effect of Treatment Parameters on Thermal Lesion Volume and Temperature* Sept. 2009 – June 2012
30. Laxman Subedi (M.Sc., Biomedical Physics, Ryerson University), *Acoustic characteristics of microbubbles: Effect of acoustic pressure and pulse duration*, Sept. 2010 - Dec. 2012
31. Amanda Tran (M.Sc., Biomedical Physics, Ryerson University), *Enhancing Radiotherapy Using Ultrasound And. Microbubbles With Gold Nanoparticles*, Jan. 2011 – Jan. 2013
32. David Dalla Rosa (M.Sc., Biomedical Physics, Ryerson University), *Thermal Dose Based Monitoring of Laser Interstitial Thermal Therapy for Prostate Cancer*, Jan. 2011 - Jan. 2013
33. Mosa Alhamami (M.Sc., Biomedical Physics, Ryerson University), *Photoacoustic detection and optical spectroscopy of high-intensity focused ultrasound (HIFU)-induced thermal lesions in biologic tissue*, Sept. 2011 – Aug. 2013
34. Radoslaw Sadowski (M.Sc., Biomedical Physics, Ryerson University), *Measuring the Effects of Temperature on Optical Propagation in Heated Tissues Using Point Radiance Spectroscopy*, Sept. 2011 – Dec. 2013
35. Ahmed El Kaffas (**Ph.D.**, *An Investigation of Vascular Strategies to Augment Radiation Therapy*, Medical Biophysics, UofT), Sept. 2008 - Sept. 2013
36. Valentin Demidov (M.Sc., Biomedical Physics, Ryerson University), *Imaging the Electro-Kinetic Response of Biological Tissues with Optical Coherence Tomography*, June 2012 - Sept. 2013
37. Christine Tarapacki (M.Sc., Biomedical Physics, Ryerson University), *Effect of ultrasound and microbubbles on PEG coated gold nanorod thermal therapy and microvascular perfusion*, Sept.2012 – March 2014
38. Celina Yang (M.Sc., Biomedical Physics, Ryerson University), *Nuclear targeting of gold nanoparticles*, Sept. 2012 – August 2014
39. Mehroosh Neshatian (M.Sc., Biomedical Physics, Ryerson University), *Cellular uptake and toxicity of gold nanoparticles in a tumor-like (hypoxic) environment*, Sept. 2012 – Nov. 2014
40. Shahad Al-Ward (M.Sc., Biomedical Physics, Ryerson University), *Robustness assessment of a novel 4D optimization approach for lung cancer radiotherapy*, Sept. 2012 – Jan. 2015

41. Charmainne Cruje (M.Sc. Biomedical Physics, Ryerson University) *Enhanced Uptake of Polyethylene Glycol Coated Gold Nanoparticles for Improved Therapeutics* Sept. 2013 – June 2015
42. Irina Schelkanova (**Ph.D.**, Biomedical Physics, Ryerson University), *Development of the Numerical Aperture Gated, Spatially Resolved, Diffuse Reflectance Imaging Architecture for Subsurface Imaging of Microvasculature*, May 2012 – Dec. 2015
43. Sheliza Jetha (M.Sc., Biomedical Physics, Ryerson University), *Synergistic Cisplatin-induced cell death by ultrasound-microbubble mediated intracellular delivery in breast cancer cells*, Sept. 2012 – May 2016
44. Julia Mariglia (M.Sc., Biomedical Physics, Ryerson University), *Treatment of pancreatic cancer cells in vitro using ultrasound, microbubbles, and gemcitabine*, Sept. 2014-July 2016
45. Priyanka Mehta (M.Sc., Biomedical Physics, Ryerson University), *Characterization of the hemodynamic responses of the hippocampal and parahippocampal regions using fMRI*, Sept. 2013 – Jan. 2016
46. Daniel DiCenzo (M.Sc., Biomedical Physics, Ryerson University), *An in vitro study of radiation dose enhancement using gold nanorods and plasmonic photothermal therapy* Sept. 2014 – Sept. 2016
47. Nguyen (Peter) Truong (M.Sc., Biomedical Physics, Ryerson University), *An In Vitro Model of Sentinel Lymph Nodes for Assessing the Effectiveness of Magnetic Hyperthermia*, Sept. 2014 – Sept. 2016

In progress:

1. Robin Castelino (**Ph.D.**, Medical Biophysics, UofT), Sept. 2007 - Present
2. Martin Hohman (**Ph.D.**, Ryerson University / University Erlangen-Nuremberg) Aug. 2010 - Present
3. Yevgeniy Davletshin (**Ph.D.**, Biomedical Physics, Ryerson University), May 2012 - present
4. Celina Yang (**Ph.D.**, Biomedical Physics, Ryerson University), Sept. 2014 - present
5. Elham Gholamhosseini (M.Sc., Biomedical Physics, Ryerson University), Sept. 2012 - present
6. Homa Assadi (**Ph.D.**, Biomedical Physics, Ryerson University) Jan. 2013 - present
7. Laura Liao (**Ph.D.** Biomedical Physics, Ryerson University) 2013 - present
8. Danny (Dae Myoung) Yang (M.Sc. Biomedical Physics, Ryerson University) Sept. 2013-present
9. Na Zhao (**Ph.D.**, Biomedical Physics, Ryerson University) Sept. 2015 - present
10. Aren Gharabeiki (M.Sc. Biomedical Physics, Ryerson University) Sept. 2015-present
11. Rajwinder Kaur (M.Sc. Biomedical Physics, Ryerson University) Sept. 2016-present

UNDERGRADUATE STUDENT SUPERVISIONS:

Thesis Students:

1. Bindya Solanki, High frequency ultrasound imaging to detect cell damage in human laryngeal epithelial cells, Sept. 2004 - April 2005
2. Hamed Moazami, Cell deformation from micropipette pulling, Sept. 2007- Sept. 2008
3. Denys Kozhevnikov, Sept. 2009 - April 2010
4. Eno Hysi, Sept. 2009 - April 2010
5. Hamed Basseri, Particle Microrheology of Cells, Sept. 2009 - April 2010
6. Igor Deresciuc, Attenuation correction algorithms in ultrasound, Sept. 2010 - April 2011
7. Behzad Safinejad, Measuring scattering from cells and contrast agents, Sept. 2010 - April 2011
8. Woomee Cho, Acoustic microscopy of benign and malignant cells, Sept. 2010 - April 2011
9. Yan Wang, Ultrasound attenuation correction for photoacoustics, Sept. 2011 - April 2012
10. Natalia Pawlina, Scattering from contrast agents bound to cells, Sept. 2011 - April 2012
11. Nikolas Smuda, Cellular Mechanotransduction Induced by High Frequency Ultrasound and Microbubbles in Epithelial Cells, Sept. 2012 - April 2013
12. (Sarah) Eun Hwa Lee, Measurement of fundamental parameters for photoacoustic imaging: Interferometric detection, Sept. 2012 - April 2013

Student Research Assistants:

1. Shyn Huh, May - Sept. 2009 and Sept. 2009 - April 2010
2. Patrick Kennedy, May - Sept. 2009 and Sept. 2009 - April 2010
3. Avery Raess, NSERC USRA May - Aug. 2010, Work-study RA Sept. 2010 - March 2011, NSERC USRA May - Aug. 2011, research assistant Sept. 2011 - March 2012, NSERC USRA May - Aug. 2012
4. Chester Santiago, co-Supervised, May - Sept. 2010
5. Michael Dobson, Work Study Summer RA, May - Aug. 2010, Sept. 2010 - March 2011, URO May - July 2011, Work-Study RA Sept. 2011 - March 2012, Work-Study Summer RA May - Aug. 2012
6. Na Li, Work-Study Summer RA, June - Aug. 2010, Sept. 2010 - March 2011, Research Assistant Sept. 2011 - March 2012, May - Aug. 2012
7. Georg Lempe, Research Exchange Student - DAAD program, June-Dec. 2010
8. Yan Wang, Coop Research Assistant Jan.- Aug. 2011, Research Assistant May-Aug. 2012
9. Firas Almasri, Research Assistant Sept. 2010 - Jan. 2011
10. Benno Koberstein-Schwarz, Research Exchange Student – DAAD program, July-Sept. 2011
11. Maurice Pasternak, RA May - Aug. 2011, RA Feb. - April 2012, NSERC USRA May-Aug. 2012
12. Seongjun Park, Research Exchange Student, Feb. 2012 - Aug. 2012
13. Dustin Dopsa, Research Assistant, May - Aug. 2012, Sept. 2012 - April 2013
14. Mithunan Modchalingam co-op student, April - Aug. 2013
15. Alexander Zuckermann, Research Exchange Student - DAAD program, June - Sept. 2013

16. Ruben Pinto, NSERC USRA May - Aug. 2013
17. Ruben Pinto, Research Assistant, May - Aug. 2014
18. Carolin Pirkl, Research Exchange Student – DAAD program, July - Oct. 2014
19. Kirsten Cardinel, co-op Research Assistant, May - Aug. 2014
20. Maryam Firas, co-op Research Assistant, May - Dec. 2014
21. Nico Arezza, Work-Study RA, Sept. 2014 - April 2015
22. Parminder Saggu, co-op Research Assistant, Jan. - April 2015
23. Mia Van de Vondervoort, co-op Research Assistant May - Aug. 2015
24. Nico Arezza, Research Assistant, May - Aug 2015
25. Radi Abubaker, co-op Research Assistant Sept. - Dec. 2015

HIGH SCHOOL STUDENT SUPERVISIONS:

1. Michelle Mercado (Sanofi-Aventis BioTalent Challenge, Summer 2009)
2. Maurice Pasternak (Sanofi-Aventis BioTalent Challenge, Summer 2009)
3. Mary-Kate MacDonald, ROPES Program at Ryerson, July-August 2010
4. Maurice Pasternak, July - Aug. 2010
5. Martin Stanisz, Volunteer, Aug. 2010
6. Sharon Yeung, ROPES Program at Ryerson, July 2011
7. Abra Shen, ROPES Program at Ryerson, July 2011
8. Alison Doucette, ROPES, July 2012
9. Bijan Betel-Miri, Dragon Academy Scientists-in-Action programme, Jan. - June 2014
10. Jasper Roth, Dragon Academy Scientists-in-Action programme, Jan - June 2014

Graduate Examinations [87]:

Master of Science External Examiner:

1. *Robert Dinniwel*, August 2010
 Department of Radiation Oncology, University of Toronto
 Title “Lymphototropic nanoparticle-enhanced magnetic resonance imaging for nodal clinical target volume delineation in the radiotherapy treatment planning of pelvic malignancies: Derivation of a class solution nodal clinical target volume”

Doctoral Candidate External Examiner:

1. *Haroon Zafar* June 22 2016
 National University of Ireland, Galway (NUIG).
 Title “*Development and applications of optical imaging techniques for microcirculation and cardiovascular imaging*”
2. *Parsin Hajireza*, August 6, 2015
 Department of Electrical and Computer Engineering, University of Alberta
 Title “*All-Optical and Endoscopic Photoacoustic Microscopy*”
3. *Seong Jun (Martin) Park*, November 15, 2014

- School of Information and Communication, Gwangju Institute of Science and Technology, Gwangju, South Korea
 Title “*Noncontact photoacoustic imaging using heterodyne interferometer*”
4. *Lucy McGarry*, October 3, 2014
 Psychology Graduate Program, Ryerson University, Toronto, Ontario (internal / external)
 Title “*The role of the mirror neuron system in bottom-up and top-down perception of human action*”
 5. *Seyed Reza Mousavi*, April 16, 2014
 Electrical and Computer Engineering, Western University, London, Ontario
 Title “*Biomechanical Modeling and Inverse Problem Based Elasticity Imaging for Prostate Cancer Diagnosis*”
 6. *Kieran Andrew Wall*, December 2010
 Department of Physics, Engineering Physics and Astronomy, Queen’s University, Kingston Ontario
 Title “*A High-Speed Reconfigurable System for Ultrasound Research*”
 7. *Francois Yu*, December 2009
 Genie Biomedical, University of Montreal
 Title “*Parametrisation de la retrodiffusion ultrasonore erythrocytaire haute frequence et pertinence comme facteur de risque de la thrombose Veineuse*”
 8. *Mohammad Daoud*, August 2009
 Electrical and Computer Engineering, the University of Western Ontario
 Title: “*Development and Validation of Parallel Three-Dimensional Computational Models of Ultrasound Propagation and Tissue Microstructure for Preclinical Cancer Imaging*”
 9. *Pinhas Ephrat*, August 2009
 Department of Medical Biophysics, the University of Western Ontario
 Title” *Development and Validation of a Fast Three-Dimensional Photoacoustic Imaging Technique*”

Examination committee member:

1. *Golnaz Farhat* (August 2016, **Ph.D.** Oral Examination, Medical Biophysics, University of Toronto), Development of Quantitative optical coherence tomography methods for cell death detection
2. *Julia Mariglia* (July 2016, M. Sc. Oral Examination, Biomedical Physics, Ryerson University) Treatment of pancreatic cancer cells in vitro using ultrasound, microbubbles, and gemcitabine
3. *Priyanka Mehta* (Januray 2016, Oral Examination, Biomedical Physics, Ryerson University), Characterization of the hemodynamic responses of the hippocampal and parahippocampal regions using fMRI
4. *Celina Yang* (August 2014, M.Sc. Oral Examination, Biomedical Physics, Ryerson University) Nuclear Targeting of Gold Nanoparticles for Improved Therapeutics

5. *Valentin Demidov* (September 2013, M.Sc. Oral Examination, Biomedical Physics, Ryerson University) Imaging the electro-kinetic properties of biological tissues with optical coherence tomography
6. *Borna Maraghechi* (August 2013, **Ph.D.** Candidacy Examination, Biomedical Physics, Ryerson University) Noninvasive temperature estimation using ultrasound methods
7. *Martin Hohmann* (August 2013, **Ph.D.** Candidacy Examination, Biomedical Physics, Ryerson University) Development and testing of hyper spectral video endoscope:
8. *Andras Lindenmaier* (August 2013, M.Sc. Oral Examination, Medical Biophysics, University of Toronto) Texture Analysis of Optical Coherence Tomography Speckle for the Detection of Tissue Variability
9. *Mosa Alhamami* (August 2013, M.Sc. Oral Examination, Biomedical Physics, Ryerson University), Photoacoustic detection and optical spectroscopy of HIFU-induced thermal lesions in biologic tissue
10. *Irina Schelkanova* (August 2013, **Ph.D.** Candidacy Examination, Biomedical Physics, Ryerson University) Development of a Novel Miniature Fiber-Optics Technology for Quantification of Local Microvasculature Density Based on Hemoglobin Spatial Distribution
11. *Chester Santiago* (May 2013, M.Sc. Oral Examination, Molecular Sciences, Ryerson University), Kinetic Stability of perfluorocarbon emulsions for cancer therapy and imaging
12. *David Dalla Rosa* (January 2013, M.Sc. Oral Examination, Biomedical Physics, Ryerson University), Thermal Dose Based Monitoring of Thermal Therapy for Prostate Cancer
13. *Amanda Tran* (January 2013, M.Sc. Oral Examination, Biomedical Physics, Ryerson University), Ultrasound and microbubble in combination with gold nanoparticles enhanced therapeutic effect of radiotherapy
14. *Timothy Luk* (January 2013, M.Sc. Oral Examination, Biomedical Physics, Ryerson University), Real-time *in vivo* brain tumor microvasculature imaging using combined laser scanning confocal fluorescence microscopy and optical coherence tomography in preclinical window-chamber models
15. *Yevgeniy Davletshin* (December 2012, **Ph.D.** Candidacy Examination, Biomedical Physics, Ryerson University) Applications of self-assembled gold nanorods in photoacoustic thermometry
16. *Eric Strohm* (December 2012, **Ph.D.** Candidacy Examination, Biomedical Physics, Ryerson University) Acoustic and Photoacoustic Characterization of micron particles
17. *Hadi Zabihi-Yeganeh* (August 2012, M.Sc. Oral Examination - Biomedical Physics, Ryerson University) Non-invasive Measurement of Cerebral Blood Flow Using Broadband Continuous Wave Near-infrared Spectroscopy
18. *Shabnam Shamloo* (August 2012, M.Sc. Oral Examination - Chair of Examination, Biomedical Physics, Ryerson University) Evaluating the effect of implementing biologically realistic delays on hepatitis C kinetics and associated estimates of antiviral efficacy
19. *Angjelina Protik* (January 2012, M.Sc. Oral Examination - Chair of Examination, Biomedical Physics, Ryerson University), Optimization of Image Quality in Computed Tomography for Pediatrics

20. *Tom Burzynski* (January 2012, **Ph.D.** Oral Examination, Mechanical Engineering, Ryerson University), Modelling Surface Evolution in Abrasive Jet Micromachining Using Level Set Methods
21. *Naum Papanicolau*, (December 2011, **Ph.D.** Qualifying Examination, Medical Biophysics, University of Toronto), Investigating Conventional Frequency Ultrasound Evaluation of Cell Death Response to Cancer Treatment Administration
22. *Siavash Rahimian* (December 2011, M.Sc. Oral Examination - Chair of Examination, Biomedical Physics, Ryerson University), An Acoustic Backscatter-Based Method for Estimating Attenuation towards Monitoring Lesion Formation in High Intensity Focused Ultrasound
23. *Radoslaw Sadowski* (December 2011, M.Sc. Oral Examination - Chair of Examination, Biomedical Physics, Ryerson University), Measuring the Effects of Temperature on Optical Propagation in Heated Tissues Using Point Radiance Spectroscopy
24. *Golafsoun Ameri* (October 2011, M.Sc. Oral Examination, Biomedical Physics, Ryerson University), Synthetic Aperture Imaging in Acoustic Microscopy
25. *Mehdi Moslemi* (September 2011, **Ph.D.** Oral Examination - Chair of Examination, Civil Engineering, Ryerson University) Dynamic Response Of Circular And Conical Elevated Tanks
26. *Mira Sibai* (September 2011, M.Sc. Oral Examination - Chair of Examination, Biomedical Physics, Ryerson University) Second Generation of the Diagnostic Tool for the In vivo Measurement of Strontium Levels in Human Bone Master of Science
27. *Irina Schelkanova* (August 2011, M.Sc. Oral Examination - Chair of Examination, Biomedical Physics, Ryerson University) Development of Signal Processing of Broadband Near Infrared Spectroscopy
28. *Barry Vuong* (July 2011, **Ph.D.** Qualifying Examination, Electrical and Computer Engineering, Ryerson University) Ultrasound and Magnetic Resonance Imaging Guided Optical Coherence Tomography
29. *Ervis Sofroni* (April 2011, M.Sc. Oral Examination, Computer Science, Ryerson University), Tissue Characterization of Prostate Cancer Using Quantitative Analysis of Low Frequency Ultrasound.
30. *Yevgeniy Davletshin* (October 2010, M.Sc. Oral Examination, Biomedical Physics, Ryerson University), Modeling the Optical Properties of a Single Gold Nanorod for Use in Biomed App.
31. *Jason Zalev* (October 2010, M.Sc. Oral Examination, Biomedical Physics, Ryerson University), Detection and Monitoring for Cancer and Abnormal Vasculature by Photoacoustic Signal Characterization of Structural Morphology.
32. *Devesh Bekah* (September 2010, M.Sc. Oral Examination, Biomedical Physics, Ryerson University), Measurement of Viscoelastic Properties of Treated and Untreated Cancer Cells Using Passive Microrheology.
33. *Robert Tkaczyk* (September 2010, M.Sc. Oral Examination - Chair of Examination Biomedical Physics, Ryerson University), The Design and Synthesis of a Stereotactic Radiosurgical Phantom.
34. *Helen Moise* (September 2010, M.Sc. Oral Examination, Biomedical Physics, Ryerson University), In-Vivo Measurement of Strontium Incorporation and Retention in Human Bone Using an X-Ray Fluorescence System.

35. *Mohammed Yahya* (September 2010, M.Sc. Oral Examination - Chair of Examination Biomedical Physics, Ryerson University), Three Dimensional Finite Element Modeling of Blood Flow in Elastic Vessels: Effects of Arterial Geometry and Elasticity on Aneurysm Growth and Rupture.
36. *Adrian Mariampillai* (August 2010, **Ph.D.** Oral Examination, Medical Biophysics, UofT) Development of a High Resolution Microvascular Imaging Toolkit for Optical Coherence Tomography
37. *Cristina Nasui-Otilia* (August 2010, M.Sc. Oral Examination - Chair of Examination, Biomedical Physics, Ryerson University) Monitoring Vascular Changes Induced by Photodynamic Therapy Using Contrast-Enhanced Micro-Computed Tomography.
38. *Marika Archambault-Wallenburg* (August 2010, M.Sc. Oral Examination, Medical Biophysics, UofT) Two-photon microscopy and polarimetry for assessment of myocardial tissue organization
39. *Ahmed El Kaffas* (July 2010, **Ph.D.** Qualifying Examination, Medical Biophysics, UofT) Investigating Vascular Targeting Strategies for Enhancing Radiation Response
40. *Salil Bedkihal* (July 2010, M.Sc. Oral Examination - Chair of Examination, Biomedical Physics, Ryerson University) Simulations of Steady Flows through Cylindrical Geometries With & Without Local Constriction by Multiparticle Collision Dynamics
41. *Justin Lee* (May 2010, M.Sc. Oral Examination, Medical Biophysics, UofT) High Frequency Ultrasound Backscatter Analysis for Detection of Early Tumour Response to Radiotherapy and a Novel Anti-Vascular Treatment.
42. *Judith Weidman* (January 2010, M.Sc. Oral Examination, Biomedical Physics, Ryerson University) The combined effects of heating and low intensity pulsed ultrasound on bone cells.
43. *Robin Castelino* (January 2010, **Ph.D.** Qualifying Examination, Medical Biophysics, UofT) Monitoring Gold Nanorod Loaded Microbubbles using High Frequency Photoacoustic/Ultrasound Imaging
44. *Benjamin Lai* (September 2009, M.Sc. Oral Examination, Medical Biophysics, UofT) Implementation of a spatially resolved explicit photodynamic therapy system utilizing multi-sensor fiber optic probes
45. *Hisham Assi* (September 2009, M.Sc. Oral Examination - Chair of Examination, Biomedical Physics, Ryerson University) A New CEM43 Thermal Dose Model Based on Vogel-Tammann-Fulcher Behavior In Thermal Damage Processes
46. *Eric Strohm* (August 2009, M.Sc., Biomedical Physics, Ryerson University) The Calculation of the Mechanical Properties of Apoptotic Cells Using Time Resolved Acoustic Microscopy
47. *Veronica Barbisan* (July 2009, M.Sc. Oral Examination Molecular Science, Ryerson University) Fc Receptors in Raw Cells
48. *Antonio Mauro* (June 2009, M.Sc., Biomedical Physics, Ryerson University) High Speed Rotary System for Catheter Based 3-D Imaging with Optical Coherence Tomography
49. *Roxana Vlad* (April 2009, **Ph.D.** Oral Examination, Medical Biophysics, UofT) Quantitative ultrasound characterization of responses to radiotherapy in vitro and in vivo.
50. *Jane Walter* (December 2008, **Ph.D.** Qualifying Exam, Medical Biophysics, UofT) Optical Spectroscopy for Disease Risk Screening

51. *Golnaz Farhat* (November 2008, **Ph.D.** Qualifying Exam, Medical Biophysics, UofT) Combining Optical Coherence Tomography and High Frequency Ultrasound for Monitoring Cell Death
52. *Ahmed El Kaffas* (September 2008, M.Sc. Oral Examination, Biomedical Physics, Ryerson University) Measuring the mechanical properties of apoptotic cells using particle tracking microrheology
53. *Sara Iradji* (September 2008, M.Sc. Oral Examination, Biomedical Physics, Ryerson University) Optimization of Subharmonic Generation from Ultrasound Contrast Agents at High-Frequency Ultrasound
54. *Nazinin Nayebi* (September 2008, M.Sc. Oral Examination, Biomedical Physics, Ryerson University) Synthetic Aperture Imaging: Applications in High-Frequency Ultrasound.
55. *Syed Haider* (September 2008, M.Sc. Oral Examination, Biomedical Physics, Ryerson University) Magneto Acousto Electrical Tomography: A Potential Imaging Method for Current Density & Electrical Impedance.
56. *Eli Lechtman* (August 2008, M.Sc. Oral Examination, Biomedical Physics, Ryerson University) New Algorithms for Computed Tomography Image Reconstruction to Eliminate Artifacts
57. *Monika Tucholska* (July 2008, M.Sc. Oral Examination, Molecular Science, Ryerson University) The member of the RAS superfamily of small GTPases RAP and its putative GTPase activating proteins and guanine nucleotide exchange factors in raw 264.7 macrophages
58. *Robin Castelino* (January 2008, M.A.Sc. Oral Examination, ECE, Ryerson University) Biomedical Applications of Photoacoustics for Thermal Therapy
59. *Nicole Carmichael* (November 2007, **Ph.D.** Chair of Oral Examination, Dept. Physiology, UofT) The Timecourse of Neuroinflammation and the Effect of Modulatory Agents
60. *Elham Soleimankhani* (October 2007, M.A.Sc. Oral Examination, ECE, Ryerson University) An investigation of the use of transmission ultrasound to guide minimally invasive thermal therapy
61. *Toby Lam*, (October 2007, M.Sc. Oral Examination, Medical Biophysics, UofT) Nonlinear parameter (B/A) imaging
62. *Claudia Leavens*, (August 2007, **Ph.D.** Oral Examination, Medical Biophysics, UofT) Novel pulse compression algorithms based on Golay codes for ultrasound imaging of blood flow
63. *Adrian Mariampillai*, (June 2007, **Ph.D.** Qualifying Examination, Medical Biophysics, UofT) Resolving microvascular structure and function using swept source Doppler optical coherence tomography
64. *Claire McCann* (March 2007, **Ph.D.** Oral Examination, Medical Biophysics, UofT) A novel radiofrequency coil for interstitial thermal therapy
65. *Omar Falou* (March 2007, **Ph.D.** Qualifying Examination, ECE, Ryerson University) Finite Element Modelling of High Frequency Ultrasound Scattering from Cells and Contrast Agents
66. *Madhu Jain* (January 2007, M.Sc. Chair of Oral Examination, ECE, Ryerson University) A thermal dose controller for Laser Interstitial Thermal Therapy

67. *Anjela Tzontcheva* (December 2006, **Ph.D.** Chair of Oral Examination, Dept. Public Health Services, UofT) A Computational Method for Analyzing Interval-Censored Time to Event Data in the Presence of Informative Examination
68. *Darren Morofke* (September 2006, M.A.Sc. Oral Examination, ECE, Ryerson University) Evaluation of Velocity Estimation Algorithms for Doppler Optical Coherence Tomography
69. *Harshitha Nallapareddy* (June 2006, M.Eng. Oral Examination, ECE, Ryerson University) Parametric Analysis of Ultrasound Backscattered Signals for Monitoring Cancer Cell Structural Changes
70. *Omar Falou*, (December 2005, M.A.Sc. Oral Examination ECE. Ryerson University) Finite element modeling of acoustic wave scattering from fluid, rigid and elastic spheres, Ryerson University, December 2005
71. *Gloria Spirou* (August 2005, M.Sc. Oral Examination Medical Biophysics, UofT) An investigation of pulsed & frequency domain photoacoustics and their applicability to biomedical studies
72. *Neeta Parmar* (April 2005, M.A.Sc. Oral Examination ECE. Ryerson University) Acoustic transmission imaging for the detection of lesions during thermal therapies
73. *Adam Tunis* (January 2005, M.Sc. Oral Examination Medical Biophysics, UofT) Monitoring Structural Changes in Cells and Tissues with High Frequency Ultrasound Signal Statistics
74. *Trudy Freeman* (December 2004, **Ph.D.** Chair of Oral Examination, Nursing, UofT) Assessing the Role of Formal and Informal Caregivers in the Current Tertiary Health Care System: Factors Influencing Care Roles and Satisfaction with Care
75. *Roxana M. Vlad* (December 2004, M.Sc. Oral Examination Medical Biophysics, UofT) High Frequency Ultrasound for Monitoring Liver Changes During Preservation
76. *Noushin Farnoud* (August 2004, M.A.Sc. Oral Examination ECE, RU) Autoregressive signal analysis for ultrasound signal classification
77. *Jennifer Evans* (July 2004, M.Sc. Oral Examination Medical Biophysics, UofT) MRI of Ultrasound Fields
78. *Ralph Baddour* (January 2004, M.Sc. Oral Examination Medical Biophysics, UofT) High Frequency Ultrasound Scattering from Microspheres and Single Cells.
79. *Xuegang Su*. (January 2004, M.A.Sc. Oral Examination ECE, Ryerson University) Pulse encoding techniques for improving SNR for high frequency ultrasound,
80. *Mihaela Paula Pop* (December 2003, M.Sc. Oral Examination Medical Biophysics, UofT) Radiofrequency Thermal Therapy of Renal Cell Carcinoma.
81. *General Leung* (December 2003, M.Sc. Oral Examination Medical Biophysics, UofT) Motion compensation in MRI using variable density spiral trajectories.
82. *Claire McCann* (November 2003, **Ph.D.** Qualifying Exam, Medical Biophysics, UofT) A Novel Radiofrequency Coil for Interstitial Thermal Therapy
83. *Mike Strauss* (September 2003, M.Sc. Oral Examination Medical Biophysics, UofT) Cryoelectron microscopy of membrane proteins: lipid bilayer supports and vacuum-cryo-transfer.
84. *Cathy Nangini* (March 2003, reclassification exam, Medical Biophysics, UofT)) Neurovascular Coupling in the Human Primary Somatosensory Cortex using fMRI.

85. *Claudia Strobele* (March 2003, reclassification exam, Medical Biophysics, UofT) A novel approach to image analysis and its application to Medical Imaging.
86. *Olivier Couture* (February 2003, reclassification exam, Medical Biophysics, UofT) Study of targeted contrast agent for high frequency ultrasound
87. *Carol Kolb* (January 2003, M.Sc., Physiology, UofT) High frequency ultrasound imaging of mice
88. *Kamyar Hazaveh* (December 2002, M.Sc. Oral Examination, Dept. ECE, Ryerson University) Optimally Weighted Local Discriminant Bases – Theory and Applications in Statistical Signal and Image Processing
89. *Nicholas Block* (April 2002, reclassification exam, Medical Biophysics, UofT) Multiple-Mouse Magnetic Resonance Imaging

POST-DOCTORAL FELLOWS [8 /7]:

Completed

1. [Dr. Behrouz Soroushian](#), Photoacoustic imaging and interferometry for the measurement of the Grüneisen coefficient, July 2006 - July 2010
2. [Dr. Sebastian Brand](#), High Frequency Ultrasound Parametric Imaging, Apr.2004 - Dec.2005
3. [Dr. Saha Ratan](#), Ultrasound scattering from collections of particles June 2009 - June 2011
4. [Dr. Narashiman Sankar](#), Nanoparticle contrast agents for Optoacoustic Imaging, Sept. 2008 - July 2011
5. [Dr. Behnaz Pourebrahimi](#), Analysis and Classification of Photoacoustic Signals, Feb. 2012 - Aug. 2013
6. [Dr. Sangpil Yoon](#), Photoacoustic Beamforming June 2012 - June 2013
7. [Dr. George Noble](#), Computational modeling of magnetic nano-particles for ultrasound detection and targeted hyperthermia of sentinel lymph nodes, July 2010 - Aug. 2013
8. [Dr. Eric Strohm](#), Acoustic and Photoacoustic Characterization of micron particles, Jan. 2014 – April 30, 2016

In Progress

9. Dr. Lauren Wirtzfeld, Quantitative Ultrasound of Cell Death in Tissue Engineered Constructs to Evaluate Sensitivity for Cancer Therapy Monitoring, March 2011 – present
10. Dr. Krishnan Sathiyamoorthy, Novel nanoparticle-based contrast agents for Optoacoustic Imaging, June 2013 – present
11. Dr. Tae-Hoon Bok, Photoacoustic flow system development, Sept. 2013 - present
12. Dr. Azhar Zam, OCT speckle decorrelation to assess cell death, Sept. 2014 - present
13. Dr. Yasaman Daghighi, Signal analysis and microfluidics development for an acoustic and photoacoustic flow cytometer, Feb. 2015 - present

g. GRADUATE COURSES

MBP102H- Optical, Thermal and Radiation Biophysics-, Thermal Biophysics module,
 Department of Medical Biophysics, U of Toronto, 2003-07
 BP8106- Optical, Acoustical and Thermal Physics, Ryerson University, 2006-2012
 BP9101- Science communications, 2013-present

h. EXTERNAL RESEARCH FUNDING:

P.L.: Project Leader / P.I. Principal Investigator / co-I: Co-investigator

G: external peer-reviewed grant

Year	Source	Type	Amt.	Purpose	Principal Investigator
2016-19	Collaborative Health Research Projects	G	\$832,120 (total project cost)	Research Operating	P.I. M. C. Kolios
2016-17	Canadian Institutes of Health Research	G	\$10,000	Research Operating	P.I. M. C. Kolios
2013-18	Canada Foundation for Innovation	G	\$180,000	Research Operating	P.I. M. C. Kolios
2012-17	Natural Sciences & Engineering Research Council – Discovery grant	G	\$255,000	Research Operating	P.I. M.C. Kolios
2015-16	Ontario Centres of Excellence Inc.: Voucher for Innovation & Productivity (VIP 1)	G	\$25,000	Research Operating	P.I. M. C.Kolios
2015-16	National Science & Engineering Research Council of Canada	G	\$25,000	Research Operating (Engage Grant)	P.I. M. C.Kolios
2014-18	FedDev Ontario: Invest in Commercialization and Partnerships	G	20,000,000 (total) 239,700 (Ryerson)	Research Operating	P.I. K. Hynynen Co-P.I. M.C. Kolios
2015-16	Natural Sciences & Engineering Research Council – Idea to Innocation (I2IPJ)	G	\$125, 000	Research Operating	P.I. M. C. Kolios
2014-17	The Terry Fox New Frontiers Program	G	\$2,009,488 (total) \$441,032 (Ryerson)	Research Operating	P.I. G.J. Czarnota Co-P.I. M.C. Kolios
2014-17	Collaborative Health Research Projects	G	\$485,192 (total project cost)	Research Operating	P.I. M. C. Kolios
2013-18	Canadian Institutes of Health Research	G	\$94,250	Research Operating	P.I. M. C. Kolios
2013-15	Canadian Cancer Society	G	\$168,910	Research Operating	P.I. M. C. Kolios
2013	Natural Sciences & Engineering Research Council – Engage Grants	G	\$25,000	Research Operating	P.I. M. C. Kolios
2013	Canada Foundation for Innovation	G	\$1,906,364 (total project cost)	Research Equipment	P.I. M. C. Kolios
2012-17	Natural Sciences & Engineering Research Council – Discovery Grants	G	\$255,000	Research Operating	P.I. M. C. Kolios

2012-13	Federal Economic Development Agency for Southern Ontario	G	\$30,000	Research Operating	P.I. M. C. Kolios
2012-13	Natural Sciences & Engineering Research Council of Canada	G	\$90,159	Research Equipment (RTI)	P.I. M. C. Kolios
2012-13	University of Ontario Institute of Technology	G	\$10,000	Research Operating	P.I. M. C. Kolios
2012-14	Canadian Institutes of Health Research	G	\$214,804	Research Operating	P.I. M. C. Kolios
2011-12	Canadian Institutes of Health Research	G	\$15,250	Meetings, Planning & Dissemination	P.I. G.J. Czarnota Co-P.I. M.C. Kolios
2011-12	NCE: MITACS - The Mathematics of Information Technology and Complex Systems Inc.	G	\$82,500	Research Operating	P.I. M. C. Kolios
2011-12	National Science & Engineering Research Council of Canada	G	\$75,710	Research Equipment (RTI)	P.I. M. C. Kolios
2010-13	Canadian Institutes of Health Research	G	\$2,704,743 (total) \$253,475 (Ryerson)	Research Operating	P.I. G.J. Czarnota Co-I M.C. Kolios
2010-11	Ontario Partnership for Innovation and Commercialization	G	\$10,000	Research Operating	P.I. M. C. Kolios
2010-11	National Science & Engineering Research Council of Canada	G	\$25,000	Research Operating (Engage Grant)	P.I. M. C. Kolios
2010-11	MD Precision (Industry matching to NSERC Engage grant)		\$5,000	Research Collaboration	P.I. M. C. Kolios
2010-11	Innovative Bio-Medical Technologies Ltd		\$10,000	Research Collaboration	P.I. M. C. Kolios
2009-14	Canada Research Chairs	A	\$500,000	Research Operating	P.I. M. C. Kolios
2008-13	Atlantic Canada Opportunities Agency (Atlantic Innovation Fund)	G	\$1,999,446 (total) \$103,276 (Ryerson)	Research Operating	P.I. W.M. Whelan Co-I M.C. Kolios
2009-12	Canadian Institutes of Health Research	G	\$427,592	Research Operating	P.I. M.C. Kolios Co-I: G.J. Czarnota
2008-13	Canada Foundation for Innovation	G	\$111,850	Infrastructure Operating Fund	P.I. M. C. Kolios
2008-13	Ministry of Research and Innovation (MRI) Ontario	G	\$1,221,231 (total) \$233,844 (Ryerson)	Research Operating	P.I. K. Hynynen Co-I M.C. Kolios
2007-12	Natural Sciences & Engineering Research Council of Canada	G	\$120,000	Research Operating	P.I. M. C. Kolios
2007-11	Canadian Institutes of Health Research	G	\$246,465	Research Operating	P.I. W.M. Whelan Co-I M. C. Kolios
2007-10	Canadian Breast Cancer Foundation	G	\$428,016	Research Operating	P.I. G.J. Czarnota Co-I M.C. Kolios
2007-09	Cancer Imaging Network of Ontario	G	\$132,400	Research Operating	P.I. G.J. Czarnota Co-I M.C. Kolios

2007-08	Ontario Institute for Cancer Research	G	\$60,000	Research Operating	P.I. G.J. Czarnota Co-I M.C. Kolios
2007	Natural Sciences & Engineering Research Council of Canada	G	\$55,683	Research Equipment	P.I. J. C. Kumaradas Co-I M. C.Kolios
2007	Canada Foundation for Innovation	G	\$980,562 (total project cost)	Research Equipment	P.I. M. C.Kolios
2006-9	Natural Sciences & Eng. Research Council of Can. / CIHR	G	\$372,438	Research Operating	P.I. M. C.Kolios
2006-8	Canadian Institutes of Health Research - International Opportunities Program	G	\$14,920	Research Operating	P.I. M. C.Kolios
2006-9	Canadian Institutes of Health Research – Operating grant	G	\$187,491	Research Operating	P.I. M. C.Kolios
2005-6	The Whitaker Foundation	G	\$59,317 (US)	Research Operating	P.I. M. C.Kolios
2004-9	Canada Research Chairs	A	\$500,000	Research Operating	P.I. M. C.Kolios
2004-5	Canada Foundation for Innovation / CRC program	G	\$296,057 (total project cost)	Research Equipment	P.I. M. C.Kolios
2003-6	National Cancer Institute of Canada	G	\$232,000	Research Operating	Co-I M. C.Kolios P.I. W.M. Whelan
2003-7	Natural Sciences & Engineering Research Council of Canada	G	\$80,000	Research Operating	P.I. M. C.Kolios
2003	Canada Foundation for Innovation	G	\$612,416 (total project cost)	Research Equipment	P.I. M. C.Kolios P. Leader: W. Whelan
2001-4	Canadian Institutes of Health Research	G	\$396,788	Research Operating	Co-I M. C.Kolios P.I. M. Sherar
2001-4	The Whitaker Foundation	G	\$173,114 (US)	Research Operating	P.I. M.C. Kolios
2001	Natural Sciences & Eng. Research Council of Can.	G	\$13,418	Research	Co-I M. C.Kolios P.I. D. Foster
2001-4	Natural Sciences & Eng. Research Council of Can.	G	\$125,187	Research Operating	P.I. M.C. Kolios
2001-6	Ministry of Energy, Science & Technology	A	\$150,000	Research Operating	P.I. M.C. Kolios
2000	Natural Sciences & Eng. Research Council of Can.	G	\$13,246	Research Equipment	Co-I M. C.Kolios P.I. W.M. Whelan
2000	Canada Foundation for Innovation	G	\$183,285 (total project cost)	Research Equipment	P.I. M.C. Kolios
1999-01	National Cancer Institute of Canada	G	\$305,494	Research Operating	Co-I M. C.Kolios P.I. M. Sherar
1999-02	Medical Research Council of Canada	G	\$203,721	Research Operating	Co-I M. C.Kolios
1998-02	Natural Sciences & Eng. Research Council of Can.	G	\$65,100	Research Operating	P.I. M.C. Kolios
1999	Natural Sciences & Eng. Research Council of Can.	G	\$38,293	Research Equipment	Co-I M. C.Kolios P.I. W. M. Whelan
1999	Natural Sciences & Eng. Research Council of Can.	G	\$19,182	Research Equipment	P.I. M.C. Kolios

**INTERNAL RESEARCH FUNDING:
G: peer-reviewed application**

Year	Source	Type	Amt. per year	Purpose	Principal Investigator
2014-15	Ryerson University	G	\$2,000	Research	M.C. Kolios
2013-14	Ryerson University	G	\$2,000	Research	M.C. Kolios
2012-13	Ryerson University	G	\$2,000	Research	M.C. Kolios
2011-12	Ryerson University	G	\$2,000	Research	M.C. Kolios
2010-11	Ryerson University	G	\$7,500	Research	M.C. Kolios
2008-09	Ryerson University	G	\$2,000	Research	M.C. Kolios
2008	Ryerson University	G	\$7,200	Research	M.C. Kolios
2007-8	Ryerson University	G	\$2,000	Research	M.C. Kolios
2006	Ryerson University	G	\$7,200	Research	M.C. Kolios
2006-7	Ryerson University	G	\$10,200	Research	M.C. Kolios
2005	Ryerson University	G	\$7,200	Research	M.C. Kolios
2004-5	Ryerson University	G	\$2,000	Research	M.C. Kolios
2004	Ryerson University	G	\$7,200	Research	M.C. Kolios
2003-4	Ryerson University	G	\$2,000	Research	M.C. Kolios
2003	Ryerson University	G	\$7,200	Research	M.C. Kolios
2002-3	Ryerson University	G	\$2,000	Research	M.C. Kolios
2002	Ryerson University	G	\$7,200	Research	M.C. Kolios
2001-2	Ryerson University	G	\$2,000	Research	M.C. Kolios
2001	Ryerson University	G	\$7,200	Research	M.C. Kolios
2001-2	Ryerson University	G	\$2,000	Research	M.C. Kolios
2000-01	Ryerson University	G	\$2,000	Research	M.C. Kolios
2000	Ryerson University	G	\$30,000	Research	M.C. Kolios
2000	Ryerson University	G	\$7,200	Research	M.C. Kolios
1999-00	Ryerson University	G	\$2,000	Research	M.C. Kolios
1999	Ryerson University	G	\$7,200	Research	M.C. Kolios
1998-9	Ryerson University	G	\$2,000	Research	M.C. Kolios
1998	Ryerson University	G	\$7,200	Research	M.C. Kolios

i. PUBLICATIONS:

Chapter in Books

1. Probing different length scales using photoacoustics: from 1-1000 MHz
Eno Hysi, Eric M. Strohm and **Michael C. Kolios**
In Handbook of Photonics for Biomedical Engineering, eds. Aaron H.-P. Ho, Donghyun Kim, Michael G. Somekh
Springer, in press 2014
2. Quantitative ultrasound and cell death
Omar Falou, Ali Sadeghi-Naini, Azza Al-Mahrouki, **Michael C. Kolios** and Gregory J. Czarnota
J. Mamou and M. Oelze (Eds.)
Springer, 2013

3. Acoustic microscopy of cells
Eric M. Strohm, G. Czarnota, **Michael C. Kolios**
J. Mamou and M. Oelze (Eds.)
Springer, 2013
4. Ultrasound imaging of apoptosis: Spectroscopic detection of DNA-damage effects at high and low frequencies.
Vlad, RM, Kolios, M.C., Czarnota, G.J., In Didenko, V. (Ed.), DNA Damage Detection in Situ, Ex Vivo, and In Vivo Methods and Protocols. Methods in Molecular Biology, Humana Press, 682, 165-187 (2011)
5. Ultrasound Imaging of Apoptosis: DNA Damage Visualized
Czarnota, G.J. **Kolios, M.C.** Hunt, J.W. and Sherar, M.D. In Didenko, V. (Ed.), Methods in Molecular Biology, Humana Press, 203:257-77(2002)

Papers in refereed Journals

1. High-frequency photoacoustic imaging of pulsatile blood flow: Relationship between red blood cell aggregation and oxygen saturation, Tae-Hoon Bok, Eno Hysi and **Michael C. Kolios** (2016), Biomedical Optics Express 7(7), 2769-2780
2. Simultaneous assessment of red blood cell aggregation and oxygen saturation under pulsatile flow using high-frequency photoacoustics, Tae-Hoon Bok, Eno Hysi, and **Michael C. Kolios**, Biomedical Optics Express, vol. 7, no. 7, pp 2769-2780, doi: 10.1364/BOE.7.002769
3. High resolution ultrasound and photoacoustic imaging of single cells, Eric M. Strohm, Michael J. Moore, and **Michael C. Kolios**, Photoacoustics, In Press, 2016.
4. High-Frequency Ultrasound Analysis of Post-Mitotic Arrest Cell Death in MDA-MB-231 Cells, Pasternak MM, Wirtzfeld LA, Czarnota GC, **Kolios MC**, OncoScience, February 26, 2016 (accepted)
5. Optical coherence tomography spectral analysis for detecting apoptosis in vitro and in vivo, Farhat G, Giles A, **Michael C. Kolios**, Czarnota GJ, J. Biomed. Opt. 20(12):126001. doi:10.1117/1.JBO.20.12.126001
6. High resolution acoustic and photoacoustic imaging of single cells, E.M. Strohm, M.J. Moore, M.C. Kolios, Photoacoustics, 2016 (accepted for publication January 8, 2016)
7. Temperature dependence of acoustic harmonics generated by nonlinear ultrasound wave propagation in water at various frequencies, Borna Maraghechi, Mojtaba H. Hasani, **Michael C. Kolios**, and Jahan Tavakkoli, Journal of the Acoustical Society of America, 139, 2475-2481, 2016, <http://dx.doi.org/10.1121/1.4946898>.
8. High-frequency ultrasound analysis of post-mitotic arrest cell death, Maruice M. Pasternak, Lauren Wirtzfeld, **Michael C. Kolios**, Gregory Czarnota, Oncoscience, in

press, 2016

9. Single Cell Photoacoustic Microscopy: A Review (Invited Paper)
Eric M. Strohm, Michael J. Moore, and **Michael C. Kolios**.
Journal of Selected Topics in Quantum Electronics, 22(3), 2016.
10. Ultra-high frequency ultrasound and photoacoustic imaging of single leukocytes.
Eric M. Strohm, Michael J. Moore, and **Michael C. Kolios**.
Photoacoustics, In Press, 2015.
11. Delay-encoded transmission and image reconstruction method in synthetic transmit aperture imaging
P. Gong, **Michael C. Kolios**, and Y. Xu,
IEEE transactions on ultrasonics, ferroelectrics, and frequency control, vol. 62, pp. 1745-56, Oct 2015.
12. Properties of Cells through Life and Death - An Acoustic Microscopy Investigation
Maurice M. Pasternak, Eric M. Strohm, Elizabeth S. Berndl and **Michael C. Kolios** (2015)
Cell Cycle Jul 15:0. [Epub ahead of print]
<http://dx.doi.org/10.1080/15384101.2015.1069925>
13. High-Frequency Acoustic Impedance Imaging of Cancer Cells
Muhanned N. Fadhel, Elizabeth S. Berndl, Eric M. Strohm and **Michael C. Kolios** (2015)
Ultrasound in Medicine and Biology Jul 9. pii: S0301-5629(15)00400-7.
<http://dx.doi.org/10.1016/j.ultrasmedbio.2015.06.003>
14. Temperature dependence of acoustic harmonics generated by nonlinear ultrasound beam propagation in ex vivo tissue and tissue-mimicking phantoms
Borna Maraghechi, **Michael C. Kolios** and Jahan Tavakkoli (2015)
International Journal of Hyperthermia Jul 1:1-8. [Epub ahead of print]
<http://dx.doi.org/10.3109/02656736.2015.1052856>
15. Classification of blood cells and tumor cells using label-free ultrasound and photoacoustics
Eric M. Strohm, **Michael C. Kolios** (2015)
Cytometry A. 87(8):741-9. doi: 10.1002/cyto.a.22698. [Epub 2015 Jun 16]
16. Exact solution for a photoacoustic wave from a finite-length cylindrical source
Jason Zalev and **Michael C. Kolios** (2015)
Journal of the Acoustical Society of America 137 (4), 1675-1682 doi:
<http://dx.doi.org/10.1121/1.4916273>
17. Quantitative ultrasound spectroscopic imaging for characterization of disease extent in prostate cancer patients

Ali Sadeghi-Naini, Ervis Sofroni, Naum Papanicolau, Omar Falou, Linda Sugar, Gerard Morton, Martin J. Yaffe, Robert Nam, Alireza Sadeghian, **Michael C. Kolios**, Hans T. Chung, Gregory J. Czarnota (2015)
Translational Oncology, 8 (1), 25-34, doi:
<http://dx.doi.org/10.1016/j.tranon.2014.11.005>

18. Influence of the pressure-dependent resonance frequency on the bifurcation structure and backscattered pressure of ultrasound contrast agents: a numerical investigation
Amin Jafari Sojahrood, Omar Falou, Robert Earl, Raffi Karshafian, **Michael C. Kolios** (2015)
Nonlinear Dynamics, Springer, doi: 10.1007/s11071-015-1914-7
19. Laser-activatable PLGA microparticles for image-guided cancer therapy in vivo
Yang Sun , Yanjie Wang , Chengcheng Niu , Eric M. Strohm , Yuanyi Zheng, Haitao Ran , Rongzhong Huang , Di Zhou , Yuping Gong , Zhigang Wang , Dong Wang, **Michael C. Kolios** (2014)
Advance Functional Materials, doi: 10.1002/adfm.201402631
20. Modeling photoacoustic spectral features of micron-sized particles
EM Strohm, I Gorelikov, N Matsuura, **Michael C. Kolios** (2014)
Physics in Medicine and Biology, 59 (19), 5795-810
21. Speckle statistics in OCT images: Monte Carlo simulations and experimental studies
Mikhail Kirillin, Alex Vitkin, **Michael Kolios**, Ekaterina Sergeeva, and Golnaz Farhat (2014)
Optics Letters, 39 (12), 3472-3475
22. Optoacoustic characterization of prostate cancer in an in vivo transgenic murine model
Michelle Patterson, Christopher B Riley, **Michael Kolios**, Whelan Whelan (2014)
Journal of Biomedical Optics, 19 (5), 056008; doi:10.1117/1.JBO.19.5.056008
23. Early prediction of therapy responses and outcomes in breast cancer patients using textural characteristics of quantitative ultrasound spectral parametric maps
Ali Sadeghi-Naini, Lakshmanan Sannachi, Kathleen Pritchard, Maureen Trudeau, Sonal Gandhi, Frances C. Wright, Judit Zubovits, Martin J. Yaffe, **Michael Kolios**, Gregory Czarnota (2014)
Oncotarget, (5)
24. Photoacoustic detection and optical spectroscopy of high-intensity focused ultrasound-induced thermal lesions in biologic tissue
Mosa Alhamami, **Michael C. Kolios**, and Jahan Tavakkoli (2014)
Medical Physics, 41, 053502; doi: 10.1118/1.4871621
25. Optical coherence tomography detection of shear wave propagation in inhomogeneous tissue equivalent phantoms and ex-vivo carotid artery samples

Marjan Razani, Timothy W.H. Luk, Adrian Mariampillai, Peter Siegler, Tim-Rasmus Kiehl, **Michael C. Kolios**, and Victor X.D. Yang (2014)
Biomedical Optics Express, 5 (3), pp. 895-906; doi:10.1364/BOE.5.000895

26. Personalization of breast cancer chemotherapy using noninvasive imaging methods to detect tumor cell death responses
Lakshmanan Sannachi, Hadi Tadayyon, Ali Sadeghi-Naini, **Michael C. Kolios**, and Gregory Czarnota (2014)
Breast Cancer Management, 3 (1), pp. 31-35; doi: 10.2217/bmt.13.58
27. High frequency label-free photoacoustic microscopy of single cells
E.M. Strohm, E. Berndl, **Michael C. Kolios** (2013)
Photoacoustics, 1(3), 2013, pp. 49-53; doi: 10.1016/j.pacs.2013.08.003
28. Probing Red Blood Cell Morphology Using High-Frequency Photoacoustics
Eric M. Strohm, Elizabeth S. L. Berndl, and **Michael C. Kolios** (2013)
Biophysical Journal Volume 105 1–9
29. Low-frequency quantitative ultrasound imaging of cell death in vivo
Ali Sadeghi-Naini, Naum Papanicolau, Omar Falou, Hadi Tadayyon, Justin Lee, Judit Zubovits, Raffi Karshafian, Azza Al-Mahrouki, Anoja Giles, **Michael C. Kolios** and Gregory J. Czarnota (2013)
Medical Physics, 40 (8)
30. Non-invasive Monitoring of ultrasound-stimulated microbubble radiation enhancement using photoacoustic imaging
Kaleigh Briggs, Azza Al Mahrouki, Joris Nofiele, Ahmad El-Falou, Martin Stanis. Hyunjung Christina Kim, **Michael C. Kolios**, Gregory J. Czarnota (2013)
TCRT Express, 1(2) 143-152 (e600266)
31. Conventional frequency ultrasonic biomarkers of cancer treatment response in vivo
Ali Sadeghi-Naini, Omar Falou, Hadi Tadayyon, Azza Al-Mahrouki, William Tran, Naum Papanicolau, **Michael C Kolios**, Gregory J Czarnota (2013)
Translational Oncology, 6 (3) 234-243
32. Quantitative ultrasound evaluation of tumour cell death response in locally advanced breast cancer patients receiving chemotherapy
Ali Sadeghi-Naini, Naum Papanicolau, Omar Falou, Judit Zubovits, Rebecca Dent, Sunil Verma, Maureen E. Trudeau, Jean Francois Boileau, Jacqueline Spayne, Sara Iradji, Ervis Sofroni, Justin Lee, Sharon Lemon-Wong, Martin J Yaffe, **Michael C. Kolios**, and Gregory J. Czarnota (2013)
Clinical Cancer Research, 19 (8) 2163-2174
33. Investigating longitudinal changes in the mechanical properties of MCF-7 cells exposed to paclitaxel using particle tracking microrheology

Ahmed El Kaffas, Devesh Bekah, Min Rui, J Carl Kumaradas and **Michael C Kolios** (2013)

Physics in Medicine and Biology, 58 (2013) 923–936

34. Photoacoustic ultrasound spectroscopy for assessing red blood cell aggregation and oxygenation
Eno Hysi, Ratan K. Saha and Michael C. Kolios (2012)
Journal of Biomedical Optics 17(12), 125006
35. Acoustic and photoacoustic characterization of micron-sized perfluorocarbon emulsions
Eric M. Strohm, Ivan Gorelikov, Naomi Matsuura, Michael C. Kolios (2012)
Journal of Biomedical Optics, 17(9), 096016
36. Surface modes and acoustic scattering of microspheres and ultrasound contrast agents
Omar Falou, *Amin Jafari Sojahrood, J. Carl Kumaradas, and Michael C. Kolios* (2012)
The Journal of the Acoustical Society of America, 133 (5), 1820-1829
37. On the use of photoacoustics to detect red blood cell aggregation
Eno Hysi, Ratan K. Saha and **Michael C. Kolios** (2012)
Biomedical Optics Express, 3 (9), 2326-2338
38. Imaging innovations for cancer therapy response monitoring
Ali Sadeghi-Naini, Omar Falou, John M Hudson, Colleen Bailey, Peter N Burns, Martin J Yaffe, Greg J Stanisiz, **Michael C Kolios** & Gregory J Czarnota (2012)
Imaging in Medicine, 4 (3), 311-327
39. Quantitative Ultrasound for the Monitoring of Novel Microbubble and Ultrasound Radiosensitization
Lee J, Karshafian R, Papanicolau N, Giles A, **Kolios MC**, Czarnota GJ. (2012)
Ultrasound in Medicine and Biology, 38 (7) , 1212–1221
40. Classification of the nonlinear dynamics and bifurcation structure of ultrasound contrast agents excited at higher multiples of their resonance frequency
Amin Jafari Sojahrood and Michael C. Kolios (2012)
Physics Letters A, 376 (33), 2222–2229
41. Validity of a theoretical model to examine blood oxygenation dependent optoacoustics
R.K. Saha, S. Karmakar, E. Hysi, M. Roy, and M.C. Kolios (2012)
Journal of Biomedical Optics, 17(5)
42. Feasibility of optical coherence elastography measurements of shear wave propagation in homogeneous tissue equivalent phantoms
Marjan Razani, Adrian Mariampillai, Cuiru Sun, Timothy W.H. Luk, Victor X.D. Yang, and Michael C. Kolios (2012)

Biomedical Optics Express, 3 (5), 972-980

43. Effects of erythrocyte oxygenation on photoacoustic signals
Ratan K Saha, and **Michael C Kolios** (2011)
Journal of Biomedical Optics, 16(11), 115003
44. Effects of cell spatial organization and size distribution on ultrasound backscattering
Ratan K Saha, and **Michael C Kolios** (2011)
IEEE Transactions on Ultrasonics, Ferroelectrics, and Frequency Control, 58(10), 2118-2131
45. Detecting apoptosis using dynamic light scattering with optical coherence tomography
G. Farhat, A. Mariampillai, V.X.D. Yang, G.J. Czarnota and **M.C. Kolios** (2011)
Journal of Biomedical Optics, 16, 070505.
46. Vaporization of perfluorocarbon droplets using optical irradiation
Eric Strohm, Min Rui, Ivan Gorelikov, Naomi Matsuura, and **Michael Kolios** (2011)
Biomedical Optics Express, 2(6), 1432-1442
47. A simulation study on photoacoustic signals from red blood cells
Ratan K Saha, and **Michael C Kolios** (2011)
Journal of the Acoustical Society of America 129(5), 2935-2943
48. Hybrid Quantum Dot-Fatty Ester Stealth Nanoparticles: Toward Clinically Relevant in Vivo Optical Imaging of Deep Tissue
Adam J. Shuhendler, Preethy Prasad, Ho-Ka Carol Cha†, Claudia R. Gordijo, Behrouz Soroushian, **Michael Kolios**, Kui Yu, Peter J. O'Brien, Andrew Michael Rauth, and Xiao Yu Wu (2011)
ACS Nano 5(3), 1958-1966
49. Detecting cell death with spectroscopic optical coherence tomography and envelope statistics
G. Farhat, V.X.D. Yang, G.J. Czarnota and **M.C. Kolios** (2011)
Journal of Biomedical Optics 16(2) -026017
50. Study of laser induced thermoelastic deformation of native and coagulated ex-vivo bovine liver tissues for estimating their optical and thermo-mechanical properties
Behrouz Soroushian, William M. Whelan, **Michael C. Kolios** (2010)
Journal of Biomedical Optics 15(6) - 065002
51. Quantitative measurements of apoptotic cell properties using acoustic microscopy
Eric M. Strohm, Gregory J. Czarnota, and **Michael C. Kolios** (2010)
IEEE Transactions on Ultrasonics, Ferroelectrics, and Frequency Control, vol. 57, no. 10. 2293-2304.
52. Ultrasound Detection of Cell Death

Gregory J. Czarnota and **Michael C. Kolios** (2010)
Imaging in Medicine 2(1), 17-28.

53. An increase in cellular size variance contributes to the increase in ultrasound backscatter during cell death
Roxana M Vlad, Ratan K. Saha, Nehad M. Alajez, Shawn Ranieri, Gregory J Czarnota and Michael C Kolios (2010)
Ultrasound in Medicine and Biology 36(9), 1546-1558.
54. The measurement of ultrasound scattering from individual micron-sized objects and its application in single cell scattering.
Omar Falou, Min Rui, Ahmed El Kaffas, J. Kumaradas, and Michael C. Kolios (2010)
Journal of the Acoustical Society of America 128(2), 894-902.
[Selected by the American Physical Society and the American Institute of Physics for inclusion in the Virtual Journal of Biological Physics Research – August 15 2010 issue]
55. Evaluating the extent of cell death in 3D high frequency ultrasound by registration with whole-mount tumor histopathology
Roxana M Vlad, Michael C Kolios, Joanne L Moseley, Gregory J Czarnota, Kristy K Brock (2010)
Medical Physics 37(8), 4288-4297.
[Selected by the American Physical Society and the American Institute of Physics for inclusion in the Virtual Journal of Biological Physics Research – August 1 2010 issue]
56. Single cell size estimation from backscattered spectrum by using some weak acoustic scattering approximations
Ratan K Saha, Subodh K Sharma and Michael C Kolios (2010)
Canadian Acoustic 38(2), 31-34
57. Potential use of ultrasound for the detection of cell changes in cancer treatment
Michael C. Kolios and Gregory J. Czarnota [invited editorial] (2009)
Future Oncology 5(10), 1527–1532 (2009)
58. Quantitative Ultrasound Characterization Of Responses To Radiotherapy In Cancer Mouse Models
Roxana M. Vlad, Sebastian Brand, Anoja Giles, Michael C. Kolios and Gregory J. Czarnota (2009)
Clinical Cancer Research 15(6): 2067-2075
59. Monitoring of cell death in epithelial cells using high frequency ultrasound spectroscopy
Sebastian Brand, Bindiya Solanki, Deborah Foster, Gregory Czarnota and Michael C. Kolios (2009)
Ultrasound in Medicine and Biology 35(3): 482-493

60. A study of high frequency ultrasound scattering from non-nucleated biological specimens
Omar Falou, Ralph Baddour, George Nathanael, Gregory Czarnota, J. Carl Kumaradas, and Michael C. Kolios (2008)
The Journal of the Acoustical Society of America 124(5): EL278-EL283
 [Selected by the American Physical Society and the American Institute of Physics for inclusion in the Virtual Journal of Biological Physics Research, 16(8), 2008]
61. Quantitative ultrasonic characterization of cancer radiotherapy effects in vitro
Roxana M. Vlad, Nehad M. Alajez, Anoja Giles, Michael C. Kolios and Gregory J. Czarnota (2008)
International Journal of Radiation Oncology, Biology, Physics 72(4): 1236 - 1243
62. Detecting the Effects of Photodynamic Therapy in vivo by High Frequency Ultrasound Spectroscopy: a Novel Way of Monitoring Tumour Response
Behzad Banihashemi, Roxana Vlad, Bane Debeljevic, Anoja Giles, Michael C. Kolios, Gregory J. Czarnota (2008)
Cancer Research 68(20): 8590-8596
63. High frequency ultrasound tissue characterization and acoustic microscopy of intracellular changes
Sebastian Brand, Weiss EC, Lemor RM, and Kolios M.C. (2008)
Ultrasound in Medicine and Biology 34(9): 1396-1407
64. Parametric Analysis of Ultrasound Backscatter Signals for Monitoring Cancer Cell Structural Changes during Cancer Treatment
Harshita Nallapareddy, Sridhar Krishnan and Michael C. Kolios (2007)
Canadian Acoustics 35(2): 47-54
65. High-frequency ultrasound assessment of antimicrobial photodynamic therapy in-vitro
Ralph E. Baddour, Farhan N. Dadani, Michael C. Kolios and Stuart K. Bisland (2007)
Journal of Biological Physics 33(1): 61-66
66. Ultrasonic Characterization of Viable Whole Cells and Isolated Nuclei,
Linda Taggart, Ralph E. Baddour, Anoja Giles, Gregory J. Czarnota and Michael C. Kolios (2007)
Ultrasound in Medicine and Biology 33 (3): 389-401
67. The fluid and elastic nature of nucleated cells: Implications from the cellular backscatter response
Ralph E. Baddour and Michael C. Kolios (2007)
The Journal of the Acoustical Society of America 121 (1): EL16-EL22
68. Wide dynamic range detection of bidirectional flow in Doppler optical coherence tomography using a two-dimensional Kasai estimator

Darren Morofke, Michael C. Kolios, I. Alex Vitkin and Victor X. D. Yang (2007)
Optics Letters 32 (3): 253-255

[Selected by the American Physical Society and the American Institute of Physics for inclusion in the Virtual Journal of Biological Physics Research – Jan 15 2007 issue]

69. An Investigation of the Use of Transmission Ultrasound to Measure Acoustic Attenuation Changes in Thermal Therapy

Parmar N and Kolios MC (2006)

Medical and Biological Engineering and Computing 44:583-591

70. Monitoring Structural Changes in Cells with High Frequency Ultrasound Signal Statistics

A.S. Tunis, G.J. Czarnota, A. Giles, M.D. Sherar, J.W. Hunt and M.C. Kolios (2005)

Ultrasound in Medicine and Biology 31(8), 1041-1049

71. High frequency ultrasound scattering from microspheres and single cells

Baddour R E, Sherar M D, Hunt J W, Czarnota G J and Kolios M C

Journal of the Acoustical Society of America, 2005, 117(2) 934-943

[Selected by the American Physical Society and the American Institute of Physics for inclusion in the Virtual Journal of Biological Physics Research – Feb 1 2005 issue]

72. High-frequency ultrasound for monitoring changes in liver tissue during preservation

R.M. Vlad, G.J. Czarnota, A. Giles, M.D. Sherar, J. W. Hunt and M.C. Kolios (2005)

Physics in Medicine and Biology, 50, 197-213

73. Changes in dielectric properties at 460 kHz of kidney and fat during heating: importance for radiofrequency thermal therapy

Pop M., Molckovsky A., Chin L., Kolios M.C., Jewett M.A.S. and Sherar M.D. (2003)

Physics in Medicine and Biology 48, 2509-2525

74. Ultrasonic spectral parameter characterization of apoptosis

Kolios M.C., Czarnota G.J., Lee M., Hunt J.W. and Sherar M.D. (2002) Ultrasound in

Medicine and Biology 28(5), 589-597

75. A model based upon pseudo-regular spacing of cells combined with the randomization of nuclei can explain the significant changes in high-frequency ultrasound during apoptosis

Hunt J.W., Worthington A., Xuan A., Kolios M.C. Czarnota G.J. and Sherar M.D.

(2002) Ultrasound in Medicine and Biology 28(2) 217-226

76. Comparison of thermal damage calculated using magnetic resonance thermometry with magnetic resonance imaging post treatment and histology after interstitial microwave thermal therapy of rabbit brain

M. D Sherar, J. A. Moriarty, M.C. Kolios, J.C. Chen, R.D. Peters, L.C. Ang, R.S.

Hinks, R.M. Henkelman, M.J. Bronskill, W. Kucharczyk (2000)

Physics in Medicine and Biology 45, 3563-3576

77. The Effects of Dynamic Optical Properties During Interstitial Laser Photocoagulation
Iizuka M.N., Vitkin A.I., **Kolios M.C.**, Sherar M.D. (2000)
Physics in Medicine and Biology 45, 1335-1357
78. Ultrasonic imaging of apoptosis: high-resolution non-invasive imaging of programmed cell death in vitro, in situ and in vivo
Czarnota G.J., **Kolios M.C.**, Abraham J., Portnoy M., Ottensmeyer F.P., Hunt, J.W. and Sherar M.D. (1999)
British Journal of Cancer 81(3), 520-527
79. An investigation of the flow dependence of temperature gradients near large vessel during steady state and transient tissue heating
Kolios M.C., Worthington A.E., Holdsworth D.W., Sherar M.D. and Hunt J.W. (1999)
Physics in Medicine and Biology 44(6), 1479-1497
80. A Theoretical Comparison of Energy Sources: Microwave, Ultrasound and Laser, for Interstitial Thermal Therapy
Skinner M., Iizuka M., **Kolios M.C.** and Sherar M.D. (1998)
Physics in Medicine and Biology 43(12), 3535-3547
81. Experimental evaluation of two simple thermal models using transient temperature analysis
Kolios M.C., Worthington A. E., Sherar M.D. and Hunt J.W. (1998)
Physics in Medicine and Biology 43(11), 3325-3340
82. Ultrasonic imaging of viable, dead and apoptotic cells
Czarnota G.J¹, **Kolios M.C.**¹, Vaziri H¹, Benchimol S., Ottensmeyer F.P., Sherar M.D. and Hunt J.W. (1997) Ultrasound in Medicine and Biology 23(6), 961-965¹ authors have made equal contribution
83. Magnetic resonance imaging of temperature changes during interstitial microwave heating: a phantom study
Vitkin I.A., Moriarty J.A., Peters R.D., **Kolios M.C.**, Gladman A.S., Chen J.C., Hinks R.S., Hunt J.W., Wilson B.C., Easty A.T., Bronskill M.J., Kucharczyk W., Sherar M.D. and Henkelman R.M. (1997)
Medical Physics 24, 269-277
84. Blood flow cooling and ultrasonic lesion formation
Kolios M.C., Sherar M.D. and Hunt J.W. (1996)
Medical Physics 23(7), 1287-98
85. Large vessel cooling in heated tissues: a numerical study
Kolios M.C., Sherar M.D. and Hunt J.W. (1995)
Physics in Medicine and Biology 40, 1-18

86. Influence of transition rates and scan rate on kinetic simulations of differential scanning calorimetry profiles of reversible and irreversible protein denaturation
Lepock JR, Ritchie KP, **Kolios MC**, Rodahl AM, Heinz KA, Kruuv J. (1992)
Biochemistry, 31(50):12706-12

Papers in Refereed Conference Proceedings

1. Photoacoustic investigation of gold nanoshells for bioimaging applications, K. Sathiyamoorthy, E.M. Strohm, **M.C. Kolios**, Proceedings of SPIE Photonics West, February 2016.
2. Biodegradable polymer based theranostic agents for photoacoustic imaging and cancer therapy, Y.J. Wang, E.M. Strohm, **M.C. Kolios**, Proceedings of SPIE Photonics West, February 2016
3. One-layer microfluidic device for hydrodynamic 3D self-flow-focusing operating in low flow speed, Y. Daghighi, V. Gnyawali, E.M. Strohm, S.S.H. Tsai, **M.C. Kolios**, Proceedings of SPIE Photonics West, February 2016
4. Classification of biological cells using a sound wave based flow cytometer
E.M. Strohm, V.Gnyawali, M.V.D. Vondervoort, Y. Daghighi, S.S.H. Tsai,
Michael C.Kolios, SPIE Photonics West, Feb. 2016, San Francisco, United States
5. Probing the in vivo changes in oxygen saturation with photoacoustic imaging as a non-invasive means of assessing treatment progression
Eno Hysi, Jonathan P. May, Lauren Wirtzfeld, Elijus Undzys, Shyh-Dar Li and
Michael C. Kolios (2015)
Proceedings of SPIE 9323, 93231Q-1-7
6. Simulation Studies of Filtered Spatial Compounding (FSC) and Filtered Frequency Compounding (FFC) in Synthetic Transmit Aperture (STA) Imaging
P. Gong, **Kolios M.C**, and Y. Xu
IEEE International Ultrasonics Symposium (IUS), 2015.
7. Microfluidic Flow Cytometry With Ultrasonics and Photoacoustics
S.S.H. Tsai, V. Gnyawali, E.M. Strohm, Y. Daghighi, M. Van de Vondervoort,
Michael C. Kolios
APS-DFD, Nov. 2015, Boston, US.
8. Ultrasonic Characterization of Extra-Cellular Matrix in Decellularized Murine Kidney and Liver
Wirtzfeld L A, Berndl E S L, **Kolios M.C**
2015 IEEE International Ultrasonics Symposium Proceedings, in press
9. Mean Scatterer Spacing Estimation from Pellets Using Cepstral Analysis: A Preliminary Study

- Nasr R, Falou O, Wirtzfeld L, Berndl E, **Kolios M.C**
 2015 International Conference on Advances in Biomedical Engineering (ICABME)
 Proceedings, pp. 305-308
10. Temperature Dependent Properties and Ultrasound Thermal Therapy
Kolios M.C., Sherar M.D. and Hunt J.W. (1999)
 In E.P. Scott (Ed.) *Advances in Heat and Mass Transfer in Biotechnology* HTD
 Vol.363 / BED- Vol.44, 113-118. American Society of Mechanical Engineers
 11. The Effect of Heat Induced Changes in Microwave Tissue Properties on Thermal
 Therapy for Prostate Cancer
 Sherar M.D., Chin, L. **Kolios M.C.** and Gladman, A.S. (1999)
 In E.P. Scott (Ed.) *Advances in Heat and Mass Transfer in Biotechnology* HTD
 Vol.363 / BED-Vol.34, 109-112. American Society of Mechanical Engineers.
 12. Monitoring tissue response to photodynamic therapy: The potential of minimally
 invasive electrical impedance spectroscopy and high frequency ultrasound
 Wilson B.C., Molckovsky A., Czarnota G.J., Sherar M.D., **Kolios M.C.** Lilge, L.
 Dattani R.S., Osterman K.S., Paulsen K.D., Hoopes P.J. (1999)
 In S.L. Jacques (Ed.) *Proceedings of the 1999 SPIE*, Vol. 3592, 73-82.
 13. Thermal model predictions of ultrasonic lesion formation
Kolios M.C., Sherar M.D. and Hunt J.W. (1995)
 In L.J. Hayes (Ed.), *Advances in Bioheat and Mass Transfer in Biotechnology*,
 HTD-Vol.322 / BED-Vol.32.139-144. American Society of Mechanical Engineers.
 14. Modeling temperature gradients near large vessels in perfused tissues
Kolios, M.C. Sherar, M.D Worthington, A. E. and Hunt, J.W. (1994)
 In M. Ebadian and P. Oosthuizen (Eds.), *Fundamentals of Biomedical Heat
 Transfer*, HTD-Vol. 295, 23-30. American Society of Mechanical Engineers.

Papers in non-Refereed Conference Proceedings

1. Large-pitch steerable synthetic transmit aperture imaging (LPSSTA), Ying
 Li, **Michael C. Kolios**, Yuan Xu, Proc. SPIE 9790, Medical Imaging :Ultrasonic
 Imaging and Tomography, 97901Y. (2016)
2. Simultaneous photoacoustic and optical attenuation imaging of single cells using
 photoacoustic microscopy, Michael J. Moore, Eric M. Strohm, and **Michael C.
 Kolios**, Photons Plus Ultrasound: Imaging and Sensing. Proceedings of the SPIE.
 9708, 2016.
3. Acoustic and photoacoustic microscopy imaging of single leukocytes , Eric M.
 Strohm, Michael J. Moore, and **Michael C. Kolios**, Photons Plus Ultrasound:
 Imaging and Sensing. Proceedings of SPIE. 9708, 2016.

4. Photoacoustic spectral analysis to sense programmed erythrocyte cell death (eryptosis) for monitoring cancer response to treatment, M. N. Fadhel, F. Kibria, **M. C. Kolios**, SPIE Photonics West BioS, Feb 12-18, 2016, San Francisco, CA.
5. Photoacoustic simulation of microvessel bleeding: spectral analysis and its implication for monitoring vascular-targeted treatments, M. N. Fadhel, E. Hysi, J. Zalev, **M. C. Kolios**, SPIE Photonics West BioS, Feb 12-18, 2016, San Francisco, CA.
6. Effect of optical wavelength on photoacoustic investigations of pulsatile blood flow, Tae-Hoon Bok, Eno Hysi and **Michael C. Kolios** (2016), Proceedings of SPIE 9708, 97081M-1-7
7. Photoacoustic simulations of micro-vessels bleeding: spectral analysis and its implications for monitoring vascular-targeted treatments, Muhannad N. Fadhel, Eno Hysi, Jason Zalev and **Michael C. Kolios** (2016), Proceedings of SPIE 9708, 97081B-1-10
8. Acoustic and photoacoustic microscopy imaging of single leukocytes
Eric M. Strohm ; Michael J. Moore and **Michael C. Kolios**
Proc. SPIE 9708, Photons Plus Ultrasound: Imaging and Sensing 2016, 97082G (March 15, 2016); doi:10.1117/12.2211759
9. Photoacoustic spectral analysis to sense programmed erythrocyte cell death (eryptosis) for monitoring cancer response to treatment
Muhannad N. Fadhel ; Fayruz Kibria and **Michael C. Kolios**
10. Simultaneous photoacoustic and optical attenuation imaging of single cells using photoacoustic microscopy
Michael J. Moore ; Eric M. Strohm and **Michael C. Kolios**
Proc. SPIE 9708, Photons Plus Ultrasound: Imaging and Sensing 2016, 970850 (March 15, 2016); doi:10.1117/12.2212961
11. Effect of optical wavelength on photoacoustic investigations of pulsatile blood flow
Tae-Hoon Bok ; Eno Hysi and **Michael C. Kolios**
Proc. SPIE 9708, Photons Plus Ultrasound: Imaging and Sensing 2016, 97081M (March 15, 2016); doi:10.1117/12.2212108
12. Photoacoustic simulation of microvessel bleeding: spectral analysis and its implication for monitoring vascular-targeted treatments
Muhannad N. Fadhel ; Eno Hysi ; Jason Zalev and **Michael C. Kolios**
Proc. SPIE 9708, Photons Plus Ultrasound: Imaging and Sensing 2016, 97081B (March 15, 2016); doi:10.1117/12.2211774
13. Biodegradable polymer based theranostic agents fro photoacoustic imaging and cancer therapy, Yan J. Wang ; Eric M. Strohm ; **Michael C. Kolios**
Proc. SPIE 9708, Photons Plus Ultrasound: Imaging and Sensing 2016, 970826 (March 15, 2016); doi:10.1117/12.2212999
14. Monitoring cancer treatment response using photoacoustic and ultrasound spectral analysis in combination with oxygenation and perfusion measurements
Eno Hysi, Jonathan P. May, Lauren Wirtzfeld, Eljuz Undzys, Shyh-Dar Li and **Michael C. Kolios** (2016), SPIE Photonics West BioS
15. Effect of optical wavelength on photoacoustic investigations of pulsatile blood flow
Tae-Hoon Bok, Eno Hysi and **Michael C. Kolios** (2016)

- Proceedings of SPIE (in press)
16. Photoacoustic simulations of micro-vessels bleeding: spectral analysis and its implications for monitoring vascular-targeted treatments
Muhannad N. Fadhel, Jason Zalev, Eno Hysi and **Michael C. Kolios** (2016)
Proceedings of SPIE (in press)
 17. Classification of biological cells using a sound wave based flow cytometer
Eric M. Strohm ; Vaskar Gnyawali ; Mia Van De Vondervoort ; Yasaman Daghighi ; Scott S. H. Tsai and **Michael C. Kolios**
Proc. SPIE 9708, Photons Plus Ultrasound: Imaging and Sensing 2016, 97081A
(March 15, 2016); doi:10.1117/12.2211740
 18. Measuring intracellular motion in cancer cell using optical coherence tomography
Azhar Zam and **Michael C. Kolios**
Proc. SPIE 9707, Dynamics and Fluctuations in Biomedical Photonics XIII, 97070V
(March 17, 2016); doi:10.1117/12.2209652
 19. Functional and quantitative photoacoustic imaging for monitoring and predicting cancer treatment response
Eno Hysi, Lauren A. Wirtzfeld, Jonathan P. May, Shyh-Dar Li and **Michael C. Kolios** (2015)
Ultrasonic Imaging (in press)
 20. Changes in quantitative ultrasound parameters of excised mouse kidney and liver due to decellularization
Lauren A. Wirtzfeld, Elizabeth S. L. Berndl, Eno Hysi and **Michael C. Kolios** (2015)
Ultrasonic Imaging (in press)
 21. Realistic photoacoustic image simulations of collections of solid spheres using linear array transducer
Subhajit Karmakar, Eno Hysi, **Michael C. Kolios** and Ratan. K. Saha
Proceedings of SPIE 9323, 932339-1-8
 22. Sound wave based flow cytometry, Canadian Cancer Research Conference
E.M. Strohm, V. Gnyawali, Y. Daghighi, S.S.H. Tsai, **Michael C. Kolios**,
Nov. 2015, Montreal, Canada.
 23. Morphological characterization and classification of cancer cells using ultra-high frequency quantitative ultrasound and photoacoustics
Michael J. Moore, Eric M. Strohm, and **Michael C. Kolios**
Proceedings of the 2015 IEEE International Ultrasonics Symposium 2015.
 24. Probing the in vivo changes in oxygen saturation with photoacoustic imaging as a non-invasive means of assessing treatment progression
Eno Hysi, Jonathan P. May, Lauren Wirtzfeld, Eljusz Undyzs, Shyh-Dar Li, **Michael C. Kolios**
In 2015 Proc. of SPIE Vol. 9323, 93231Z (doi: 10.1117/12.2080372)
 25. High-frequency photoacoustic imaging of erythrocyte aggregation and oxygen saturation: probing hemodynamic relations under pulsatile blood flow

- Tae-Hoon Bok, Eno Hysi, **Michael C. Kolios**
In *2015 Proc. of SPIE Vol. 9323, 93231Q* (doi: 10.1117/12.2076650)
26. Gold-nanoshells as surface plasmon resonance (SPR)
K. Sathiyamoorthy and **Michael C. Kolios**
In *2015 Proc. of SPIE Vol. 9332, 93320G* (doi: 10.1117/12.2080303)
27. Numerical investigation of plasmonic properties of gold nanoshells
K. Sathiyamoorthy and **Michael C. Kolios**
In *2015 Proc. of SPIE Vol. 9340, 93400V* (doi: 10.1117/12.2080428)
28. Realistic photoacoustic image simulations of collections of solid spheres using linear array transducer
Subhajit Karmakar, Eno Hysi, **Michael C. Kolios** and Ratan K. Saha
In *2015 Proc. of SPIE Vol. 9323, 932339* (doi: 10.1117/12.2080794)
29. Multifunctional perfluorocarbon nanoemulsions for cancer therapy and imaging
Donald A. Fernandes, Dennis D. Fernandes, Yan J. Wang, Yuchong Li, Claudiu C. Gradinaru, D errick Rousseau, **Michael C. Kolios**
In *2015 Proc. of SPIE Vol. 9338, 93380R* (doi: 10.1117/12.2079914)
30. Laser-activated PLGA theranostic agents for cancer therapy in vivo
Yang Sun, Yan Wang, Chengcheng Nui, Eric Strohm, Yuanyi Zheng, Haitao Ran, Dong Wang, Rongzhong Huang, Yuping Gong, Di Zhou, Zhigang Wang, **Michael Kolios**
In *2014 IEEE International Ultrasonics Symposium Proceedings* pp. 919-922
31. Development of a microfluidic device with integrated high frequency ultrasound probe for particle characterization
Eric Strohm, Byeong-Ui Moon, Dae Kun Hwang, Scott Tsai and **Michael Kolios**
In *2014 IEEE International Ultrasonics Symposium Proceedings* pp. 1960-1963
32. Ultra-High Frequency Acoustic Impedance Imaging of Cancer Cells
Muhannad Fadhel, Elizabeth Berndl, Eric Strohm and **Michael Kolios**
In *2014 IEEE International Ultrasonics Symposium Proceedings* pp. 1912-1915
33. Assessing storage-induced red blood cell lesions using photoacoustic measurements of oxygen saturation and the frequency content of photoacoustic signals
Eno Hysi, Eric M. Strohm, Elizabeth S. L. Berndl, Jason P. Acker, **Michael C. Kolios**
In *2014 IEEE International Ultrasonics Symposium Proceedings* pp. 1662-1665
34. In vitro study of PLGA/PFH particles loaded with gold nanoparticles as theranostic agents for photoacoustic imaging and cancer therapy
Yan Wang, Eric Strohm, Yang Sun, Yuanyi Zheng, Zhigang Wang and **Michael Kolios**
In *2014 IEEE International Ultrasonics Symposium Proceedings* pp. 1658-1661

35. Effective scatterer size estimates in HT-29 spheroids at 55 MHz and 80 MHz
Lauren A. Wirtzfeld, Elizabeth S. L. Berndl, Gregory J. Czarnota and **Michael C. Kolios**
 In *2014 IEEE International Ultrasonics Symposium Proceedings* pp. 632-635
36. Quantitative ultrasound analyses of cell starvation in HT-29 pellets
 Lauren A. Wirtzfeld, Elizabeth S. L. Berndl, Gregory J. Czarnota and **Michael C. Kolios**
 In *2014 IEEE International Ultrasonics Symposium Proceedings* pp. 620-623
37. Longitudinal monitoring of oxygen saturation with photoacoustic imaging: An early, functional indicator of the in vivo efficacy of thermosensitive liposome treatments
 Eno Hysi, Jonathan P. May, Lauren Wirtzfeld, Elijus Undzys, Shyh-Dar Li and **Michael C. Kolios**
 In *2014 IEEE International Ultrasonics Symposium Proceedings* pp. 357-360
38. Temperature dependence of the Harmonics Generated by Nonlinear Ultrasound Beam Propagation in Water: A Simulation Study
Borna Maraghechi, Mojtaba H. Hasani, **Michael C. Kolios** and Jahan Tavakkoli
 In *2014 IEEE International Ultrasonics Symposium Proceedings* pp. 1456-1459
39. Simultaneous measurement of erythrocyte aggregation and oxygen saturation under in vitro pulsatile blood flow by high-frequency photoacoustics
Tae-Hoon Bok, Eno Hysi and **Michael Kolios**
 In *2014 IEEE International Ultrasonics Symposium Proceedings* pp. 1292-1295
40. Delay-encoded Transmission in Synthetic Aperture Imaging (DE-SAI)
Ping Gong, Arash Moghimi, **Michael Kolios** and Yuan Xu
 In *2014 IEEE International Ultrasonics Symposium Proceedings* pp. 1005-1008
41. A Low-cost High-SNR Ultrasound Imager: Modified Hadamard Synthetic Aperture Imaging (MH-SAI) System with a Sparse Receiving Array
Ping Gong, **Michael Kolios**, Yuan Xu
 In *2014 IEEE International Ultrasonics Symposium Proceedings* pp. 1658-1661
42. Quantifying Temperature Changes in Tissue-Mimicking Fluid Phantoms using Optical Coherence Tomography and Envelope Statistics
 Subaagari Seevaratnam, Amitpal Bains, Mashal Farid, Golnaz Farhat, **Michael Kolios**, Beau A. Standish
Proc. of SPIE Vol. 8938, 89380R
43. Detecting apoptosis in vivo and ex vivo using spectroscopic OCT and dynamic light scattering
Golnaz Farhat, Anoja Giles, Adrian Mariampillai, Victor X. D. Yang, Gregory J.

Czarnota and **Michael C. Kolios**
Proc. of SPIE Vol. 8952, 89520K

44. Circulating tumor cell detection using photoacoustic spectral methods
Eric M. Strohm, Elizabeth S. L. Berndl, **Michael C. Kolios**
Proc. of SPIE Vol. 8943, 89430D
45. Photoacoustic tissue characterization using envelope statistics and ultrasonic spectral parameters
Eno Hysi, Dustin Dopsa, **Michael C. Kolios**
Proc. of SPIE Vol. 8943, 89432E
46. PLGA/PFC Particles Loaded with Gold Nanoparticles as Dual Contrast Agents for Photoacoustic and Ultrasound Imaging
Yan J. Wang, Eric M. Strohm, Yang Sun, Chengcheng Niu, Yuanyi Zheng, Zhigang Wang, **Michael C. Kolios**
Proc. of SPIE Vol. 8943, 89433M
47. Identification of red blood cell rouleaux formation using photoacoustic ultrasound spectroscopy
Fayruz Kibria, Eno Hysi, Eric M. Strohm and **Michael C. Kolios**
Proc. of SPIE Vol. 8943, 894367
48. Optical Coherence Tomography detection of shear wave propagation in MCF7 cell modules
Marjan Razani, Adrian Mariampillai, Elizabeth S.L. Berndl, Tim-Rasmus Kiehl, Victor X.D. Yang, **Michael C. Kolios**
Proc. of SPIE Vol. 8946, 894610
49. Feasibility of using high-frequency ultrasound to assess scatterer motion
L. Wirtzfeld, E. Berndl and **Michael C. Kolios**
38th International Symposium on Ultrasonic Imaging and Tissue Characterization, Arlington, VA: June 10-12, 2013
50. Vaporization, photoacoustic and acoustic characterization of PLGA/PFH particles loaded with optically absorbing materials
Y. Sun, C. Niu, Y.J. Wang, E.M. Strohm, Y. Zheng, H. Ran, Z. Wang, **Michael C. Kolios**
Proceedings of the 2013 IEEE International Ultrasonics Symposium.
51. Nonlinear Dynamics of Polymer Shell Ultrasound Contrast Agents at 8-32 MHz Ultrasonic Excitations
Sojahrood, Amin Jafari, Karshafian, Raffi; Stride, Eleanor; **Kolios, Michael**
In *2013 IEEE International Ultrasonics Symposium Proceedings* pp. 314-317

52. Sound Speed Estimation in Single Cells Using the Ultrasound Backscatter Power Spectrum
E.M. Strohm, and **Michael C. Kolios**
In ICA 2013 Montreal, 19:075012. Montreal, Canada: ASA, (oral, June 3, 2013).
53. Acoustical Imaging of Internal Spheroid Structures for a Series of Frequencies
E.S. Berndl, L. Wirtzfeld, E.M. Strohm, **Michael C. Kolios**
In ICA 2013 Montreal, 19:075086. Montreal, Canada: ASA, 2013
54. Acoustic and Photoacoustic Imaging of Spheroids
Michael C. Kolios, E.S. Berndl, L. Wirtzfeld, E.M. Strohm, and G.J. Czarnota
In ICA 2013 Montreal, 19:075075. Montreal, Canada: ASA, 2013.
55. An Analysis of the Acoustic Properties of the Cell Cycle and Apoptosis in MCF-7 Cells
M.M. Pasternak, E.M. Strohm, and **Michael C. Kolios**
In ICA 2013 Montreal, 19:075014. Montreal, Canada: ASA, 2013
56. A photoacoustic technique to measure the properties of single cells
E.M. Strohm, E. Berndl, **Michael C. Kolios**
SPIE Proceedings 2013
57. Photoacoustic measurements of single red blood cells
E.M. Strohm, E. Hysi, **Michael C. Kolios**
Proceedings of the 2012 IEEE International Ultrasonics Symposium.
58. Photoacoustic radiofrequency spectroscopy (PA-RFS): a technique for monitoring absorber size and concentration
Eno Hysi, Dustin Dopsa and **Michael C. Kolios**
Proc. of SPIE 8581, 85813W-1-6
SPIE Photonics West – Feb 2-7, 2013 – San Francisco, CA
59. Photoacoustic assessment of oxygen saturation: effect of red blood cell aggregation
Eno Hysi, Ratan K. Saha and **Michael C. Kolios**
Proc. of SPIE 8581, 85813T-1-7
SPIE Photonics West – Feb 2-7, 2013 – San Francisco, CA
60. Simultaneous photoacoustic detection of red blood cell aggregation and oxygenation
Eno Hysi, Ratan K. Saha and **Michael C. Kolios**
In 2012 IEEE International Ultrasonics Symposium Proceedings, in press
IEEE International Ultrasonics Symposium – Oct 7-10, 2012 – Dresden, Germany
61. Acoustical Imaging of Internal Spheroid Structures at a variety of Frequencies
E. Berndl, L Wirtzfeld and **Michael C. Kolios**

21st International Congress on Acoustics/ 165th Meeting of the Acoustical Society of America/ 52nd Meeting of the Canadian Acoustical Association, Montreal, Canada: June 2-7, 2012.

62. Photoacoustic measurements of single red blood cells
Eric Strohm, Eno Hysi and **Michael C. Kolios**
In 2012 IEEE International Ultrasonics Symposium Proceedings, in press
IEEE International Ultrasonics Symposium – Oct 7-10, 2012 – Dresden, Germany
63. Photoacoustic measurements of single red blood cells
Eric Strohm, Eno Hysi and **Michael C. Kolios**
8th International Conference on Ultrasonic Biomedical Microscanning – Sep 24-27, 2012 – St. Paulin, QC
64. Listening to the aggregation of red blood cells with photoacoustics
Eno Hysi, Ratan K. Saha and **Michael C. Kolios**
Chemical Biophysics Symposium – April 13-15, 2012 – Toronto, ON
65. On the potential of using photoacoustic spectroscopy to monitor red blood cell aggregation
Eno Hysi, Ratan K. Saha and **Michael C. Kolios**
Proc. of SPIE 8222, 82220Q
SPIE Photonics West – Jan 21-26, 2012 – San Francisco, CA
66. Detection and characterization of red blood cell (RBC) aggregation with photoacoustics
Eno Hysi, Ratan K. Saha, Min Rui and **Michael C. Kolios**
Proc. of SPIE 8223, 82233E
SPIE Photonics West – Jan 21-26, 2012 – San Francisco, CA
67. Photoacoustic spectral analysis for detecting red blood cell aggregation
Eno Hysi, Ratan K. Saha and **Michael C. Kolios**
Canadian Institutes of Health Research Symposium on Novel Cancer Therapies and Innovations in Treatment Monitoring – Nov 14-15, 2011 – Toronto, ON
68. Characterization of red blood cell aggregation with photoacoustics: a theoretical and experimental study
Eno Hysi, Ratan K. Saha and **Michael C. Kolios**
In 2011 IEEE International Ultrasonics Symposium Proceedings, 1187-1190
IEEE International Ultrasonics Symposium – Oct 18-21, 2011 – Orlando, FL
69. Detecting red blood cell aggregation with photoacoustics: theory and experiment
Eno Hysi, Ratan K. Saha and **Michael C. Kolios**
Canadian-American-Mexican Graduate Student Physics Conference – Sept 29-Oct 1, 2011 – Washington, DC

70. A simulation study on the photoacoustic signals from non-aggregating and aggregating erythrocytes
Ratan K. Saha, Eno Hysi and **Michael C. Kolios**
Ultrasonic Imaging and Tissue Characterization Symposium – June 13-15, 2011 – Arlington, VA
71. Theoretical and experimental investigation of the dynamics of ultrasound contrast agents: occurrence of higher subharmonics
Amin Jafari Sojahrood, Raffi Karshafian, Gregory J Czarnota, Yanjun Gong, Eno Hysi, Tyrone Porter and **Michael C. Kolios**
Ultrasonic Imaging and Tissue Characterization Symposium – June 13-15, 2011 – Arlington, VA
72. Design and characterization of laser activated micro-bubbles for cancer therapy
Eno Hysi, Sankar Narasimhan and **Michael C. Kolios**
Canadian Undergraduate Physics Conference – Oct 21-25, 2010 – Halifax, NS
73. Optical excitation of ultrasound contrast agents
Eno Hysi, Sankar Narasimhan and **Michael C. Kolios**
Canadian Undergraduate Physics Conference – Oct 1-5, 2009 – Edmonton, AB
74. Exploring the use of a commercial ultrasound probe for the reconstruction of photoacoustic images
Eno Hysi and **Michael C. Kolios**
Canadian Undergraduate Physics Conference – Oct 16-20, 2008 – Toronto, ON
75. Measuring intracellular motion using dynamic light scattering with optical coherence tomography in a mouse tumor model
Golnaz Farhat, Adrian Mariampillai, Kenneth K. C. Lee, Victor X. D. Yang, Gregory J. Czarnota and **Michael C. Kolios** (2012)
Proc. of SPIE Vol. 8230, 823002-1:7
76. Biomechanical properties of soft tissue measurement using Optical Coherence Elastography
Marjan Razani, Adrian Mariampillai, Cuiru Sun, Victor X.D. Yang, **Michael C. Kolios** (2012)
Proc. of SPIE Vol. 8207, 820758-1:8
77. On the potential of using photoacoustic spectroscopy for monitoring red blood cell aggregation
Eno Hysi, Ratan K. Saha, and **Michael C. Kolios** (2012)
Proc. of SPIE Vol. 8222 82220Q-10
78. Frequency Analysis of Optoacoustic Signals in Laser Heated Tissues
Annie Lad route, Michelle P. Patterson, **Michael C. Kolios**, William M. Whelan (2012)
Proc. of SPIE Vol. 8223 822341-1

79. Photoacoustic spectral characterization of perfluorocarbon droplets
Eric Strohm, Ivan Gorelikov, Naomi Matsuura, **Michael Kolios** (2012)
Proc. of SPIE Vol. 8223 82232F-1
80. Detection and characterization of red blood cell (RBC) aggregation with photoacoustics
Eno Hysi, Ratan K. Saha, Min Rui and **Michael C. Kolios** (2012)
Proc. of SPIE Vol. 8223 82233E-1
81. Optoacoustic signal amplitude and frequency spectrum analysis laser heated bovine liver ex vivo
Michelle P. Patterson, Christopher B. Riley, **Michael C. Kolios** and William M. Whelan
In *2011 IEEE International Ultrasonics Symposium Proceedings* pp. 300-303
82. Characterization of Red Blood Cell Aggregation with Photoacoustics: A Theoretical and Experimental Study
Eno Hysi, Ratan K. Saha and **Michael C. Kolios**
In *2011 IEEE International Ultrasonics Symposium Proceedings* pp. 1187-1190
83. Sound velocity and attenuation measurements of perfluorocarbon liquids using photoacoustic methods
Eric M. Strohm and **Michael C. Kolios**
In *2011 IEEE International Ultrasonics Symposium Proceedings* pp.2368
84. A Monte Carlo study on the effects of erythrocyte oxygenation on photoacoustic signals
Ratan K. Saha and **Michael C. Kolios**
In *2011 IEEE International Ultrasonics Symposium Proceedings* pp. 2372-2375
85. Ultrasound drug targeting to tumors with thermosensitive liposomes
Mark J. Ernstring, Arthur Worthington, Jonathan P. May, Tatsuaki Tagami, Michael C. Kolios, Shyh-Dar Li
In *2011 IEEE International Ultrasonics Symposium Proceedings* pp. 1-4
86. Dynamics of laser induced thermoelastic expansion of native and coagulated ex-vivo soft tissue samples and their optical and thermomechanical properties
Behrouz Soroushian, William M. Whelan, **Michael C. Kolios** (2011)
Proc. of SPIE Vol. 7899, 78990Z-1:5
87. Detecting abnormal vasculature from photoacoustic signals using wavelet-packet features
J. Zalev, and **M.C. Kolios** (2011)
Proc. of SPIE Vol. 7899, 78992M-1:15
88. Optical coherence tomography speckle decorrelation for detecting cell death
G. Farhat, A. Mariampillai, V.X.D. Yang, G.J. Czarnota and **M.C. Kolios** (2011)

Proc. of SPIE Vol. 7907, 790737

89. Cell death monitoring using quantitative optical coherence tomography methods
G. Farhat, V.X.D. Yang, **M.C. Kolios** and G.J. Czarnota (2011)
Proc. of SPIE Vol. 7907, 790740
90. Dynamics of laser induced thermoelastic expansion of native and coagulated ex-vivo soft tissue samples and their optical and thermomechanical properties
Behrouz Soroushian, William M. Whelan, **Michael C. Kolios** (2011)
Proc. of SPIE Vol. 7899, 78990Z-1:5
91. Detecting abnormal vasculature from photoacoustic signals using wavelet-packet features
J. Zalev and **M.C. Kolios** (2011)
Proc. of SPIE Vol. 7899, 78992M-1:15
92. Optical droplet vaporization of micron-sized perfluorocarbon droplets and their photoacoustic detection
Eric M. Strohm, M. Rui, I. Gorelikov, N. Matsuura, and **Michael C. Kolios** (2011)
Proc. of SPIE 7899 78993H-1:7
93. Optical droplet vaporization (ODV): photoacoustic characterization of perfluorocarbon droplets
Eric M. Strohm, I. Gorelikov, N. Matsuura and **Michael C. Kolios** (2010)
IEEE International Ultrasonics Symposium Proceedings
94. A comparison of cellular ultrasonic properties during apoptosis and mitosis using acoustic microscopy
Eric M. Strohm, M. Pasternak, M. Rui, **Michael C. Kolios**, and A. Cells (2010)
IEEE International Ultrasonics Symposium Proceedings
95. Photoacoustic Microscopy and Spectroscopy of Individual Red Blood Cells
Min Rui, Wolfgang Bost, Eike C. Weiss, Robert Lemor and **Michael C. Kolios**
OSA – Optics & Photonics Congress: BIOMED/DH 2010
96. Gigahertz optoacoustic imaging for cellular imaging
Min Rui, Sankar Narasimhan, Wolfgang Bost, Frank Stracke, Eike Weiss, Robert Lemor, **Michael C. Kolios** (2010)
Proc. of SPIE Vol. 7564, 756411
97. Optoacoustic imaging of an animal model of prostate cancer
Michelle P. Patterson, Michael G. Arsenault, Chris Riley, **Michael C. Kolios** and William M. Whelan (2010)
Proc. of SPIE Vol. 7564, 75641B
98. A Theoretical Model for RF Ablation of Kidney Tissue and its Experimental Validation

Mihaela Pop, Sean R. H. Davidson, Mark Gertner, Michael A.S. Jewett, Michael D. Sherar and **Michael C. Kolios** (2010)
Lecture Notes in Computer Science, Volume 5958, p 119-129

99. Quantitative Optical Coherence Tomography Imaging of Cell Death
G. Farhat, V.X.D. Yang, **M.C. Kolios** and G.J. Czarnota
Biomedical Optics, JMA47, OSA Technical Digest (Optical Society of America, 2010)
100. Speckle Decorrelation as a Method for Assessing Cell Death
G. Farhat, A. Mariampillai, V.X.D. Yang, G.J. Czarnota and **M.C. Kolios**
Biomedical Optics, BSuD12, OSA Technical Digest (Optical Society of America, 2010)
101. Dynamics of thermoelastic expansion for native and coagulated ex-vivo bovine liver tissues
Behrouz Soroushian, William M. Whelan, **Michael C. Kolios**
Proc. of SPIE 2010, Vol. 7564, 75641N, DOI: 10.1117/12.843042
102. Quantifying the Ultrasonic Properties of Cells During Apoptosis using Time Resolved Acoustic Microscopy
Eric M. Strohm, **Michael C. Kolios** (2009)
In *2009 IEEE International Ultrasonics Symposium Proceedings* pp. 49-52
103. A Novel Technique for Measuring Ultrasound Backscatter from Single Micron-Sized Objects
Omar Falou, Min Rui, Ahmed El-Kaffas, J. Carl Kumaradas and **Michael C. Kolios** (2009)
In *2009 IEEE International Ultrasonics Symposium Proceedings* pp. 49-52
104. Signal analysis for the estimation of mechanical parameters of viable cells using GHz-acoustic microscopy
Sebastian Brand, Nick Grube, Kay Raum, Eric M. Strohm and **Michael C. Kolios** (2009)
In *2009 IEEE International Ultrasonics Symposium Proceedings* pp. 2248-2251
105. High Frequency Optoacoustic Microscopy
Wolfgang Bost, Frank Stracke, Eike C. Weiß, Sankar Narasimhan, **Michael C. Kolios** and Robert Lemor
Proc. 2009 IEEE EMBS, pp. 5883-5886
106. Measuring the Mechanical Properties of Cells using Acoustic Microscopy
Eric M. Strohm, **Michael C. Kolios**
Proc. 2009 IEEE EMBS, pp. 6042-6045
107. Measuring Scattering in apoptotic cancer cells using ultra high frequency acoustic microscopy
Eric Strohm, **Michael C. Kolios** (2009)

108. A comparison of imaging modalities to monitor thermal and mechanical ultrasound tissue therapies
Arthur Worthington, Sankar Narasimhan, Jahan Tavakkoli, and **Michael C. Kolios**
Canadian Acoustics / Acoustique canadienne Vol. 37 No. 3, p 170-171
109. Biomedical ultrasound imaging from 1 to 1000MHz
Michael C. Kolios (2009)
Canadian Acoustics / Acoustique canadienne Vol. 37 No. 3, p 35-42
110. Optoacoustic imaging of thermal lesions
Michel G. Arsenault, **Michael C. Kolios** and William M. Whelan (2009)
Proc. SPIE 2009 Volume 7177, pp. 71771V
111. Assessment of opto-mechanical behavior of biological samples by interferometry, Behrouz Soroushian, William M. Whelan, **Michael C. Kolios** (2009)
Proc. SPIE 2009 Volume 7177, pp. 71771X
112. High Frequency Ultrasound Scattering From Mixtures Of Two Different Cells Lines: Tissue Characterization Insights
M.C. Kolios and G.J. Czarnota (2008) 11th Sendai Symposium on Advanced Biomedical Ultrasound, Sendai, Japan (see The Journal of the Acoustical Society of America -- May 2008 -- Volume 123, Issue 5, p. 2999)
113. New Insights into High Frequency Ultrasonic Tissue Scattering
M.C. Kolios and G.J. Czarnota (2008) 3rd International Symposium on Medical, Bio- and Nano-Electronics in Sendai, Japan [O4-2]
114. Optoacoustic Detection of Tissue Coagulation: Potential Tool for Monitoring Thermal Therapies.
W. Whelan, R. Castelino, M. MacPhee, K. Lund and **M. C. Kolios** (2008)
Photodiagnosis and Photothermal Therapy, 5, Suppl 1, p. S26.
115. Photoacoustic detection of protein coagulation in albumen-based phantoms
Robin F. Castelino, William M. Whelan, and **Michael C. Kolios** (2008)
The Ninth Conference on Biomedical Thermoacoustics, Optoacoustics, and Acousto-optics, edited by Alexander A. Oraevsky, Lihong V. Wang,
Proc. SPIE Volume 6856, 685626
116. Finite-element Modeling of Elastic Surface Modes and Scattering from Spherical Objects
O. Falou, J. C. Kumaradas and **M. C. Kolios** (2007)
Proceedings of the COMSOL Users Conference 2007, Boston
117. Transmission ultrasound imaging to guide thermal therapy

- E. Soleimankhani, **M. C. Kolios** (2007) Proceedings of the IEEE International Ultrasonics Symposium, Pages: 1812 - 1815
118. Extended system transfer compensation for parametric imaging in ultrasonic response assessment of anti-cancer therapies
S. Brand, G. J. Czarnota, **M. C. Kolios** (2007) Proceedings of the IEEE International Ultrasonics Symposium, Pages: 2481-2484
119. Two-Dimensional Velocity Estimation for Doppler Optical Coherence Tomography
D Morofke, **M Kolios**, VXD Yang (2007) SPIE Symposium on Biomedical Optics, 6429-86, 2007
120. Modeling Acoustic Wave Scattering from Cells and Microbubbles
Omar Falou, J. Carl Kumaradas and **Michael C. Kolios** (2006) COMSOL Multiphysics Conference, Cambridge, MA. Pages: In press
121. Investigating the Effect of Cell Size on the Backscatter from Suspensions of Varying Volume Fractions
R. E. Baddour, **M. C. Kolios** (2006) Proceedings of the IEEE International Ultrasonics Symposium, Pages:637 - 640
122. Finite Element Modeling of Ultrasound Scattering by Spherical Objects and Cells
O. Falou, J. C. Kumaradas, **M. C. Kolios** (2006) Proceedings of the IEEE International Ultrasonics Symposium, Pages:2072 - 2075
123. Ultrasonic Monitoring of Epithelial Cell Death Using Spectral and Wavelet Based Signal Analysis of Rf-Backscatter Signals
S. Brand, B. Solanki, G. Czarnota, D. Foster, **M. Kolios** (2006) Proceedings of the IEEE International Ultrasonics Symposium, Pages:626 - 629
124. Examination of contrast mechanisms in optoacoustic imaging of thermal lesions
Christian Richter; Gloria Spirou; Alexander A. Oraevsky; William M. Whelan; **Michael C. Kolios** (2006) Proceedings Vol. 6086 Photons Plus Ultrasound: Imaging and Sensing 2006: The Seventh Conference on Biomedical Thermoacoustics, Optoacoustics, and Acousto-optics, Alexander A. Oraevsky; Lihong V. Wang, Editors
125. Falou, O., J. C. Kumaradas and **M. C. Kolios** (2005). A Study of Femlab for Modeling High Frequency Ultrasound Scattering by Spherical Objects. COMSOL Multiphysics Conference, Cambridge, MA. Pages: 273-277

126. Falou O., Kumaradas J. C., and **Kolios M. C.**, "Finite-element modelling of acoustic wave scattering from fluid, rigid and elastic objects," Journal of the Canadian Acoustical Association, 2005. 33(3): 84-85.
127. The effect of packing order on ultrasound backscatter from cells at different volume fractions
Baddour R. E., **Kolios M. C.**, Journal of the Canadian Acoustical Association, 2005. 33(3): 100-101.
128. Visualization of Apoptotic Cells using Scanning Acoustic Microscopy.
S. Brand, E.C. Weiss, G.J. Czarnota, R. Lemor and **M.C. Kolios** (2005) Proceedings of the IEEE International Ultrasonics Symposium, Volume 2, 882 - 885
129. The Effect of Volume Fraction on the Backscatter from Nucleated Cells at High Frequencies
Baddour, R.E. and **Kolios, M.C.** (2005) Proceedings of the IEEE International Ultrasonics Symposium, Volume 3, 1672 - 1674
130. Using High Frequency Ultrasound Envelope Statistics to Determine Scatterer Number Density in Dilute Cell Solutions.
A.S. Tunis, R.E. Baddour, G.J. Czarnota, A. Giles, A.E. Worthington, M.D. Sherar and **M.C. Kolios** (2005) Proceedings of the IEEE International Ultrasonics Symposium, Volume 2, Page(s):878 - 881
131. Attenuation mapping for monitoring of thermal therapy using ultrasound transmission imaging
Parmar N. and **Kolios, M.C.** Proceedings 26th IEEE EMBS Annual International Conference in 2004 San Francisco, CA, Volume 1, Pages:1329 - 1332
132. High Frequency Ultrasound Signal Statistics From Mouse Mammary Tissue During Involution
A.S. Tunis, D. Spurrell, D. McAlduff, A. Giles, M. Hariri, R. Khokha, M. D. Sherar, G. J. Czarnota, and **M. C. Kolios** (2004) Proceedings of the IEEE International Ultrasonics Symposium, Montreal, Canada, Pages:768 - 771
133. High frequency ultrasound in monitoring liver suitability for transplantation
R.M. Vlad, G.J. Czarnota, A. Giles, M.D. Sherar, J.W. Hunt and **M.C. Kolios** Proceedings of the IEEE International Ultrasonics Symposium, Montreal, Canada, 2004, Volume 2, Pages:830 - 833
134. Towards understanding the nature of high frequency backscatter from cells and tissues: an investigation of backscatter power spectra from different concentrations of cells of different sizes
M.C. Kolios, G.J. Czarnota, A. Worthington, A. Giles and M.D. Sherar Proceedings of the IEEE International Ultrasonics Symposium, Montreal, Canada, 2004 Volume 1, Pages:606 - 609

135. An investigation of backscatter power spectra from cells, cell pellets and microspheres
M.C. Kolios, L. Taggart, R.E. Baddour, F.S. Foster, J.W. Hunt, G.J. Czarnota, M.D. Sherar (2003)
 Proceedings of the 2003 IEEE International Ultrasonics Symposium, Pages: 752 – 757
136. Ultrasound Backscatter Signal Characterization and Classification Using Autoregressive Modeling and Machine Learning Algorithms
Farnoud N., Krishnan, S. and **Kolios M.C.** (2003)
 Proceedings of the 25th Annual International IEEE EMBS, p2861 - 2864 Vol.3
137. High frequency ultrasound imaging of changes in cell structure including apoptosis
R.E. Baddour, M.D. Sherar, G.C. Czarnota, J.W. Hunt, L. Taggart, A. Giles, N.R. Farnoud, and **M.C. Kolios** (2002) Proceedings of the 2002 IEEE International Ultrasonics Symposium
138. Ultrasound backscatter microscopy/spectroscopy and optical coherence (Doppler) tomography for mechanism-specific monitoring of photodynamic therapy in vivo and in vitro
 Yang, Victor X., Czarnota, Greg J., Vitkin, I. Alex, **Kolios, Mike C.**, Sherar, Michael D., de Boer, Johannes F., Tromberg, Bruce J., Wilson, Brian C. (2002)
 In Proc. SPIE Vol. 4612, p. 128-135, Optical Methods for Tumor Treatment and Detection: Mechanisms and Techniques in Photodynamic Therapy XI, Thomas J. Dougherty; Ed.
139. Analysis of Ultrasound Backscatter from Ensembles of Cells and Isolated Nuclei
M.C. Kolios, G.J. Czarnota, M. Hussain, F. S. Foster, J.W. Hunt and M.D. Sherar (2001)
 In Proceedings of the 2001 IEEE International Ultrasonics Symposium
140. New Acoustic Beams Designed for Rapid Lesion Formation: Limitations Near the Skin During Multiple Lesion Treatments
 J.W. Hunt, A.Y. Xuan, E. Seto, A.W. Worthington, L. Chen, **M.C. Kolios**, and Sherar M.D. (1997)
 In Proceedings of the 1997 IEEE International Ultrasonics Symposium
141. Spatial Correlation of Flow Induced Temperature Gradients During Tissue Heating with Vascular Geometry using CT Angiography: Implications for Thermal Therapy
Kolios, M.C. Sherar, M.D, Worthington, A. E., Holdsworth, D.W. and Hunt, J.W. (1997)
 In Proceedings of the Canadian Organization of Medical Physicists (1997), p. 149-151 (abstract also published in Medical Physics (24)1206, 1997)
142. Correlation of steady state and transient temperature profiles in perfused fixed kidneys: implications for thermal models.

Kolios, M.C. Sherar, M.D, Worthington, A. E. and Hunt, J.W. (1996)
In C. Franconi, G. Archangeli and R. Cavaliere (Eds.), *Hyperthermic Oncology* 1996,
509-511. Editorgrafica srl, Roma.

Invited contributions and/or technical reports

1. *University of Orléans / Centre de Biophysique Moléculaire-CNRS UPR4301 – Orléans, France – September 2016*
Photoacoustics for biomedical imaging and treatment monitoring
2. *Radiation Physics Seminar, Princess Margaret Cancer Centre, Toronto May 9, 2016 – Ultrasound and photoacoustics for cancer treatment monitoring*
3. *3rd International Academic Confrence of the Chinese Society of Ultrasound Molecular Imaging (CSUMI) – Chongqing, China – April 2016*
Using photoacoustics to probe cancer therapy
4. *University of Illinois at Urbana–Champaign – ELCE Seminars March 2016 - Zeus' ThunderBolt: Using photoacoustics to probe tissue structure at multiple length scales by listening to 1 to 1000 MHz ultrasound waves*
.
5. *Industry Day: Light-Based Technologies for Healthcare Conference, Impact Centre, University of Toronto, Ontario July 2015 - Hyperion's delight: tales of biomedical applications of light*
6. *MITP Visionary Seminar, Duke University, North Carolina April 2015 - A contemporary ceraunoscope: Using photoacoustics to probe tissue structure at multiple length scales by listening to 1 to 1000 MHz ultrasound waves*
7. *BRIC Seminar Series Presentation, UNC School of Medicine, North Carolina April 2015 - A contemporary ceraunoscope: Using photoacoustics to probe tissue structure at multiple length scales by listening to 1 to 1000 MHz ultrasound waves*
8. *Special Seminar, Stanford University, California February 2015 – A contemporary ceraunoscope: Probing different biological length scales by listening to 1 to 1000 MHz ultrasound waves*
9. *Physics Department Seminar Series, Carleton University, Ontario October 2014 - A contemporary ceraunoscope: Probing different biological length scales by listening to 1 to 1000 MHz ultrasound waves*

10. “*Lights, sound, action: illuminating biological structure and function at different length scales by eavesdropping at 1 to 1000 MHz*”, Ultrasonic Imaging and Tissue Characterization Symposium, Arlington, Virginia – June 2014
11. “*Lights, sound, action: probing biological structures at different length scales by listening to photoacoustic sound waves*”, University of Ottawa, Ontario, Department of Physics – March 2014
12. *A Contemporary Ceraunoscope: Probing Different Biological Length Scales Using Photoacoustics by Listening at 1 to 1000 MHz Ultrasound Waves*, Boston University, Boston, College of Engineering – April 2014
13. *Arges, Steropes and Brontes: Biomedical Applications of Photoacoustic imaging*, Odette Cancer Centre, Sunnybrook Hospital, Ontario – March 2014
14. *Probing Tumors at different length scales by listening to photoacoustics sound waves*, 1st National and 2nd International Conference, Chinese Society of Ultrasound Molecular Imaging (CSUMI), Chongping, China – April 2014
15. **E.M. Strohm**, M.C. Kolios, “Probing Single Cells Using High Frequency Ultrasound and Photoacoustics”, IEEE Magnetics Society, Toronto Chapter – April, 2013
16. **E.M. Strohm**, M. Pasternak, M.C. Kolios, “The life and death of cells: an acoustic microscopy investigation”, The Acoustics 2012 Hong Kong conference and exhibition / 163rd meeting of the Acoustical Society of America, Hong Kong – May 2012
17. [**Plenary Talk**] *Canadian Undergraduate Physics Conference* McMaster University, *Lights, sound, action: illuminating biological structure at different length scales by listening to sound waves from 1 to 1000 MHz* – October 2013
18. *Physics and Astronomy Colloquium*, University of Waterloo, Ontario, *Biomedical Applications of Photoacoustics* - April 2013
19. *11th Annual Ultrasonic Transducer Engineering Conference*, Los Angeles, California - *Photoacoustic Microscopy: Imaging of Biological Sample at GHz Frequency* April 2013
20. *IAMPOV (Innovations and Applications of Monitoring Perfusion, Oxygenation and Ventilation) International Symposium* - Yale University New Haven, CT, July 2012
On the potential of photoacoustic imaging for monitoring blood oxygenation and red blood cell aggregation

21. *BIGSS – Biophotonics and Imaging Graduate Summer School – NUI Galway, Ireland June 2012 – Course module (4hrs)*
From light scattering to light absorption: using principles from ultrasound imaging to guide OCT and photoacoustic imaging development
22. [**Plenary Talk**] *1st International Symposium on Ultrasound Molecular Imaging (ISUMI), Chongqing, China, April 2012*
Optical droplet vaporization: the use of optically activated micro and nano emulsions for photoacoustic theranostics
23. [**Keynote address**] *International Workshop on Biomedical Sciences and Technologies (IWBMST-2011), Chennai, India, March 2011*
Biomedical ultrasound and photoacoustics: probing disease using sound and light
24. *Seminar at the University of Prince Edward Island, August 2010*
Biomedical applications of ultrasound and photoacoustics: From 1 to 1000 MHz.
25. *Laboratory of Biorheology and Medical Ultrasound Research Center of CHUM & the Research Group Biomedical Sciences and Technologies (GRSTB) from Ecole Polytechnique and University of Montreal (December 2009)*
Biomedical applications of ultrasounds: from 1 to 1000 MHz
26. [**Plenary Talk**] *2009 Annual Conference of the Canadian Acoustical Association*
Biomedical ultrasound imaging from 1 to 1000MHz
27. *AIUM 2009 Annual Convention*
Acoustic microscopy of live cells and cell aggregates
28. *UBM 2008: 6th International Conference on Ultrasonic Biomedical Microscanning* High frequency ultrasound scattering from cell aggregates at different frequencies: tissue characterization and insights
29. *Imaging Network of Ontario 2008 Symposium – 7th Imaging Symposium (Focused Ultrasound Devices for Noninvasive Surgery and Drug Delivery) On the Potential of Photoacoustic Imaging for Monitoring Thermal Therapies*
30. *Acoustics 08: Joint meeting of the Acoustical Society of America, European Acoustics Association and Societe Francaise D'acoustique – Paris July 2008 -*
Modeling scattering from cells and biological structures.
31. *Radiation Oncology Rounds, Sunnybrook Health Science Center, March 2008 –*
Functional Optoacoustic Imaging in Biology and Medicine
32. *11th Sendai Symposium on Advanced Biomedical Ultrasound, Sendai, Japan March 2008-* High Frequency Ultrasound Scattering From Mixtures Of Two Different Cells Lines: Tissue Characterization Insights

33. *3rd International Symposium on Medical, Bio- and Nano-Electronics in Sendai, Japan, March 2008* - New Insights into High Frequency Ultrasonic Tissue Scattering
34. *Lawson Health Research Institute Seminar Series, October 2007* - Functional Optoacoustic Imaging in Biology and Medicine
35. *Third Ontario Consortium for Small Animal Imaging High-Frequency Ultrasound Workshop, London Ontario, June 2007* - High Frequency Ultrasound Tissue Characterization
36. *32nd International Symposium on Ultrasonic Imaging and Tissue Characterization Arlington, Virginia, May 16-18, 2007* - High Frequency Ultrasound Scattering From Mixtures Of Two Different Cells Lines: Tissue Characterization Insights
37. *Physics Department Seminar Series, Brock University, March 2007* – Ultrasound Imaging And Spectroscopy For The Detection Of The Structural Changes During Cell Death
38. *Physics & Astronomy Colloquium, University of Western Ontario, February 2007* - High Frequency Ultrasound Imaging and Spectroscopy: Applications to Cancer Treatment Monitoring
39. *Radiation Oncology Rounds, Sunnybrook Health Science Center, January 2007* - High Frequency Ultrasound Imaging and Spectroscopy for the Detection of Changes in Cells and Tissues (link to talk: <http://tinyurl.com/3b3vyk>)
40. *Lizzi Memorial Session, meeting of the Acoustical Society of America in Providence, Rhode Island, June 6th, 2006* - Scattering of high frequency ultrasound cells and cell ensembles: In search of the dominant scattering source
41. *Toronto-Waterloo Biophysics Symposium University of Waterloo, April 21, 2006* - Monitoring Structural Changes of Cells and Tissues Using High Frequency Ultrasound Backscatter
42. *Electrical and Computer Engineering Sponsored Seminars – University of Illinois at Urbana-Champaign, Spring 2006* - Scattering of high frequency ultrasound by micrometer particles, cells and cell ensembles
43. *Ontario Consortium for Small Animal Imaging: High frequency Ultrasound Workshop, 23rd February 2006, Radisson Admiral – Toronto Harbourfront* - Scattering of high frequency ultrasound by micrometer particles, cells and cell ensembles
44. *AIUM 2005 Annual Convention Orlando, Florida* – Monitoring Structural Changes of Cells and Tissues Using High Frequency Ultrasound Backscatter

45. *Toronto Biotechnology Initiative* – Micrometer particle sizing using high frequency ultrasound with biological applications, Feb. 2005, Toronto, Ontario
46. *Ontario Consortium for Small Animal Imaging / High Frequency Ultrasound Workshop* – Ultrasound tissue characterization at high frequencies, Feb. 2005, London Ontario
47. *2004 Canadian Association of Physicists (CAP) Congress* (held jointly with the Canadian Astronomical Society (CASCA), the Canadian Organization of Medical Physicists/Canadian College of Physicists in Medicine (COMP/CCPM), and the Biophysical Society of Canada (BSC))
48. Micrometer particle sizing using high frequency ultrasound with biological applications (invited by chair of the division of Instrumentation and Measurement Physics)
49. High frequency ultrasound imaging and spectroscopy for the imaging of cell damage and death (invited by chair of the division of Medical and Biological Physics)
50. *WFUMB/AIUM 2003 Congress, Montreal 2003*
Ophthalmology/HFU session - Ultrasound Imaging of Apoptosis
51. *Seventeenth Annual Meeting Of the North American Hyperthermia Society*, “What Is New In Hyperthermia Technology” Session Louisville, Kentucky, 1997
52. Ultrasound lesion formation and tissue changes

Abstracts and/or papers read

1. [Photoacoustic radiofrequency spectroscopy for monitoring cancer treatment response](#), Eno Hysi, Lauren A. Wirtzfeld, Jonathan P. May, Elijus Undzys, Shyh-Dar Li and **Michael C. Kolios**, In 2016 IEEE International Ultrasonics Symposium Proceedings (in press)
2. Ultrasound and photoacoustic based flow cytometry , E.M. Strohm, V. Gnyawali, M. Van De Vondervoort, Y. Daghighi, **M.C. Kolios**, S.S.H. Tsai, St. Michael’s Research Training Centre Research Day, Toronto, Canada, April 18, 2016 (poster presentation)
3. A hydrodynamically tunable microfluidic 3D flow-focusing device, Y. Daghighi, E.M. Strohm, V. Gnyawali, M. Moore, S.S.H. Tsai, **M.C. Kolios**, Ontario-on-a-Chip11, Toronto, Canada, May 26, 2016 (poster presentation)
4. Three dimensional flow focusing for acoustics based flow cytometry, V. Gnyawali, E.M. Strohm, A. Stobo, Y. Daghighi, **M.C. Kolios**, S.S.H. Tsai, Ontario-on-a-Chip11, Toronto, Canada, May 26, 2016 (poster presentation)
5. Cell sizing using acoustic flow cytometry, E.M. Strohm, V. Gnyawali, M. Van De Vondervoort, Y. Daghighi, S.S.H. Tsai, **M.C. Kolios**, Ontario-on-a-Chip11, Toronto, Canada, May 27, 2016 (oral presentation)

6. Biomedical Applications of acoustic flow cytometry, E.M. Strohm, V. Gnyawali, M. Van De Vondervoort, Y. Daghighi, S.S.H. Tsai,, **M.C. Kolios**, SPIE Photonics West, February 17, 2016.
7. Acoustic and photoacoustic microscopy imaging of single leukocytes, E.M. Strohm, M.J. Moore, **M.C. Kolios**, SPIE Photonics West, February 17, 2016
8. Biodegradable polymer based theranostic agents for photoacoustic imaging and cancer therapy, Y.J. Wang, E.M. Strohm, **M.C. Kolios**, SPIE Photonics West, February 16, 2016
9. Photoacoustic investigation of gold nanoshells for bioimaging applications, K. Sathiyamoorthy, E.M. Strohm, **M.C. Kolios**, SPIE Photonics West, February 16, 2016
10. Classification of biological cells using a sound wave based flow cytometer, E.M. Strohm, V. Gnyawali, M. Van De Vondervoort, Y. Daghighi, S.S.H. Tsai,, **M.C. Kolios**, SPIE Photonics West, February 15, 2016.
11. Simultaneous photoacoustic and optical attenuation imaging of single cells using photoacoustic microscopy, M.J. Moore, E.M. Strohm, **M.C. Kolios**, SPIE Photonics West, February 14, 2016.
12. One-layer microfluidic device for hydrodynamic 3D self-flow-focusing operating in low flow speed, Y. Daghighi, V. Gnyawali, E.M. Strohm, S.S.H. Tsai, **M.C. Kolios**, SPIE Photonics West, February 13, 2016.
13. Monitoring cancer treatment response using photoacoustic and ultrasound spectral analysis in combination with oxygenation and perfusion measurements, Eno Hysi, Jonathan P. May, Lauren Wirtzfeld, Elijus Undzys, Shyh-Dar Li and **Michael C. Kolios** (2016), SPIE Photonics West BioS, Feb 12-18, San Francisco, CA
14. Feasibility of noninvasive temperature estimation using acoustic harmonics, Borna Maraghechi, **Michael C. Kolios**, J. Tavakkoli, Canadian Association of Physicists (CAP) meeting, 2016.
15. Effect of temperature on the generation of acoustic harmonics in a tissue-mimicking liquid, Borna Maraghechi, **Michael C. Kolios**, J. Tavakkoli, Canadian Association of Physicists (CAP) meeting, 2016.
16. 3D flow focusing for microfluidic flow cytometry with ultrasonics
V. Gnyawali, E.M. Strohm, Y. Daghighi M. Van de Vondervoort, **Michael C. Kolios**, S.S.H. Tsai, 68th Annual Meeting of the APS Division of Fluid Dynamics, Boston, USA (oral, November 24, 2015)
17. Morphological characterization and classification of cancer cells using ultra-high frequency quantitative ultrasound and photoacoustics, M.J. Moore, E.M. Strohm, **Michael C. Kolios**, IEEE International Ultrasonics Symposium, Taipei, Taiwan (oral, October 24, 2015).
18. Assessment of the nucleus-to-cytoplasmic ratio in MCF-7 cells using ultra-high frequency ultrasound and photoacoustics
M.J. Moore, E.M. Strohm, **Michael C. Kolios**, 18th International Conference on Photoacoustic and Photothermal Phenomena, Novi Sad, Serbia (oral presentation, September 9, 2015).
19. Simultaneous photoacoustic and optical attenuation imaging of single cells using photoacoustic microscopy, Michael J. Moore, Eric M. Strohm, and **Michael C. Kolios**, SPIE Photonics West BiOS. San Francisco, USA. Feb. 13-18, 2015.

20. Acoustic and photoacoustic microscopy imaging of single leukocytes
Eric M. Strohm, Michael J. Moore, and **Michael C. Kolios**.
SPIE Photonics West BIOS. San Francisco, USA. Feb. 13-18, 2015.
21. Development of the Numerical Aperture Gated, Spatially Resolved, Diffuse Reflectance Imaging Architecture for Subsurface Imaging of Microvasculature
I. Schelkanova, A. Couplik, **Michael C. Kolios**
22. Ultrasonic Characterization of Extra-Cellular Matrix in Decellularized Murine Kidney and Liver
Wirtzfeld LA, Berndl ESL, **Michael C. Kolios**
IEEE International Ultrasonics Symposium, Taipai, Taiwan: October 22-24, 2015
23. Mean Scatterer Spacing Estimation from Pellets Using Cepstral Analysis: A Preliminary Study
Nasr R, Falou O, Wirtzfeld L, Berndl E, **Michael C. Kolios**
International Conference on Advances in Biomedical Engineering (ICABME), Hadath, Beirut, Lebanon: September 16-18, 2015.
24. One One-layer microfluidic device for hydrodynamic 3D self-flow-focusing operating in low flow speed
Y. Daghighi, V. Gnyawali, E.M. Strohm, S.S.H. Tsai, **Michael C. Kolios**
Microfluidics, BioMEMS, and Medical Microsystems XIV, Feb. 2016, San Francisco, United States
25. Classification of biological cells using a sound wave based flow cytometer
E.M. Strohm, V. Gnyawali, M.V.D. Vondervoort, Y. Daghighi, S.S.H. Tsai, **Michael C. Kolios**, SPIE Photonics West, Feb. 2016, San Francisco, United States
26. Vaporization, photoacoustic and acoustic characterization of PLGA/PFH particles loaded with optically absorbing materials
Y. Sun, C. Niu, Y.J. Wang, E.M. Strohm, Y. Zheng, H. Ran, Z. Wang, **Michael C. Kolios**, IEEE International Ultrasonics Symposium, Prague, Czech Republic, (oral, July 21-25, 2013).
27. Quantitative photoacoustic analysis of blood cell morphology
E.M. Strohm, E. Berndl, **Michael C. Kolios**, Biomedical Engineering & Sciences Technology (BEST) Research Symposium, Toronto, Ontario, Canada (poster, June 12, 2013).
28. Sound Speed Estimation in Single Cells Using the Ultrasound Backscatter Power Spectrum
E.M. Strohm, and **Michael C. Kolios**.
29. Acoustical Imaging of Internal Spheroid Structures for a Series of Frequencies.
E.S. Berndl, L. Wirtzfeld, E.M. Strohm, **Michael C. Kolios**
30. Acoustic and Photoacoustic Imaging of Spheroids
Michael C. Kolios, E.S. Berndl, L. Wirtzfeld, E.M. Strohm, and G.J. Czarnota
31. An Analysis of the Acoustic Properties of the Cell Cycle and Apoptosis in MCF-7 Cells
M.M. Pasternak, E.M. Strohm, and **Michael C. Kolios**

21ST INTERNATIONAL CONGRESS ON ACOUSTICS/165TH MEETING OF
THE ACOUSTICAL SOCIETY OF AMERICA/52ND MEETING OF THE

CANADIAN ACOUSTICAL ASSOCIATION, MONTREAL, CANADA, (oral, June 2-7, 2013).

32. A photoacoustic technique to measure the properties of single cells
E.M. Strohm, E. Berndl, **Michael C.Kolios**

SPIE PHOTONICS WEST, SAN FRANCISCO, CALIFORNIA, USA (poster, February 2-7, 2013).

33. Photoacoustic measurements of single red blood cells
E.M. Strohm, E. Hysi, **Michael C.Kolios**, “

IEEE INTERNATIONAL ULTRASONICS SYMPOSIUM, DRESDEN, GERMANY, (poster, October 7-10, 2012).

34. Photoacoustic measurements of single red blood cells
E.M. Strohm, E. Hysi, **Michael C.Kolios**

ULTRASONIC BIOMEDICAL MICROSCANNING CONFERENCE, SAINT PAULIN, QUEBEC, CANADA (oral, September 22-24, 2012).

35. Measuring intracellular motion using dynamic light scattering with optical coherence tomography in a mouse tumor model
Golnaz Farhat, Adrian Mariampillai, Victor Yang, Gregory Czarnota and **Michael C. Kolios**
[Selected as a Hot Paper by SPIE Photonics West 2012]

2012 SPIE PHOTONICS WEST – SAN FRANCISCO, CALIFORNIA, JANUARY 2012

36. Quantitative ultrasound and diffuse optical spectroscopy evaluations of treatment response in patients with locally-advanced breast cancer receiving chemotherapy
Omar Falou, Naum Papanicolau, Hany Soliman, Jacqueline Spayne, Rebecca Dent, Martin Yaffe, **Michael C. Kolios** and Gregory J. Czarnota

36TH INTERNATIONAL SYMPOSIUM ON ULTRASONIC IMAGING AND TISSUE CHARACTERIZATION, ARLINGTON, VA, JUNE 2011

37. Conventional frequency, quantitative-ultrasound evaluation of tumor cell death response in locally-advanced breast cancer patients to chemotherapy treatment
Naum Papanicolau, Rebecca Dent, Sunil Verma, Maureen Trudeau, Jacqueline Spayne, Sara Iradji, Ervis Sofroni, Justin Lee, Martin Yaffe, **Michael Kolios**
38. Tissue characterization of tumor response to micro- bubble-based vascular disruption using photoacoustic imaging
Joris Nofiele Christina Kim, Azza Al Mahrouki, F. Stuart Foster, **Michael C. Kolios** and Gregory J. Czarnota,
39. Quantitative and parametric analysis employing conventional frequency ultrasound of cancer treatment effects in vivo
Naum Papanicolau, Anoja Giles, **Michael Kolios** and Gregory Czarnota
40. Theoretical and experimental investigation of the dynamics of ultrasound contrast agents: occurrence of higher subharmonics

Amin Jafari Sojahrood, Raffi Karshafian, Gregory J. Czarnota, Yanjun Gong, Eno Hysi, Tyrone Porter and **Michael C. Kolios**

41. A simulation study on the photoacoustic signals from nonaggregating and aggregating erythrocytes

Ratan K. Saha, Eno Hysi and **Michael C. Kolios**

[Session Chair and Organizer] Tumor Monitoring Session

161ST MEETING OF THE ACOUSTICAL SOCIETY OF AMERICA, SEATTLE
MAY 2011

42. Theoretical considerations for ultrasound contrast agent amplitude modulation techniques at high frequencies

Amin Jafari Sojahrood and **Michael C. Kolios**

43. The use of pressure dependent subharmonic resonance to increase the signal to noise ratio of ultrasound contrast agent imaging

Amin Jafari Sojahrood and **Michael C. Kolios**

2011 AMERICAN INSTITUTE OF ULTRASOUND IN MEDICINE ANNUAL
CONVENTION, NEW YORK APRIL 2011

44. High frequency ultrasound and optical coherence tomography imaging of cell death

G. Farhat, V.X.D. Yang, G.J. Czarnota and **M.C. Kolios**

45. Dynamics of ultrasound contrast agent at high multiples of its resonance frequency and its clinical relevance

Amin Jafari Sojahrood, Yanjun Gong, Omar Falou, Tyrone Porter and **Michael C. Kolios**

11TH INTERNATIONAL SYMPOSIUM ON THERAPEUTIC ULTRASOUND
NEW YORK APRIL 2011

46. Optimization of the Shear Stress Induced by Ultrasonically-Stimulated Oscillating Microbubbles: A Theoretical Investigation

Amin Jafari Sojahrood, Raffi Karshafian, **Kolios Michael**

47. The Utilization of the Bubble Pressure Dependent Harmonic Resonance Frequency for Enhanced Heating During High Intensity Focused Ultrasound Treatments

Amin Jafari Sojahrood, **Kolios Michael**

48. Optical droplet vaporization of micron-sized perfluorocarbon droplets and their photoacoustic detection (Paper 7899-127)

Eric Strohm, Ivan Gorelikov, Naomi Matsuura, **Michael C. Kolios**

2011 SPIE PHOTONICS WEST – SAN FRANCISCO, CALIFORNIA, JANUARY
2011

49. Dynamics of laser induced thermoelastic expansion of native and coagulated ex-vivo bovine liver samples and their mechanical properties (Paper 7899-340)

Behrouz Soroushian, William M. Whelan, **Michael C. Kolios**

50. In vivo optoacoustic imaging of a transgenic murine model of prostate cancer (Paper 7899-41)

Michelle Patterson, Christopher B. Riley, **Michael C. Kolios**, William M. Whelan

51. Detecting abnormal vasculature from photoacoustic signals using wavelet-packet features (Paper 7899-94)
Jason Zalev, **Michael C. Kolios**
52. Optical coherence tomography speckle decorrelation for detecting cell death (Paper 7907-37)
Golnaz Farhat, Adrian Mariampillai, Victor X. D. Yang, Gregory J. Czarnota, **Michael C. Kolios**
53. Cell death monitoring using quantitative optical coherence tomography methods (Paper 7907-40)
 Golnaz Farhat, Victor X. D. Yang, Michael C. Kolios, Gregory J. Czarnota,

IEEE INTERNATIONAL ULTRASONICS SYMPOSIUM (IUS), SAN DIEGO, OCTOBER 2010

54. A simulation study on ultrasound backscattering by cell aggregates with poly-disperse cells
Ratan K Saha and **Michael C. Kolios**
55. Optical droplet vaporization (ODV): photoacoustic characterization of perfluorocarbon droplets
Eric M. Strohm, **Michael C. Kolios**, I. Gorelikov, and N. Matsuura
56. A comparison of cellular ultrasonic properties during apoptosis and mitosis using acoustic microscopy
Eric M. Strohm, M. Pasternak, M. Rui, **Michael C. Kolios**

2010 MEETING OF THE CANADIAN ACOUSTICAL ASSOCIATION, VICTORIA, OCTOBER 2010

57. Modeling the effect of shell thickness on high frequency ultrasound scattering from ultrasound contrast agents
Omar Falou, Amin Jafari Sojahrood, Carl Kumaradas, and **Michael C. Kolios**

IMAGING NETWORK ONTARIO SYMPOSIUM – TORONTO 2010

58. Optical Coherence Tomography Methods for Detecting Cell Death
G. Farhat, A. Mariampillai, V.X.D. Yang, G.J. Czarnota and **M.C. Kolios**
59. Real-time *in vivo* brain tumor microvasculature imaging using combined laser scanning confocal fluorescence microscopy and optical coherence tomography in preclinical window-chamber models
Timothy Luk and **Michael C. Kolios**

CAP CONGRESS – TORONTO JUNE 2010

60. Fluorescence flow phantom imaging using combined laser scanning confocal fluorescence microscopy and optical coherence tomography
Timothy Luk and **Michael C. Kolios**
61. Numerical Bifurcation analysis of the dynamics of a dual-frequency driven acoustic bubble
Amin Jafari Sojahrood and **Michael C. Kolios**

35TH INTERNATIONAL SYMPOSIUM ON ULTRASONIC IMAGING AND
TISSUE CHARACTERIZATION ARLINGTON, VIRGINIA, MAY 17-19, 2010

62. A simulation study on spatial distribution dependent ultrasound backscattering of cell aggregates
Ratan K Saha and **Michael C. Kolios**

INSTITUTE OF ULTRASOUND IN MEDICINE ANNUAL CONVENTION (AIUM
2010) – SAN DIEGO Investigating Mechanical Property Changes in Cell Death

63. Ahmed El Kaffas, Eric Strohm, Devesh Bekah, Gregory J. Czarnota, **Michael C. Kolios**

SPIE PHOTONICS WEST – SAN FRANCISCO, CALIFORNIA, JANUARY 2010

64. Gigahertz optoacoustic imaging for cellular imaging
Sankar Narasimhan, Wolfgang Bost, Frank Stracke, Eike Weiss, Robert Lemor,
Michael C. Kolios

IMAGING NETWORK ONTARIO SYMPOSIUM – TORONTO 2009

65. Optical Coherence Tomography Methods for Detecting Cell Death
G. Farhat, A. Mariampillai, V.X.D. Yang, G.J. Czarnota and **M.C. Kolios**

CANADIAN OPTICAL COHERENCE TOMOGRAPHY SYMPOSIUM –
TORONTO MAY 2009

66. Spectroscopic Optical Coherence Tomography Techniques for Monitoring Cell Death
G. Farhat, V.X.D. Yang, G.J. Czarnota and **M.C. Kolios**

2009 CANADIAN ACOUSTICAL ASSOCIATION CONFERENCE – NIAGARA-
ON-THE-LAKE, CANADA

67. Modelling High Frequency Acoustic Backscatter from Biological Cells
Omar Falou, Min Rui, Ahmed El Kaffas, J. Carl Kumaradas, **Michael C. Kolios**

2009 IEEE INTERNATIONAL ULTRASONICS SYMPOSIUM – ROMA

68. Quantifying ultrasonic properties of cells during apoptosis using time resolved acoustic microscopy [1C-4]

Eric Strohm, **Michael Kolios**

69. A Novel Technique for Measuring Ultrasound Backscatter from Single Micron-Sized Objects [2G-1]

Omar Falou, Min Rui, Ahmed El Kaffas, J. Carl Kumaradas, **Michael Kolios**

70. Signal Analysis for Estimating Mechanical Properties of Viable Cells Using Acoustic GHz-Microscopy [P3-A-07]

Sebastian Brand, Eric Strohm, **Michael Kolios**, Kay Raum
[Session Chair] 2G: Tissue Characterization

ANNUAL INTERNATIONAL CONFERENCE OF THE IEEE ENGINEERING IN
MEDICINE AND BIOLOGY SOCIETY (2009)

71. High Frequency Optoacoustic Microscopy
Bost W., Stracke F., Weiß E., Narasimhan S., **Kolios M.**, Lemor R.

72. Measuring the Mechanical Properties of Cells Using Acoustic Microscopy
Strohm E. and **Kolios M.**
 [Session Chair and Organizer] ThE06 Oral Session: Acoustic, Mechanical, and Thermal Sensors
- AMERICAN ASSOCIATION OF PHYSICISTS IN MEDICINE, 2009 ANNUAL MEETING
73. Evaluating extent of cell death in 3D mid-to-high frequency ultrasound by registration with whole mount tumor histopathology
 R.M. Vlad, **M.C. Kolios**, J.L. Moseley, G.J. Czarnota and K. K. Brock.,
 Med Phys, Vol. 36(6), 2760, 2009
74. Optoacoustic Detection of Tissue Thermal Damage
 Whelan W, Arsenault M., MacPhee M and **Kolios, M**
 Medical Physics, 36 (9): 4306-4307 SEP 2009
- AMERICAN INSTITUTE OF ULTRASOUND IN MEDICINE, 2009 ANNUAL CONVENTION, NEW YORK, MARCH 12-15
75. Conventional frequency evaluation of tumor cell death in response to treatment in vivo
 Papanicolau Naum; Banihashemi Behzad, Czarnota Gregory J, **Kolios Michael**;
 Sadeghian Alireza
76. Detection of the tumor response to radiotherapy and a radiosensitization agent using quantitative noninvasive high-frequency ultrasound
 Lee Justin, Karshafian Raffi, Banihashemi Behzad, **Kolios Michael**, Czarnota, Gregory J.
77. Acoustic microscopy of live cells and cell aggregates
 [Invited] **Michael C. Kolios**
- BIOS 2009 – BIOMEDICAL OPTICS – SAN JOSE, JANUARY 2009
78. Optoacoustic imaging of thermal lesions (Paper 7177-68)
 William M. Whelan, **Michael C. Kolios**, Kris T. Lund, Michelle P. Macphee
79. Assessment of opto-mechanical behavior of biological samples by interferometry (Paper 7177-68)
Behrouz Soroushian, William M. Whelan, **Michael C. Kolios**
- 13TH INTERNATIONAL CONGRESS OF EMLA – LASER HELSINKI, FINLAND, AUGUST 2008
80. Optoacoustic detection of tissue coagulation: potential tool for monitoring thermal therapies
 W. Whelan, R. Castelino, M. MacPhee, K. Lund and **M.C. Kolios**
- IMAGING NETWORK ONTARIO SYMPOSIUM – TORONTO SEPTEMBER 2008
81. Combining High Frequency Ultrasound and Optical Coherence Tomography for Monitoring Cell Death
G. Farhat, V.X.D. Yang, G.J. Czarnota, **M.C. Kolios**

UBM 2008: 6TH INTERNATIONAL CONFERENCE ON ULTRASONIC BIOMEDICAL MICROSCANNING

82. High frequency ultrasound scattering from cell aggregates at different frequencies: tissue characterization and insights
[Invited] Michael C. Kolios
[Session Chair]: Session IX: Acoustic Microscopy

ACOUSTICS 08: JOINT MEETING OF THE ACOUSTICAL SOCIETY OF AMERICA, EUROPEAN ACOUSTICS ASSOCIATION AND SOCIETE FRANCAISE D'ACOUSTIQUE – PARIS JULY 2008

83. Modeling scattering from cells and biological structures
[Invited] **Michael C. Kolios**
84. Towards the modeling of high-frequency ultrasound scattering from cells
O. Falou, J.C. Kumaradas and **M. Kolios**

AMERICAN INSTITUTE OF ULTRASOUND IN MEDICINE, 2008 ANNUAL CONVENTION, SAN DIEGO, MARCH 12-15 2008

85. Conventional-Frequency Ultrasound Detection Of Apoptosis In Vivo
Papanicolau, Naum; Azrif, Muhammad; Karshafian, Rafii; Giles, Anoja; Sadeghian, Alireza; **Kolios, Michael C.**; Czarnota, Gregory J.
86. High-Frequency Ultrasound: Detection and Differentiation of Apoptosis and Necrosis During Cancer Therapy
Ranieri, Shawn; Vlad, Roxana; Debeljevic, Branislav; Giles, Anoja; **Kolios, Michael C.**; Czarnota, Gregory J.
87. Monitoring Photodynamic Therapy and Chemotherapy Effects in Tumors Using High-Frequency Spectroscopic Ultrasound
Banihashemi, Behzad; Cho, Charles; Papanicolau, Naum; Debeljevic, Branislav; Vlad, Roxana; Giles, Anoja; **Kolios, Michael C.**; Czarnota, Gregory J.
88. High-Frequency Ultrasound and Optical Coherence Tomographic Imaging of Necrotic Cell Death
Farhat, Golnaz; Mariampillai, Adrian; Yang, Victor X. D.; Czarnota, Gregory J.; **Kolios, Michael C.**

Moderator (and Categorical Course organizer): High-Frequency Intravascular Ultrasound (with Dr. Gregory Czarnota)
Moderator (Basic Science section): High-Frequency Ultrasound (with Dr. Peter Burns)

BIOS 2008 – BIOMEDICAL OPTICS – SAN JOSE, JANUARY 2008

89. Monitoring tissue thermal dose using photoacoustics during thermal therapy (Paper 6856-79),
Robin Castelino, William M. Whelan, **Michael C. Kolios**

154TH MEETING OF THE ACOUSTICAL SOCIETY OF AMERICA, NEW ORLEANS, LOUISIANA, 27 NOV - 1 DEC, 2007

90. Finite-element modeling of microsphere surface modes and high-frequency ultrasound scattering from a single cell.

Omar Falou, J. Carl Kumaradas, and **Michael C. Kolios**

IEEE INTERNATIONAL ULTRASONICS SYMPOSIUM, OCTOBER 2007, NEW YORK

91. High frequency ultrasound characterization of cell death in vivo: quantification of tumour responses to radiation, photodynamic therapy, and chemotherapy
G. J. Czarnota, W. Chu, B. Banihashemi, C. Cho, R. Vlad, A. Giles, B. Debeljevic, **M. C. Kolios**
92. Low-frequency ultrasound spectral characterization of apoptosis and necrosis
G. J. Czarnota, M. Azrif, S. Ranieri, A. Giles, M. Papanicolau, A. Sadeghian, **M. C. Kolios**
93. Transmission ultrasound imaging to guide thermal therapy
E. Soleimankhani, **M. C. Kolios**
94. Extended system transfer compensation for parametric imaging in ultrasonic response assessment of anti-cancer therapies
S. Brand, G. J. Czarnota, **M. C. Kolios**

[Session chair]: High Frequency: Applications and Devices

JOINT ANNUAL SCIENTIFIC MEETING CARO-COMP 2007, TORONTO, CANADA, OCTOBER 2007

95. High frequency ultrasound imaging of cell structural changes following radiation therapy
R.M. Vlad, A. Giles, **M.C.Kolios** and G.J. Czarnota
96. Apoptotic Cell Death Detection by High-Frequency Ultrasound Spectroscopy: Monitoring of Photodynamic Therapy In Vivo
B. Banihashemi, A. Giles, B. Debeljevic, R. Vlad, **M. Kolios** and G.J. Czarnota
97. Using High-Frequency Spectroscopic Ultrasound to Monitor Radiation and Chemotherapy Effects in Lymphomas
C. Cho, W. Chu, A. Giles, R. Vlad, **M.C. Kolios**, G. Czarnota
98. Low Frequency Ultrasound Detection of Apoptosis in Response to Cancer Therapy
S. Ranieri, M. Azrif, B. Debeljevic, M. Papanicolau, A. Giles **M. Kolios**, G. Czarnota

30TH CANADIAN MEDICAL AND BIOLOGICAL ENGINEERING CONFERENCE, TORONTO, CANADA, JUNE 2007

99. A Transmission Ultrasound Imaging Technique To Guide Thermal Therapy
Elham Soleimankhani and **Michael C. Kolios**

CANADIAN ASSOCIATION OF PHYSICIS TS (CAP) ANNUAL CONGRESS, SASKATOON, JUNE 2007

100. A Study On Opto-Mechanical Properties Of Biomaterials And Their Effects On Optoacoustic Signals
Behrouz Soroushian, William Whelan, **Michael Kolios**
101. Particle Tracking Microrheology For The Extraction Of Mechanical Properties Of Water, Glycerol and F-Actin
Ahmed El Kaffas, Joseph Carl Kumaradas, **Michael C. Kolios**

32ND INTERNATIONAL SYMPOSIUM ON ULTRASONIC IMAGING AND
TISSUE CHARACTERIZATION ARLINGTON, VIRGINIA, MAY 16-18, 2007

102. High-Frequency Ultrasound Scattering From Mixtures Of Two Different Cells Lines: Tissue Characterization Insights, (Invited)
Michael C. Kolios, Anoja Giles and Gregory J. Czarnota
103. High-frequency ultrasound imaging of cell structural changes following radiation therapy,
Roxana Vlad, Anoja Giles, **Michael C. Kolios** and Gregory J. Czarnota
104. Quantitative ultrasound analyses of apoptotic cell death in vivo and histopathological correlations (Invited)
Gregory J. Czarnota, William Chu, Behzad Banihashemi, Roxana Vlad, Anoja Giles and **Michael C. Kolios**

AMERICAN INSTITUTE OF ULTRASOUND IN MEDICINE, 2007 ANNUAL
CONVENTION, NEW YORK, MARCH 15-18

105. Functional Imaging of Apoptosis in Tumors With High-Frequency Ultrasound Imaging and Spectroscopy
Chu, William; **Kolios, Michael**; Czarnota, Gregory J.
106. High-Frequency Ultrasound Imaging of Cell Structural Changes Following Radiation Therapy
Roxana, Vlad M.; Giles, Anoja; **Kolios, Michael C.**; Czarnota, Gregory J.
107. Cepstrum Analysis of High-Frequency Ultrasound Backscatter Data From Purple Sea Urchin Embryos
Nathanael, George; Baddour, Ralph; Vaziri, Homayoun; Czarnota, Gregory; **Kolios, Michael C.**
108. Conventional Low-Frequency Ultrasound Detection of Apoptosis
Azrif, Muhammad; Ranieri, Shawn; Giles, Anoja; Debeljevic, Branislav; **Kolios, Michael C.**; Czarnota, Gregory J.
109. An Investigation of the High-Frequency Ultrasonic Backscatter From Ensembles of Cells and Cell Analogues
Baddour, Ralph E.; Czarnota, Gregory J.; **Kolios, Michael C.**

Moderator: Recent Technical Developments in High-Frequency Ultrasound In Memory of Francis Fry, BS, MS (with Dr. Hector Lopez)
Moderator: High-Frequency Ultrasound Imaging of Blood Flow and the Vasculature (with Dr. Michael Oelze)

2007 AMERICAN ASSOCIATION OF CANCER RESEARCH ANNUAL
MEETING, APRIL 14-18, LOS ANGELES

110. Apoptotic cell death detection by high-frequency ultrasound spectroscopy: monitoring of photodynamic therapy in vivo
Behzad Banihashemi, Anoja Giles, Roxana Vlad, **Michael Kolios**, Gregory Czarnota
111. Ultrasound imaging and spectroscopy of cancer radiation therapy effects
Gregory J. Czarnota, William Chu, Anoja Giles, **Michael C. Kolios**.

BIOS 2007 – BIOMEDICAL OPTICS – SAN JOSE, JANUARY 2007

112. Kasai autocorrelation estimation of flow velocity >6 cm/sec without aliasing on time-domain OCT
D Morofke, **M Kolios**, VXD Yang,. SPIE Symposium on Biomedical Optics, 6429-86, 2007.

PROCEEDINGS OF THE COMSOL MULTIPHYSICS USER'S CONFERENCE, OCTOBER 2006, BOSTON

113. Modeling Acoustic Wave Scattering from Cells and Microbubbles
Omar Falou, J. Carl Kumaradas and **Michael C. Kolios**

IEEE INTERNATIONAL ULTRASONICS SYMPOSIUM, OCTOBER 2006, VANCOUVER CANADA

114. Investigating the Effect of Cell Size on the Backscatter from Suspensions of Varying Volume Fractions
R. E. Baddour, **M. C. Kolios**
115. Newer Ultrasound Backscatter Studies Demonstrate Excellent Agreements Between Simulations and Experiments of Acute Myeloid Leukemia Cell Pellets in the Frequencies from 10 to 50 MHz
J.W. Hunt, **M.C. Kolios**, G.J. Czarnota, A.S. Tunis, and S. Brand.
116. Finite Element Modeling of Ultrasound Scattering by Spherical Objects and Cells
O. Falou, J. C. Kumaradas, **M. C. Kolios**
117. Ultrasonic Monitoring of Epithelial Cell Death Using Spectral and Wavelet Based Signal Analysis of Rf-Backscatter Signals
S. Brand, B. Solanki, G. Czarnota, D. Foster, **M. Kolios**

5th INTERNATIONAL CONFERENCE ON ULTRASONIC BIOMEDICAL MICROSCANNING, SEPTEMBER 2006 CARGESE, CORSICA, FRANCE

118. Elucidating the acoustic scattering centres in cells at high frequencies
Ralph Baddour and **Michael C. Kolios**
119. High frequency ultrasound imaging of cell structural changes following radiation therapy
Roxana Vlad, **Michael C. Kolios** and Gregory J. Czarnota

AMERICAN INSTITUTE OF ULTRASOUND IN MEDICINE, 2006 ANNUAL CONVENTION, WASHINGTON, DC, MARCH 23–26

120. Ultrasound Imaging And Spectroscopy Of Cancer Therapy Effects
Czarnota, G J.; **Kolios, M C.**; Chia,M; Foster, S; Liu, F-F
(J. Ultrasound Med. Biol. 25: S44, 2006.)
121. Ultrasonic Tissue Characterization Of Mononucleated And Multinucleated Human Epithelial Kidney Cells
Taggart, L; Baddour, R; Giles, A; Czarnota, G; **Kolios, M. C**
(J. Ultrasound Med. Biol. 25:S91, 2006)

Moderator: Preclinical and Small-Animal Imaging (with Dr. Michael Oelze)

IEEE INTERNATIONAL ULTRASONICS SYMPOSIUM 2005

122. Visualization of Apoptotic Cells using Scanning Acoustic Microscopy.
S. Brand, E.C. Weiss, G.J. Czarnota, R. Lemor and **M.C. Kolios**
123. The Effect of Volume Fraction on the Backscatter from Nucleated Cells at High Frequencies
Baddour, R.E. and **Kolios, M.C.**
124. Using High Frequency Ultrasound Envelope Statistics to Determine Scatterer Number Density in Dilute Cell Solutions.
A.S. Tunis, R.E. Baddour, G.J. Czarnota, A. Giles, A.E. Worthington, M.D. Sherar and **M.C. Kolios**

2005 ANNUAL CONFERENCE OF THE CANADIAN ACOUSTICAL ASSOCIATION, OCTOBER 2005, LONDON, ONTARIO

125. Finite Element Modeling of Acoustic Wave Scattering from Fluid, Rigid and Elastic Objects
O. Falou, J. C. Kumaradas, and **M. C. Kolios**

PROCEEDINGS OF THE COMSOL MULTIPHYSICS USER'S CONFERENCE, OCTOBER 2005, BOSTON

- 126.A Study of FEMLAB for Modeling High Frequency Ultrasound Scattering by Spherical Objects
O. Falou, J. C. Kumaradas, and **M. C. Kolios**

AMERICAN INSTITUTE OF ULTRASOUND IN MEDICINE, 2005 ANNUAL CONVENTION

127. Parametric characterization and monitoring of cell death using high frequency ultrasound
S. Brand, G.C. Czarnota, M.D. Sherar, J.W. Hunt and **M.C. Kolios**
128. High frequency ultrasound to characterize cell acoustical parameters
RM Vlad, GJ Czarnota, A Giles, MD Sherar, JW Hunt and **MC Kolios**
129. (invited) Tissue characterization using high frequency ultrasound: potential and Pitfalls, **MC Kolios**
J Ultrasound Med 23:S4, June 2004

Moderator: Recent Developments in High-Frequency Ultrasound Imaging for Tissue Characterization (with Dr. Roxana Ursea)

2005 USNCB SYMPOSIUM ON FRONTIERS IN BIOMECHANICS

130. Forging a New Biomechanics in the Era of Modern Biology, High Frequency Ultrasound Imaging Of Apoptosis: Biomechanical Considerations
J. Carl Kumaradas, Gregory J. Czarnota and **Michael C. Kolios**

SOCIETY FOR THERMAL MEDICINE 2005 ANNUAL MEETING

131. Calibration of Acoustic Transmission Imaging for Use of Thermal Therapy

N. Parmar, J.C. Kumaradas and **M.C. Kolios**

IEEE EMBS Annual International Conference in 2004 San Francisco, CA

132. Ultrasound Attenuation Mapping for the Monitoring of Thermal Lesions,
Parmar N. and **Kolios, M.C.**

4TH INTERNATIONAL CONFERENCE ON ULTRASONIC BIOMEDICAL
MICROSCANNING (2004)

133. Comparison of power spectra from cells of different concentrations and sizes: insights
into ultrasound backscatter from tissues, **M. C. Kolios**

IEEE INTERNATIONAL ULTRASONICS SYMPOSIUM 2004

134. Towards understanding the nature of high frequency backscatter from cells and tissues:
an investigation of backscatter power spectra from different concentrations of cells of
different sizes

M.C. Kolios, G.J. Czarnota, A. Worthington, A. Giles and M.D. Sherar

135. High Frequency Ultrasound Signal Statistics From Mouse Mammary Tissue During
Involution

A.S. Tunis, D. Spurrell, D. McAlduff, A. Giles, M. Hariri, R. Khokha, M. D. Sherar,
G. J. Czarnota, and **M. C. Kolios** (2004)

136. High frequency ultrasound in monitoring liver suitability for transplantation

R.M. Vlad, G.J. Czarnota, A. Giles, M.D. Sherar, J.W. Hunt and **M.C. Kolios**

AMERICAN INSTITUTE OF ULTRASOUND IN MEDICINE, 2004 ANNUAL
CONVENTION

137. High Frequency Ultrasound Monitoring of Structural Changes in Cells and Tissue

A.S. Tunis, A. Giles, D. McAlduff, D. Spurrell, M. Hariri, R. Khoka, G.J. Czarnota,
M.D. Sherar, J.W. Hunt and **M.C. Kolios**

138. Towards understanding the nature of high frequency ultrasound backscatter from
tissues: an investigation of the backscatter from individual cells of different size and
cell ensembles

M.C. Kolios, A.S. Tunis, A. Giles, J.W. Hunt, M.D. Sherar and G.J. Czarnota
J Ultrasound Med 23:S19, June 2004

UNIVERSITY HEALTH NETWORK RESEARCH DAY 2003, TORONTO

139. High Frequency Ultrasound Monitoring of Structural Changes in Cells and Tissue

A.S. Tunis, A. Giles, D. McAlduff, D. Spurrell, M. Hariri, R. Khoka, G.J. Czarnota,
M.D. Sherar, J.W. Hunt and **M.C. Kolios** * received 3rd place poster award

IEEE INTERNATIONAL ULTRASONICS SYMPOSIUM 2003

140. An investigation of backscatter power spectra from cells, cell pellets and microspheres

M.C. Kolios, L. Taggart, R.E. Baddour, F.S. Foster, J.W. Hunt, G.J. Czarnota, M.D.
Sherar (2003)

25TH ANNUAL IEEE INTERNATIONAL EMBS 2003

141. Ultrasound Backscatter Signal Characterization and Classification Using Autoregressive Modeling and Machine Learning Algorithms
Farnoud N., Krishnan, S. and **Kolios M.C.** (2003)
- AMERICAN INSTITUTE OF ULTRASOUND IN MEDICINE, 2003 ANNUAL CONVENTION
142. Modeling high frequency ultrasound scattering of cellular ensembles to deduce the apoptotic index
Baddour R., **Kolios MC** and Sherar M.D.
143. Developing high frequency ultrasound and signal analysis techniques to monitor organ suitability for transplantation
Vlad R., Giles A., Sherar M.D., Czarnota G.J. and **Kolios M.C.**
INVITED TALK: Ultrasound Imaging of Apoptosis
- ONTARIO CONSORTIUM FOR IMAGE-GUIDED THERAPY AND SURGERY WORKSHOP - DEC. 2002
144. A finite element model of radiofrequency ablation of the kidney
Pop M., Davidson S, **Kolios M.C.** and Sherar, M.D.
- IEEE INTERNATIONAL ULTRASONICS SYMPOSIUM 2002
145. High frequency ultrasound imaging of changes in cell structure including apoptosis
R.E. Baddour, M.D. Sherar, G.C. Czarnota, J.W. Hunt, L. Taggart, A. Giles, N.R. Farnoud, and **M.C. Kolios** (2002)
- IEEE INTERNATIONAL ULTRASONICS SYMPOSIUM 2001
146. Analysis of Ultrasound Backscatter from Ensembles of Cells and Isolated Nuclei
M.C. Kolios, G.J. Czarnota, M. Hussain, F. S. Foster, J.W. Hunt and M.D. Sherar
- RADIATION ONCOLOGY RESEARCH DAY, UNIVERSITY OF TORONTO APR. 7TH, 2001
147. Ultrasound imaging of apoptosis: chemotherapy and radiotherapy effects visualized
Czarnota, G.J., Hunt J.W., Sherar, M.D. and **Kolios, M.C.** received award
- 45TH ANNUAL CONVENTION OF THE AMERICAN INSTITUTE OF ULTRASOUND IN MEDICINE, 2001
148. High Frequency Ultrasound Imaging of Apoptosis as a Method of Assessing Transplant Organ Viability
Czarnota, G.J., Sherar, M.D. Hunt, J.W. and **Kolios, M.C.**
149. High Frequency Ultrasound Imaging of Apoptosis: Clinical Trial Results
Yang, V. Czarnota, G.J., **Kolios, M.C.** Hunt, J.W. Wilson, B. and Sherar, M.D.
150. High Frequency Ultrasound Imaging of Apoptosis: Radiation Cancer Therapy Effects Visualized
Czarnota, G.J., **Kolios, M.C.** Chia, M. Frieder, D. Foster, F.S. Liu, F.F. and Sherar, M.D.
Ultrasound Imaging of the Cell Cycle
Darby, P.J. Czarnota, G.J. Sherar, M.D. Hunt, J.W. and **Kolios, M.C.**

151. Ultrasound Imaging of the Chromosome Structure
Czarnota, G.J. **Kolios, M.C.** Sherar, M.D. Ottensmeyer, F.P. and Hunt, J.W.
152. Ultrasound properties of macromolecular components of cells Warrington, J.C.
Czarnota, G.J. Sherar, M.D. Cherin, M Foster, F.S. and **Kolios, M.C.**
- SECOND INTERNATIONAL CONFERENCE ON ULTRASOUND AND BIOMEDICAL MICROSCANNING SEP. 5TH-SEP. 8TH, 2000
153. Ultrasound Spectrum Analysis for the Detection of Apoptosis
Kolios, M.C., Czarnota, G.J., Al-Saiegh, M., Hunt J.W. and Sherar, M.D.
- 2000 WORLD CONGRESS ON MEDICAL PHYSICS AND BIOMEDICAL ENGINEERING
154. Ultrasound imaging and spectrum analysis for the detection of apoptosis
Kolios M.C., Czarnota, G.J., Al-Saiegh, M., Hunt J.W. and Sherar, M.D.
155. The effect of temperature dependent changes in attenuation and absorption on ultrasonic lesion formation
Kolios M.C., Hunt J.W. and Sherar, M.D.
- 2000 PROCEEDINGS OF THE CANCER MICROSCOPY SYMPOSIUM
156. Ultrasound Biomicroscopy of Cancer Therapy Effects: Correlation Between Light and Electron Microscopy, and a New Non-Invasive Ultrasound Imaging Method for Detecting Apoptosis
Czarnota, G.J. **Kolios, M.C.** Heng, Y.M. *(presenter) Devaraj, K. Tam, C. Tan, L. Ottensmeyer, F.P. Hunt, J.W. Sherar, M.D.
- 2000 PROCEEDINGS OF THE AMERICAN ASSOCIATION FOR CANCER RESEARCH
157. Ultrasound imaging of apoptosis: detection of cancer therapy effects in vitro, in-situ, and in vivo.
Czarnota G.C., **Kolios M.C.**, Hunt J.W. and Sherar M.D.
- 1999 IEEE INTERNATIONAL ULTRASONICS SYMPOSIUM & SHORT COURSES
158. High Frequency Ultrasound Monitoring Of Apoptosis In Cells In-Vitro and in Experimental Tumours.
Sherar M.D., Hunt, J.W. Czarnota G.C. and **Kolios, M.C.**
- NEW WORLD SCIENCE FOR THE NEXT MILLENNIUM, 1999
BIOCHEMISTRY AND MOLECULAR BIOLOGY MEETING
159. Ultrasonic Spectrum Analysis of Apoptotic Cell Populations
Kolios M.C., Czarnota G.C., Lee M., Hunt J.W. and Sherar M.D. (abstract also published in FASEB Journal 13 a1435, 1999)
160. High-frequency ultrasound imaging of apoptosis in vitro, in situ and in vivo
Czarnota G.C., **Kolios M.C.**, Ottensmeyer F.P., Hunt J.W. and Sherar M.D. (abstract also published in FASEB Journal 13 a1435, 1999)

FIRST INTERNATIONAL CONFERENCE ON ULTRASOUND AND BIOMEDICAL MICROSCANNING AUG. 28TH-SEP.1ST, 1998

161. Ultrasound Biomicroscopy as a Method for Monitoring Apoptosis
Sherar, M.D. Czarnota, G.C. **Kolios, M.C.** Ottensmeyer, F.P. and Hunt, J.W.

PROCEEDINGS OF THE SEVENTEENTH ANNUAL MEETING OF THE NORTH AMERICAN HYPERTHERMIA SOCIETY APRIL 25 - APRIL 30, 1998

162. A Theoretical Investigation of the Effects of Temperature Dependent Tissue Attenuation and Absorption on Ultrasonic Lesion Formation.
Kolios M.C., Sherar M.D. and Hunt J.W.
163. Imaging of Apoptotic Cells: An Investigation of Biological Mechanisms and Kinetics
Czarnota G.J., **Kolios M.C.**, Abraham J., Ottensmeyer F.P., Hunt J.W. and Sherar M.D.

PROCEEDINGS OF THE SIXTEENTH ANNUAL MEETING OF THE NORTH AMERICAN HYPERTHERMIA SOCIETY MAY 3 - MAY 7, 1997

164. High Intensity Focussed Ultrasound Studies: Optimization of the Beams Near the Skin During Multiple Lesion Treatments
Hunt J.W., Xuan A.Y., Seto E., Worthington A.E., **Kolios M.C.** and Sherar M.D.
165. Evaluation of Localized Temperature Variations in Heated Tissues: Correlation with Imaging Studies
Kolios M.C., Sherar M.D., Worthington A.E., and Hunt J.W.
166. Ultrasonic Imaging of Viable, Dead and Apoptotic Cells
Kolios M.C., Czarnota G.J., Vaziri H., Benchimol, S., Ottensmeyer F.P., Sherar M.D. and Hunt J.W.

PROCEEDINGS OF THE FIFTEENTH ANNUAL MEETING OF THE EUROPEAN SOCIETY FOR HYPERTHERMIC ONCOLOGY SEPT 3-SEPT 6, 1995

167. The Effect of Blood Flow on Ultrasonic Lesion Formation.
Kolios M.C., Sherar M.D. and Hunt J.W.

j. Patents and intellectual property rights

1. **Patent:** Improved Synthetic Aperture Imaging Methods And Systems
United States, Patent Application No. 14/841,118, filed August 31, 2015 (based on U.S. Provisional Application No. 62/044,410, filed on Sept. 1, 2014)
D&L Ref.: 139831-2
Co-inventors: Yuan Xu, Michael C. Kolios, Ping Gong, Ying Li
2. **Patent:** Improved Synthetic Aperture Imaging Methods And Systems
Canadian Patent Application No. 14/841,118, filed August 31, 2015
D&L Ref.: 139831-3
Co-inventors: Yuan Xu, Michael C. Kolios, Ping Gong, Ying Li

3. **Patent:** [Use of high frequency ultrasound imaging to detect and monitor the process of apoptosis in living tissues, ex-vivo tissues and cell-culture](#)
United States, Patent No. 6,511,430, 2003
Co-inventors: Michael D. Sherar, John W. Hunt, Gregory C. Czarnota, Michael C. Kolios
4. **Patent:** [Methods of monitoring cellular death using low frequency ultrasound](#),
United States Patent No: 8,192,362, 2012 (based on U.S. Provisional Application No. 60/691,577, filed on Jun. 16, 2005)
International: PCT/IB2006/003982 - Filed 15.06.2006
Wipo Patent WO/2007/063425
Co-inventors: Michael D. Sherar, John W. Hunt, Gregory C. Czarnota, Adam Tunis, Michael C. Kolios
5. **Patent:** [Two-dimensional estimation technique for doppler optical coherence tomography \(OCT\)](#)
United States, Patent No. 7,894,046, 2011
Co-inventors: D Morofke, VXD Yang, Michael C. Kolios
6. **Provisional Patent:** [Computing device and method for detecting cell death in a biological sample](#)
Filed: 2011
PCT/CA2012/000335
Co-inventors: Golnaz Farhat, VXD Yang, Gregory C. Czarnota, Adrian Mariampillai, Michael C. Kolios
7. **Provisional Patent:** Method, system and apparatus for the detection, characterization and classification of particles
Co-inventors: E.M.Strohm and Michael C. Kolios
PCT Application PCT/CA2013/000212 filed March 11, 2013 (US provisional patent application filed September 4th, 2012).
8. **Provisional Patent:** Method and system for determining whether arterial tissue comprises atherosclerotic plaque
Co-inventors: Marjan Razani, Victor Yang, Adrian Mariampillai
US Prov. App. No.: 61/746,642