

## 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:**

*College of Fellow*, American Institute for Medical and Biological Engineering (AIMBE),  
2017

*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, 2004-2014

*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  
*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. 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), Project Grant reviewer (2016/17)
2. U.S. National Institutes of Health (NIH), study section charter member (Biomedical Imaging Technology A, 2012-2016)
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. PNAS
7. Nature Communications
8. Scientific Reports
9. Journal of Biomedical Optics
10. Journal of Biophotonics
11. Annals of Biomedical Engineering
12. IEEE Transactions of Medical Imaging
13. Journal of the Acoustical Society of America
14. Journal of Applied Physics
15. Medical and Biological Engineering and Computing
16. Medical Physics
17. Physics in Medicine and Biology
18. Optics Letters
19. 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 / 11<sup>th</sup> 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: **27 M.Sc., 8 Ph.D.**

In progress: **10 Ph.D., 4 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 Iradji](#), 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. [Marjan Razani](#) (**Ph.D.**, Biomedical Physics, Ryerson University), Biomedical Application of OCT elastography, Sept. 2012 – June 2016

31. [Borna Maragheshi](#) (**Ph.D.**, Biomedical Physics, Ryerson University) B/A imaging for thermal therapies (co-supervised with Dr. Jahan Tavakkoli) Sept. 2011 – June 2016
32. [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
33. [Fayruz Kibria](#) (M.Sc., Biomedical Physics, Ryerson University), High Frequency Photoacoustic Detection of Red Blood Cell Aggregation, Sept. 2012 – Jan. 2016
34. Ruben Pinto (M.Sc., Biomedical Physics, Ryerson University), Characterization of RBC storage lesions using Photoacoustics, Sept. 2014 – June 2016
35. [Nusrat Surovy](#) (M.Sc., Biomedical Physics, Ryerson University), Ultrasound Imaging Using Optical Fabry-Perot Interferometer, Sept. 2013 – May 2017

*In progress:*

1. [Amin Jafari Sajarhood](#) (**Ph.D.**, Biomedical Physics, Ryerson University), (co-supervised with Dr. Raffi Karshafian), Theoretical and Experimental studies of nonlinear microbubble oscillations, Jan. 2013 – present
2. [Michael Moore](#) (**Ph.D.**, Biomedical Physics, Ryerson University), Analysis of single cells using ultra-high frequency photoacoustic microscopy, Sept. 2013 - present
3. [Muhannad Fadhel](#) (**Ph.D.** Biomedical Physics, Ryerson University), Monitoring and characterizing changes in blood as a result of vascular disrupting agents non-invasively using photoacoustics, Jan. 2014 – present
4. Eno Hysi (**Ph.D.** Biomedical Physics, Ryerson University), Photoacoustic imaging and sensing for cancer treatment monitoring, Sept. 2014 – present
5. [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
6. Ying Li (**Ph.D.**, Biomedical Physics, Ryerson University) Compressed sensing in synthetic aperture ultrasound imaging (co-supervised with Dr. Yuan Xu) Sept. 2014 - present
7. [Yan Jie Wang](#), (**Ph.D.** Biomedical Physics, Ryerson University), Biodegradable Nanoparticles for Breast Cancer Detection and Therapy Using Photoacoustic Technique, Sept. 2015 – present
8. [Ahmed Khiari](#) (M.Sc., Biomedical Physics, Ryerson University), Photoacoustic Imaging of Intraplaque Hemorrhages, Sept. 2015 - present
9. [Jason Zalev](#) (**Ph.D.** Biomedical Physics, Ryerson University), Optoacoustics for Diagnostic Breast Imaging, Sept. 2015 – present
10. [Nico Arezza](#) (M.Sc., Biomedical Physics, Ryerson University), Acoustic radiation force OCT for imaging enhanced particle delivery, Sept. 2016 - present
11. [Grace Fishbein](#) (M.Sc., Biomedical Physics, Ryerson University), Design and characterization of microbubbles for therapeutic ultrasound, Sept. 2016 – present
12. [Ali Salari](#) (**Ph.D.** Biomedical Engineering, Ryerson University), Biological applications of acoustofluidics, (co-supervised with Dr. Scott Tsai) Jan. 2017 – present
13. [Hossein Haghi](#) (M.Sc., Biomedical Physics, Ryerson University), Investigation of multiple scattering and bubble-bubble interaction in microbubble clusters under ultrasound excitation, Jan. 2017 – present

14. [Victoria Bulycheva](#) (Ph.D. Biomedical Physics, Ryerson University), Characterization of microbubble enhanced sonoporation, (co-supervised with Dr. Raffi Karshafian) Jan. 2017 – present
15. [Dana Wegierak](#) (M.Sc., Biomedical Physics, Ryerson University), Photoacoustic Contrast Agents, Sept. 2017 - present
16. Morgan Maher (M.Sc., Biomedical Physics, Ryerson University), Photoacoustic flow cytometry, Sept. 2017 - present
17. Charlotte Ferworn (M.Sc., Biomedical Physics, Ryerson University), Microbubble Interactions with Cells, Sept. 2017 - present

### Supervisory Committee:

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

In progress: **7 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. 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
13. [Melissa Martinez](#) (M.Sc., Biomedical Physics, Ryerson University)

14. [Mike Papanicolau](#) (M.Sc., ECE, Ryerson University) *Development of analysis platform for low frequency ultrasound imaging*, Sept. 2006 - Sept. 2009
15. Veronika Petrenko (M.Sc., Molecular Science, Ryerson University) *Activated Supramolecular Fc Receptor Complex from Human Neutrophils* Sept. 2007 - Aug. 2009
16. [Veronica Barbisan](#) (M.Sc., Molecular Science, Ryerson University) *Fc Receptors in Raw Cells* Sept. 2007 - July 2009
17. [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
18. 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
19. [Adrian Mariampillai](#), (Ph.D., Medical Biophysics, UofT) *Development of a High Resolution Microvascular Imaging Toolkit for Optical Coherence Tomography*, Sept. 2005 – Aug. 2010
20. Michaela Pop (Ph.D., Medical Biophysics, UofT), *Magnetic Resonance Imaging in Radio-frequency Ablation of Cardiac Arrhythmias*, Dec. 2003 - Aug. 2010
21. 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)
22. [Ozkan Doganay](#) (M.Sc., Biomedical Physics, Ryerson University), *Monitoring Electric Field Induced Changes in Biological Tissue by Using Ultrasound*, Sept. 2008 – Oct. 2010
23. Shahrad Jabbarly Aslany (M.Sc., Biomedical Physics, Ryerson University), *Use of HIFU (High Intensity Focussed Ultrasound) on Nerves*, Sept. 2008 – Jan. 2011
24. [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
25. [Golafsoun Ameri](#) (M.Sc., Biomedical Physics, Ryerson University), *Synthetic Aperture Imaging in Acoustic Microscopy*, Sept. 2009 - Oct. 2011
26. [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
27. [Tetyana Yatsenko](#) (M.Sc., Biomedical Physics, Ryerson University), *Effects of Plasma Membrane Cholesterol Content on Ultrasound and Microbubble Mediated Sonoporation*, Sept. 2009 – June 2012
28. [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
29. [Laxman Subedi](#) (M.Sc., Biomedical Physics, Ryerson University), *Acoustic characteristics of microbubbles: Effect of acoustic pressure and pulse duration*, Sept. 2010 - Dec. 2012
30. [Amanda Tran](#) (M.Sc., Biomedical Physics, Ryerson University), *Enhancing Radiotherapy Using Ultrasound And. Microbubbles With Gold Nanoparticles*, Jan. 2011 – Jan. 2013



31. [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
32. [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
33. 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
34. [Ahmed El Kaffas](#) (**Ph.D.**, *An Investigation of Vascular Strategies to Augment Radiation Therapy*, Medical Biophysics, UofT), Sept. 2008 - Sept. 2013
35. [Valentin Demidov](#) (M.Sc., Biomedical Physics, Ryerson University), *Imaging the Electro-Kinetic Response of Biological Tissues with Optical Coherence Tomography*, June 2012 - Sept. 2013
36. [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
37. [Celina Yang](#) (M.Sc., Biomedical Physics, Ryerson University), *Nuclear targeting of gold nanoparticles*, Sept. 2012 – August 2014
38. [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
39. [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
40. Charmainne Cruje (M.Sc. Biomedical Physics, Ryerson University) *Enhanced Uptake of Polyethylene Glycol Coated Gold Nanoparticles for Improved Therapeutics* Sept. 2013 – June 2015
41. 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
42. [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
43. [Julia Mariglia](#) (M.Sc., Biomedical Physics, Ryerson University), *Treatment of pancreatic cancer cells in vitro using ultrasound, microbubbles, and gemcitabine*, Sept. 2014-July 2016
44. [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
45. 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
46. [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. [Yevgeniy Davletshin](#) (**Ph.D.**, Biomedical Physics, Ryerson University), May 2012 - present
3. [Celina Yang](#) (**Ph.D.**, Biomedical Physics, Ryerson University), Sept. 2014 - present
4. Elham Gholamhosseini (M.Sc., Biomedical Physics, Ryerson University), Sept. 2012 - present
5. [Homa Assadi](#) (**Ph.D.**, Biomedical Physics, Ryerson University) Jan. 2013 - present
6. Laura Liao (**Ph.D.** Biomedical Physics, Ryerson University) 2013 - present
7. Danny (Dae Myoung) Yang (M.Sc. Biomedical Physics, Ryerson University) Sept. 2013-present
8. Na Zhao (**Ph.D.**, Biomedical Physics, Ryerson University) Sept. 2015 - present
9. Aren Gharabeiki (M.Sc. Biomedical Physics, Ryerson University) Sept. 2015-present
10. [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

11. Amber Gao, Dragon Academy Scientists-in-Action programme, Oct. 2014 – June 2015
12. Dylan Alsop, Dragon Academy Scientists-in-Action programme, Oct. 2014 – June 2015
13. Jonathan Deighton, Dragon Academy Scientists-in-Action programme, Sept. 2016 - present
14. Nic Dunk, Dragon Academy Scientists-in-Action programme, Sept. 2016 - present

**Graduate Examinations [99]:**

**Master of Science External Examiner:**

1. [Robert Dinniwell](#), August 2010  
Department of Radiation Oncology, University of Toronto  
Title “Lymphotropic 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. *Jonghyun Eom* November 6 2016  
Department of Biomedical Science and Engineering, Institute of Integrated Technology Gwangju Institute of Science and Technology, Gwangju, South Korea  
**Title** “*Optical Fiber based Noncontact Photoacoustic Imaging System and Multimodal Operation with OCT or Fluorescence Imaging.*”
2. *Haroon Zafar* June 22 2016  
National University of Ireland, Galway (NUIG).  
**Title** “*Development and applications of optical imaging techniques for microcirculation and cardiovascular imaging*”
3. [Parsin Hajireza](#), August 6, 2015  
Department of Electrical and Computer Engineering, University of Alberta  
**Title** “*All-Optical and Endoscopic Photoacoustic Microscopy*”
4. *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*”
5. *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*”

6. *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*”
7. *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*”
8. *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*”
9. *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*”
10. *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. *Laura Liao* (August 2017, **Ph.D. Oral Examination**, Biomedical Physics, Ryerson University), Mathematical models of influenza a virus infections in vitro: investigating defective interfering particles and virus release
2. *Jason Zalev* (May 2017, **Ph.D. Candidacy Examination**, Biomedical Physics, Ryerson University) Combined Reconstruction and Tracking for Opto-acoustic Imaging using Convex Optimization Algorithms
3. *Yevgeniy Davletshin* (November 2016, **Ph.D. Oral Examination**, Biomedical Physics, Ryerson University), A computational analysis of nanoparticle-mediated optical breakdown
4. *Yan Wang* (November 2016, **Ph.D. Candidacy Examination**, Biomedical Physics, Ryerson University), Biodegradable nanoparticles for breast cancer imaging and therapy using photoacoustic technique

5. *Eno Hysi* (September 2016, **Ph.D. Candidacy Examination**, Biomedical Physics, Ryerson University), Photoacoustic Imaging and Sensing for Cancer Treatment Monitoring
6. *Golnaz Farhat* (August 2016, **Ph.D. Oral Examination**, Medical Biophysics, University of Toronto), Development of Quantitative optical coherence tomography methods for cell death detection
7. *Muhannad Fadhel* (August 2016, **Ph.D. Candidacy Examination**, Biomedical Physics, Ryerson University), Monitoring and characterizing changes in endogenous chromophores during vessel disruption as a result of vascular targeting agents
8. *Ying Li* (July 2016, **Ph.D. Candidacy Examination**, Biomedical Physics, Ryerson University) Novel Ultrasound Imaging Techniques for Synthetic Transmit Aperture Imaging (STA) with a Reduced Number of Receiving Channels
9. *Julia Mariglia* (July 2016, M. Sc. Oral Examination, Biomedical Physics, Ryerson University) Treatment of pancreatic cancer cells in vitro using ultrasound, microbubbles, and gemcitabine
10. *Borna Maraghechi* (June 2016, **Ph.D. Oral Examination**, Biomedical Physics, Ryerson University) Feasibility of noninvasive thermometry using harmonics generated by nonlinear ultrasound wave propagation
11. *Priyanka Mehta* (Januray 2016, Oral Examination, Biomedical Physics, Ryerson University), Characterization of the hemodynamic responses of the hippocampal and parahippocampal regions using fMRI
12. *Hadi Tadayyon* (July 2015, **Ph.D. Oral Examination**, Medical Biophysics, University of Toronto) Quantitative Ultrasound Characterization and Monitoring of Locally Advanced Breast Cancer
13. *Michael Moore* (April 2015, **Ph.D. Transfer Examination**, Biomedical Physics, Ryerson University) Detection & classification of circulating tumour cells using high-frequency photoacoustic and ultrasonic methods
14. *Celina Yang* (August 2014, M.Sc. Oral Examination, Biomedical Physics, Ryerson University) Nuclear Targeting of Gold Nanoparticles for Improved Therapeutics
15. *Homa Assadi* (June 2014, M.Sc. Oral Examination, Biomedical Physics, Ryerson University) The optical properties of biological tissue in the presence of microbubbles
16. *Ping Gong* (June 2014, **Ph.D. Candidacy Examination**, Biomedical Physics, Ryerson University), Novel ultrasound transmission and reconstruction techniques for synthetic aperture imaging for image quality improvement
17. *Laura Liao* (March, 2014, **Ph.D. Candidacy Examination**, Biomedical Physics, Ryerson University), (In)validating experimentally-acquired knowledge about influenza a defective interfering particles
18. *Valentin Demidov* (September 2013, M.Sc. Oral Examination, Biomedical Physics, Ryerson University) Imaging the electro-kinetic properties of biological tissues with optical coherence tomography
19. *Borna Maraghechi* (August 2013, **Ph.D. Candidacy Examination**, Biomedical Physics, Ryerson University) Noninvasive temperature estimation using ultrasound methods
20. *Martin Hohmann* (August 2013, **Ph.D. Candidacy Examination**, Biomedical Physics, Ryerson University) Development and testing of hyper spectral video endoscope:

21. *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
22. *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
23. *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
24. *Chester Santiago* (May 2013, M.Sc. Oral Examination, Molecular Sciences, Ryerson University), Kinetic Stability of perfluorocarbon emulsions for cancer therapy and imaging
25. *David Dalla Rosa* (January 2013, M.Sc. Oral Examination, Biomedical Physics, Ryerson University), Thermal Dose Based Monitoring of Thermal Therapy for Prostate Cancer
26. *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
27. *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
28. *Yevgeniy Davletshin* (December 2012, **Ph.D. Candidacy Examination**, Biomedical Physics, Ryerson University) Applications of self-assembled gold nanorods in photoacoustic thermometry
29. *Eric Strohm* (December 2012, **Ph.D. Candidacy Examination**, Biomedical Physics, Ryerson University) Acoustic and Photoacoustic Characterization of micron particles
30. *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
31. *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
32. *Angjelina Protik* (January 2012, M.Sc. Oral Examination - Chair of Examination, Biomedical Physics, Ryerson University), Optimization of Image Quality in Computed Tomography for Pediatrics
33. *Tom Burzynski* (January 2012, **Ph.D. Oral Examination**, Mechanical Engineering, Ryerson University), Modelling Surface Evolution in Abrasive Jet Micromachining Using Level Set Methods
34. *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
35. *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
36. *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
  37. *Golafsoun Ameri* (October 2011, M.Sc. Oral Examination, Biomedical Physics, Ryerson University), Synthetic Aperture Imaging in Acoustic Microscopy
  38. *Mehdi Moslemi* (September 2011, **Ph.D.** Oral Examination - Chair of Examination, Civil Engineering, Ryerson University) Dynamic Response Of Circular And Conical Elevated Tanks
  39. *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
  40. *Irina Schelkanova* (August 2011, M.Sc. Oral Examination - Chair of Examination, Biomedical Physics, Ryerson University) Development of Signal Processing of Broadband Near Infrared Spectroscopy
  41. *Barry Vuong* (July 2011, **Ph.D. Qualifying Examination**, Electrical and Computer Engineering, Ryerson University) Ultrasound and Magnetic Resonance Imaging Guided Optical Coherence Tomography
  42. *Ervis Sofroni* (April 2011, M.Sc. Oral Examination, Computer Science, Ryerson University), Tissue Characterization of Prostate Cancer Using Quantitative Analysis of Low Frequency Ultrasound.
  43. *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.
  44. *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.
  45. *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.
  46. *Robert Tkaczyk* (September 2010, M.Sc. Oral Examination - Chair of Examination Biomedical Physics, Ryerson University), The Design and Synthesis of a Stereotactic Radiosurgical Phantom.
  47. *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.
  48. *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.
  49. *Adrian Mariampillai* (August 2010, **Ph.D.** Oral Examination, Medical Biophysics, UofT) Development of a High Resolution Microvascular Imaging Toolkit for Optical Coherence Tomography



50. *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.
51. *Marika Archambault-Wallenburg* (August 2010, M.Sc. Oral Examination, Medical Biophysics, UofT) Two-photon microscopy and polarimetry for assessment of myocardial tissue organization
52. *Ahmed El Kaffas* (July 2010, **Ph.D. Qualifying Examination**, Medical Biophysics, UofT) Investigating Vascular Targeting Strategies for Enhancing Radiation Response
53. *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
54. *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.
55. *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.
56. *Robin Castelino* (January 2010, **Ph.D. Qualifying Examination**, Medical Biophysics, UofT) Monitoring Gold Nanorod Loaded Microbubbles using High Frequency Photoacoustic/Ultrasound Imaging
57. *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
58. *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
59. *Eric Strohm* (August 2009, M.Sc., Biomedical Physics, Ryerson University) The Calculation of the Mechanical Properties of Apoptotic Cells Using Time Resolved Acoustic Microscopy
60. *Veronica Barbisan* (July 2009, M.Sc. Oral Examination Molecular Science, Ryerson University) Fc Receptors in Raw Cells
61. *Antonio Mauro* (June 2009, M.Sc., Biomedical Physics, Ryerson University) High Speed Rotary System for Catheter Based 3-D Imaging with Optical Coherence Tomography
62. *Roxana Vlad* (April 2009, **Ph.D.** Oral Examination, Medical Biophysics, UofT) Quantitative ultrasound characterization of responses to radiotherapy in vitro and in vivo.
63. *Jane Walter* (December 2008, **Ph.D.** Qualifying Exam, Medical Biophysics, UofT) Optical Spectroscopy for Disease Risk Screening
64. *Golnaz Farhat* (November 2008, **Ph.D. Qualifying Exam**, Medical Biophysics, UofT) Combining Optical Coherence Tomography and High Frequency Ultrasound for Monitoring Cell Death
65. *Ahmed El Kaffas* (September 2008, M.Sc. Oral Examination, Biomedical Physics, Ryerson University) Measuring the mechanical properties of apoptotic cells using particle tracking microrheology

66. *Sara Iradji* (September 2008, M.Sc. Oral Examination, Biomedical Physics, Ryerson University) Optimization of Subharmonic Generation from Ultrasound Contrast Agents at High-Frequency Ultrasound
67. *Nazinin Nayebi* (September 2008, M.Sc. Oral Examination, Biomedical Physics, Ryerson University) Synthetic Aperture Imaging: Applications in High-Frequency Ultrasound.
68. *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.
69. *Eli Lechtman* (August 2008, M.Sc. Oral Examination, Biomedical Physics, Ryerson University) New Algorithms for Computed Tomography Image Reconstruction to Eliminate Artifacts
70. *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
71. *Robin Castelino* (January 2008, M.A.Sc. Oral Examination, ECE, Ryerson University) Biomedical Applications of Photoacoustics for Thermal Therapy
72. *Nicole Carmichael* (November 2007, **Ph.D.** Chair of Oral Examination, Dept. Physiology, UofT) The Timecourse of Neuroinflammation and the Effect of Modulatory Agents
73. *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
74. *Toby Lam*, (October 2007, M.Sc. Oral Examination, Medical Biophysics, UofT) Nonlinear parameter (B/A) imaging
75. *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
76. *Adrian Mariampillai*, (June 2007, **Ph.D. Qualifying Examination**, Medical Biophysics, UofT) Resolving microvascular structure and function using swept source Doppler optical coherence tomography
77. *Claire McCann* (March 2007, **Ph.D.** Oral Examination, Medical Biophysics, UofT) A novel radiofrequency coil for interstitial thermal therapy
78. *Omar Falou* (March 2007, **Ph.D. Qualifying Examination**, ECE, Ryerson University) Finite Element Modelling of High Frequency Ultrasound Scattering from Cells and Contrast Agents
79. *Madhu Jain* (January 2007, M.Sc. Chair of Oral Examination, ECE, Ryerson University) A thermal dose controller for Laser Interstitial Thermal Therapy
80. *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
81. *Darren Morofke* (September 2006, M.A.Sc. Oral Examination, ECE, Ryerson University) Evaluation of Velocity Estimation Algorithms for Doppler Optical Coherence Tomography

82. *Harshitha Nallapareddy* (June 2006, M.Eng. Oral Examination, ECE, Ryerson University) Parametric Analysis of Ultrasound Backscattered Signals for Monitoring Cancer Cell Structural Changes
83. *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
84. *Gloria Spirou* (August 2005, M.Sc. Oral Examination Medical Biophysics, UofT) An investigation of pulsed & frequency domain photoacoustics and their applicability to biomedical studies
85. *Neeta Parmar* (April 2005, M.A.Sc. Oral Examination ECE. Ryerson University) Acoustic transmission imaging for the detection of lesions during thermal therapies
86. *Adam Tunis* (January 2005, M.Sc. Oral Examination Medical Biophysics, UofT) Monitoring Structural Changes in Cells and Tissues with High Frequency Ultrasound Signal Statistics
87. *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
88. *Roxana M. Vlad* (December 2004, M.Sc. Oral Examination Medical Biophysics, UofT) High Frequency Ultrasound for Monitoring Liver Changes During Preservation
89. *Noushin Farnoud* (August 2004, M.A.Sc. Oral Examination ECE, RU) Autoregressive signal analysis for ultrasound signal classification
90. *Jennifer Evans* (July 2004, M.Sc. Oral Examination Medical Biophysics, UofT) MRI of Ultrasound Fields
91. *Ralph Baddour* (January 2004, M.Sc. Oral Examination Medical Biophysics, UofT) High Frequency Ultrasound Scattering from Microspheres and Single Cells.
92. *Xuegang Su*. (January 2004, M.A.Sc. Oral Examination ECE, Ryerson University) Pulse encoding techniques for improving SNR for high frequency ultrasound,
93. *Mihaela Paula Pop* (December 2003, M.Sc. Oral Examination Medical Biophysics, UofT) Radiofrequency Thermal Therapy of Renal Cell Carcinoma.
94. *General Leung* (December 2003, M.Sc. Oral Examination Medical Biophysics, UofT) Motion compensation in MRI using variable density spiral trajectories.
95. *Claire McCann* (November 2003, **Ph.D. Qualifying Exam**, Medical Biophysics, UofT) A Novel Radiofrequency Coil for Interstitial Thermal Therapy
96. *Mike Strauss* (September 2003, M.Sc. Oral Examination Medical Biophysics, UofT) Cryoelectron microscopy of membrane proteins: lipid bilayer supports and vacuum-cryo-transfer.
97. *Cathy Nangini* (March 2003, reclassification exam, Medical Biophysics, UofT)) Neurovascular Coupling in the Human Primary Somatosensory Cortex using fMRI.
98. *Claudia Strobele* (March 2003, reclassification exam, Medical Biophysics, UofT) A novel approach to image analysis and its application to Medical Imaging.
99. *Olivier Couture* (February 2003, reclassification exam, Medical Biophysics, UofT) Study of targeted contrast agent for high frequency ultrasound
100. *Carol Kolb* (January 2003, M.Sc., Physiology, UofT) High frequency ultrasound imaging of mice

101. *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
102. *Nicholas Block* (April 2002, reclassification exam, Medical Biophysics, UofT) Multiple-Mouse Magnetic Resonance Imaging

#### **POST-DOCTORAL FELLOWS [12 /4]:**

##### *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
9. [Dr. Lauren Wirtzfeld](#), Quantitative Ultrasound of Cell Death in Tissue Engineered Constructs to Evaluate Sensitivity for Cancer Therapy Monitoring, March 2011 – August 2016
10. [Dr. Yasaman Daghighi](#), Signal analysis and microfluidics development for an acoustic and photoacoustic flow cytometer, Feb. 2015 – August 2016
11. [Dr. Azhar Zam](#), OCT speckle decorrelation to assess cell death, Sept. 2014 – June 2016
12. [Dr. Mohammed Yahya](#), Interferometric detection of red blood cell pathologies, July 2016 – Oct. 2016

##### *In Progress*

13. Dr. Krishnan Sathiyamoorthy, Novel nanoparticle-based contrast agents for Optoacoustic Imaging, June 2013 – present
14. [Dr. Tae-Hoon Bok](#), Photoacoustic flow system development, Sept. 2013 – present
15. [Dr. Marjan Razani](#), Biomedical Application of OCT elastography, July 2016 – present
16. [Dr. Sila Appak Baskoy](#), (co-supervised with Dr. Imogen Coe), Ultrasound Mediated Drug Therapy in Pancreatic Cancer, Jan. 2017 - 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
2017-22	Natural Sciences & Engineering Research Council – Discovery grant	G	\$230,000	Research Operating	P.I. M. C. Kolios
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. Ultrasound Imaging of DNA-Damage Effects in Live Cultured Cells and in brain tissue  
Hadi Tadayyon, Mehrdad J. Gangeh, Roxana Vlad, **Michael C. Kolios**, Gregory J. Czarnota  
Methods in Molecular Biology, Springer, Volume 1644, pp 23-40, July 2017



2. 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, pp1-18, Sept. 2014
3. 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
4. Acoustic microscopy of cells  
Eric M. Strohm, G. Czarnota, **Michael C. Kolios**  
J. Mamou and M. Oelze (Eds.)  
Springer, 2013
5. 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)
6. 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)

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1. Monitoring quantitative ultrasound parameter changes in a cell pellet model of cell starvation, Lauren Wirtzfeld, Elizabeth Berndl, Gregory Czarnota, **Michael C. Kolios**, *Biophysical Journal*, vol 112, no 12, pg 2634-2640, June 2017, doi: 10.1016/j.bpj.2017.05.017
2. Photoacoustic spectral characterization of cancer treatment response: Correlation with changes in tumor oxygenation, Eno Hysi, Lauren Wirtzfeld, Jonathan May, Elijus Undzys, Shyh-Dar Li, **Michael C. Kolios**, *Photoacoustics*, 5, 25-35, <https://doi.org/10.1016/j.pacs.2017.03.003>
3. Honey, I shrunk the bubbles: microfluidic vacuum shrinkage of lipid-stabilized microbubbles, V. Gnyawali, B. U. Moon, J. Kieda, R. Karshafian, S. S. H. Tsai, and **M. C. Kolios**, *Soft Matter*, 2017 DOI:10.1039/C7SM00128B
4. A magnetic droplet vaporization approach using perfluorohexane-encapsulated magnetic mesoporous particles for ultrasound imaging and tumor ablation, Z. Teng,

- R. Wang, Y. Zhou, **M. C. Kolios**, Y. Wang, N. Zhang, Z. Wang, Y. Zheng, and G. Lu, Article in Biomaterials 134 · April 2017, vol 134, 43-50, doi: <https://doi.org/10.1016/j.biomaterials.2017.04.021>
5. Stable microfluidic flow focusing using hydrostatics, V. Gnyawali, M. Saremi, **M. C. Kolios**, S. Tsai, Biomicrofluidics, vol. 11, no. 3, pg 34104, 2017. Doi: <http://dx.doi.org/10.1063/1.4983147>
  6. Photoacoustic Imaging of Cancer Treatment Response: Early Detection of Therapeutic Effect from Thermosensitive Liposomes, Jonathan May, Eno Hysi, Lauren Wirtzfeld, Elijus Undzys, SD Li, **Michael C. Kolios** (2016), PLOS One, 11 (10), e0165345
  7. Assessment of the Nucleus-to-Cytoplasmic Ratio in MCF-7 Cells Using Ultra-high Frequency Ultrasound and Photoacoustics, Michael Moore, Eric Strohm, **Michael C. Kolios**, Springer Link, 37 (12), 2016, doi: <http://dx.doi.org/10.1007/s10765-016-2129-y>
  8. 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
  9. High resolution ultrasound and photoacoustic imaging of single cells, Eric M. Strohm, Michael J. Moore, and **Michael C. Kolios**, Photoacoustics, 4(1): 36-42, 2016. Doi: 10.1016/j.pacs.2016.01.001
  10. High-frequency ultrasound detection of cell death: Spectral differentiation of different forms of cell death invitro, Maurice Pasternak, Ali Sadeghi-Naini, Shawn Ranieri, Anoja Giles, Michael Oelze, **Michael C. Kolios**, OncoScience ,3(9-10), 275-287, September 2016, doi: 10.18632/oncoscience.319
  11. High-Frequency Ultrasound Analysis of Post-Mitotic Arrest Cell Death in MDA-MB-231 Cells, Pasternak MM, Wirtzfeld LA, Czarnota GC, **Kolios MC**, OncoScience, 3 (3-4), 109-21, April 2016, doi: 10.18632/oncoscience.301
  12. 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
  13. 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>.

14. Single Cell Photoacoustic Microscopy: A Review, Eric M. Strohm, Michael J. Moore, and **Michael C. Kolios**.  
Journal of Selected Topics in Quantum Electronics, 22(3), June 2016. Doi: 10.1109/JSTQE.2015.2497323
15. 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. Doi: 10.1109/TUFFC.2015.007005
16. Properties of Cells through life and death – an acoustic microscopy investigation, Maurice Pasternak, Eric Strohm, Elizabeth Berndl and **Michael C. Kolios**, Cell Cycle, vol 12, issue 18, July 2015, doi: <http://dx.doi.org/10.1080/15384101.2015.1069925>
17. High-Frequency Acoustic Impedance imaging of cancer cells, Muhanned Fadhel, Elizabeth Berndl, Eric Strohm and **Michael C. Kolios**, Ultrasound in Medicine and Biology, July 2015, pii: S0301-5629(15)00400-7.  
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18. 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, International Journal of Hyperthermia, July 2015, <http://dx.doi.org/10.3109/02656736.2015.1052856>
19. Classification of blood cells and tumor cells using label-free ultrasound and photoacoustics, Eric Strohm, **Michael C. Kolios**, Cytometry, vol 87, issue 8, pg 741-749, doi: 10.1002/cyto.a.22698
20. Exact solution for a photoacoustic wave from a finite-length cylindrical source Jason Zalev and **Michael C. Kolios**, Journal of the Acoustical Society of America, 2015, 137 (4), 1675-1682 doi: <http://dx.doi.org/10.1121/1.4916273>
21. 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, Translational Oncology, 2015, 8 (1), 25-34, doi: <http://dx.doi.org/10.1016/j.tranon.2014.11.005>
22. 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**, Nonlinear Dynamics, Springer, 2015, doi: 10.1007/s11071-015-1914-7
23. 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**, Advance Functional Materials, September 2014, vol 24, issue 48, 7674-7680, doi: 10.1002/adfm.201402631

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25. Speckle statistics in OCT images: Monte Carlo simulations and experimental studies Mikhail Kirillin, Alex Vitkin, **Michael Kolios**, Ekaterina Sergeeva, and Golnaz Farhat, Optics Letters, 2014, 39 (12), 3472-3475, doi: 10.1364/OL.39.003472.
26. Optoacoustic characterization of prostate cancer in an in vivo transgenic murine model, Michelle Patterson, Christopher B Riley, **Michael Kolios**, Whelan Whelan, Journal of Biomedical Optics, 2014, 19 (5), 056008; doi:10.1117/1.JBO.19.5.056008
27. 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, Oncotarget, 5(11), 3497-3511, June 2014, doi: 10.18632/oncotarget.1950
28. 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
29. 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
30. 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
31. 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
32. Probing Red Blood Cell Morphology Using High-Frequency Photoacoustics

- Eric M. Strohm, Elizabeth S. L. Berndl, and **Michael C. Kolios** (2013)  
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33. Low-frequency quantitative ultrasound imaging of cell death in vivo  
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34. Non-invasive Monitoring of ultrasound-stimulated microbubble radiation enhancement using photoacoustic imaging  
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35. Conventional frequency ultrasonic biomarkers of cancer treatment response in vivo  
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36. Quantitative ultrasound evaluation of tumour cell death response in locally advanced breast cancer patients receiving chemotherapy  
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37. Investigating longitudinal changes in the mechanical properties of MCF-7 cells exposed to paclitaxel using particle tracking microrheology  
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Physics in Medicine and Biology, 58 (2013) 923–936, doi: 10.1088/0031-9155/58/4/923
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41. On the use of photoacoustics to detect red blood cell aggregation  
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45. Validity of a theoretical model to examine blood oxygenation dependent optoacoustics  
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46. Feasibility of optical coherence elastography measurements of shear wave propagation in homogeneous tissue equivalent phantoms  
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48. Effects of cell spatial organization and size distribution on ultrasound backscattering  
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52. 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)  
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**Michael C. Kolios** and Gregory J. Czarnota [invited editorial] (2009)  
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63. Monitoring of cell death in epithelial cells using high frequency ultrasound spectroscopy  
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IEEE International Ultrasonics Symposium – Oct 18-21, 2011 – Orlando, FL
72. 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
73. 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
74. 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
75. 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
76. Optical excitation of ultrasound contrast agents  
Eno Hysi, Sankar Narasimhan and **Michael C. Kolios**  
Canadian Undergraduate Physics Conference – Oct 1-5, 2009 – Edmonton, AB
77. 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
78. 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

79. 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
80. 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
81. 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
82. Photoacoustic spectral characterization of perfluorocarbon droplets  
Eric Strohm, Ivan Gorelikov, Naomi Matsuura, **Michael Kolios** (2012)  
Proc. of SPIE Vol. 8223 82232F-1
83. 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
84. 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
85. 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
86. 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
87. 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, doi: 10.1109/ULTSYM.2011.0589
88. Ultrasound drug targeting to tumors with thermosensitive liposomes

Mark J. Ernsting, Arthur Worthington, Jonathan P. May, Tatsuaki Tagami, Michael C. Kolios, Shyh-Dar Li  
In 2011 IEEE International Ultrasonics Symposium Proceedings pp. 1-4

89. 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)  
SPIE, Vol. 7899, 78990Z-1:5
90. Detecting abnormal vasculature from photoacoustic signals using wavelet-packet features  
J. Zalev, and **M.C. Kolios** (2011)  
SPIE, Vol. 7899, 78992M-1:15
91. 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
92. 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
93. 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
94. 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
95. 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
96. 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
97. 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

98. 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
99. 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
100. 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
101. 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), doi: 10.1007/978-3-642-11615-5\_13  
Lecture Notes in Computer Science, Volume 5958, p 119-129
102. 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), Doi: <https://doi.org/10.1364/BIOMED.2010.JMA47>
103. 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)
104. 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
105. 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
106. 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



107. 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
108. 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
109. Measuring the Mechanical Properties of Cells using Acoustic Microscopy  
Eric M. Strohm, **Michael C. Kolios**  
Proc. 2009 IEEE EMBS, pp. 6042-6045
110. Measuring Scattering in apoptotic cancer cells using ultra high frequency acoustic microscopy  
Eric Strohm, **Michael C. Kolios** (2009)  
Canadian Acoustics / Acoustique canadienne Vol. 37 No. 3, p 168-169
111. 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
112. Biomedical ultrasound imaging from 1 to 1000MHz  
**Michael C. Kolios** (2009)  
Canadian Acoustics / Acoustique canadienne Vol. 37 No. 3, p 35-42
113. Optoacoustic imaging of thermal lesions  
Michel G. Arsenault, **Michael C. Kolios** and William M. Whelan (2009)  
Proc. SPIE 2009 Volume 7177, pp. 71771V
114. 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
115. 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)
116. 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]

117. 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.
118. 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
119. 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
120. Transmission ultrasound imaging to guide thermal therapy  
E. Soleimankhani, **M. C. Kolios** (2007) Proceedings of the IEEE International Ultrasonics Symposium, Pages: 1812 - 1815
121. 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
122. Two-Dimensional Velocity Estimation for Doppler Optical Coherence Tomography  
D Morofke, **M Kolios**, VXD Yang (2007) SPIE Symposium on Biomedical Optics, 6429-86, 2007
123. 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
124. 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
125. 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
126. 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

127. 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
128. 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
129. 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.
130. 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.
131. 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
132. 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
133. 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
134. 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
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) Proceedings of the IEEE International  
Ultrasonics Symposium, Montreal, Canada, Pages: 768 - 771

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**  
Proceedings of the IEEE International Ultrasonics Symposium, Montreal, Canada, 2004, Volume 2, Pages:830 - 833
137. 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
138. 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
139. 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
140. 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
141. 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.
142. 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
143. 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

144. 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)

145. 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. *3<sup>rd</sup> 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] *1<sup>st</sup> 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 (IWBMS-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 – 7<sup>th</sup> 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 6<sup>th</sup>, 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. Correlations in photoacoustic estimates of tumor oxygenation during novel cancer therapies with power Doppler measurements, Eno Hysi, Lauren A. Wirtzfeld, Azza Al-

- Mahrouki, Mai Elfarnawany, James C. Lacefield, Gregory J. Czarnota and **Michael C. Kolios** (2017), SPIE Photonics West BiOS, Jan 28 – Feb 2, San Francisco, CA
2. Monitoring and predicting cancer treatment outcomes using photoacoustic imaging, Eno Hysi, Lauren A. Wirtzfeld, Jonathan P. May, Elijus Undzys, Shyh-Dar Li and **Michael C. Kolios** (2016), Terry Fox Research Institute Ontario Node Symposium, December 6, Toronto, ON
  3. Ultrasound and photoacoustic analysis of HT-29 and AML cell pellets at 200 MHz, L.A. Wirtzfeld, E.M. Strohm, **Michael C. Kolios**, Innovations in Cancer Therapy and Response Monitoring, Toronto, Canada, November 16, 2016 (poster presentation).
  4. High frequency ultrasound imaging and spectral analysis from sea urchin oocytes, E.M. Strohm, L.A. Wirtzfeld, G.C. Czarnota, **Michael C. Kolios**, Proceedings of the 2016 IEEE International Ultrasonics Symposium, Tours, France, September 19, 2016 (oral presentation).
  5. Single red blood cell oxygen saturation imaging using multispectral photoacoustic microscopy, M.J. Moore, P. Schygulla, E.M. Strohm, **Michael C. Kolios**, Proceedings of the 2016 IEEE International Ultrasonics Symposium, Tours, France, September 20, 2016 (oral presentation).
  6. Photoacoustic spectroscopy of cell pellets, L.A. Wirtzfeld, E.M. Strohm, **Michael C. Kolios**, Proceedings of the 2016 IEEE International Ultrasonics Symposium, Tours, France, September 21, 2016 (poster presentation).
  7. High frequency photoacoustic spectral analysis of erythrocyte programmed cell death (apoptosis), M. Fadhel, E.M. Strohm, **Michael C. Kolios**, Proceedings of the 2016 IEEE International Ultrasonics Symposium, Tours, France, September 21, 2016 (poster presentation).
  8. 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)
  9. 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)
  10. 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)
  11. 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)

12. 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.
13. Acoustic and photoacoustic microscopy imaging of single leukocytes, E.M. Strohm, M.J. Moore, **M.C. Kolios**, SPIE Photonics West, February 17, 2016
14. 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
15. Photoacoustic investigation of gold nanoshells for bioimaging applications, K. Sathiyamoorthy, E.M. Strohm, **M.C. Kolios**, SPIE Photonics West, February 16, 2016
16. 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.
17. 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.
18. 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.
19. 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
20. Feasibility of noninvasive temperature estimation using acoustic harmonics, Borna Maraghechi, **Michael C. Kolios**, J. Tavakkoli, Canadian Association of Physicists (CAP) meeting, 2016.
21. 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.
22. 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)

23. 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).
24. 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).
25. 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.
26. 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.
27. Development of the Numerical Aperture Gated, Spatially Resolved, Diffuse Reflectance Imaging Architecture for Subsurface Imaging of Microvasculature  
I. Schelkanova, A. Couplik, **Michael C. Kolios**
28. Ultrasonic Characterization of Extra-Cellular Matrix in Decellularized Murine Kidney and Liver  
Wirtzfeld LA, Berndl ESL, **Michael C. Kolios**  
IEEE International Ultrasonics Symposium, Taipei, Taiwan: October 22-24, 2015
29. 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.
30. 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
31. 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
32. 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).
33. 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).
  34. Sound Speed Estimation in Single Cells Using the Ultrasound Backscatter Power Spectrum  
E.M. Strohm, and **Michael C.Kolios**.
  35. Acoustical Imaging of Internal Spheroid Structures for a Series of Frequencies.  
E.S. Berndl, L. Wirtzfeld, E.M. Strohm, **Michael C.Kolios**
  36. Acoustic and Photoacoustic Imaging of Spheroids  
**Michael C.Kolios**, E.S. Berndl, L. Wirtzfeld, E.M. Strohm, and G.J. Czarnota
  37. 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).
  38. 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).
  39. 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).
  40. 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).
  41. 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 Fransisco, California, January 2012

42. 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
43. 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**
44. 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
45. Quantitative and parametric analysis employing conventional frequency ultrasound of cancer treatment effects in vivo  
Naum Papanicolau, Anoja Giles, **Michael Kolios** and Gregory Czarnota
46. 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**
47. 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  
161<sup>st</sup> Meeting Of The Acoustical Society Of America, Seattle May 2011
48. Theoretical considerations for ultrasound contrast agent amplitude modulation techniques at high frequencies  
Amin Jafari Sojahrood and **Michael C. Kolios**
49. 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
50. High frequency ultrasound and optical coherence tomography imaging of cell death  
G. Farhat, V.X.D. Yang, G.J. Czarnota and **M.C. Kolios**
51. 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

52. Optimization of the Shear Stress Induced by Ultrasonically-Stimulated Oscillating Microbubbles: A Theoretical Investigation  
Amin Jafari Sojahrood, Raffi Karshafian, **Kolios Michael**
53. The Utilization of the Bubble Pressure Dependent Harmonic Resonance Frequency for Enhanced Heating During High Intensity Focused Ultrasound Treatments  
Amin Jafari Sojahrood, **Kolios Michael**
54. 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 Fransisco, California, January 2011
55. 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**
56. 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
57. Detecting abnormal vasculature from photoacoustic signals using wavelet-packet features (Paper 7899-94)  
Jason Zalev, **Michael C. Kolios**
58. 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**
59. 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
60. A simulation study on ultrasound backscattering by cell aggregates with poly-disperse cells  
Ratan K Saha and **Michael C. Kolios**
61. Optical droplet vaporization (ODV): photoacoustic characterization of perfluorocarbon droplets  
Eric M. Strohm, **Michael C. Kolios**, I. Gorelikov, and N. Matsuura

62. 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
63. 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
64. Optical Coherence Tomography Methods for Detecting Cell Death  
G. Farhat, A. Mariampillai, V.X.D. Yang, G.J. Czarnota and **M.C. Kolios**
65. 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
66. Fluorescence flow phantom imaging using combined laser scanning confocal fluorescence microscopy and optical coherence tomography  
Timothy Luk and **Michael C. Kolios**
67. 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
68. 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
69. Ahmed El Kaffas, Eric Strohm, Devesh Bekah, Gregory J. Czarnota, **Michael C. Kolios**, SPIE Photonics West – San Fransisco, California, January 2010
70. 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
71. 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

72. 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
73. 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
74. Quantifying ultrasonic properties of cells during apoptosis using time resolved acoustic  
microscopy [1C-4]  
Eric Strohm, **Michael Kolios**
75. 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**
76. 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)
77. High Frequency Optoacoustic Microscopy  
Bost W., Stracke F., Weiß E., Narasimhan S., **Kolios M.**, Lemor R.
78. 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, doi:  
10.1109/IEMBS.2009.5334535
79. 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
80. 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

81. Conventional frequency evaluation of tumor cell death in response to treatment in vivo  
Papanicolau Naum; Banihashemi Behzad, Czarnota Gregory J, **Kolios Michael**;  
Sadeghian Alireza
82. 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.
83. Acoustic microscopy of live cells and cell aggregates  
[Invited] **Michael C. Kolios**  
Bios 2009 – Biomedical Optics – San Jose, January 2009
84. Optoacoustic imaging of thermal lesions (Paper 7177-68)  
William M. Whelan, **Michael C. Kolios**, Kris T. Lund, Michelle P. Macphee
85. 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
86. 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
87. 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
88. 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
89. Modeling scattering from cells and biological structures  
[Invited] **Michael C. Kolios**
90. 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

91. Conventional-Frequency Ultrasound Detection Of Apoptosis In Vivo  
Papanicolau, Naum; Azrif, Muhammad; Karshafian, Rafii; Giles, Anoja; Sadeghian, Alireza; **Kolios, Michael C.**; Czarnota, Gregory J.
92. 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.
93. 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.
94. 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
95. 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
96. 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
97. 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**
98. 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**

99. Transmission ultrasound imaging to guide thermal therapy  
E. Soleimankhani, **M. C. Kolios**
100. 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
101. High frequency ultrasound imaging of cell structural changes following radiation therapy  
R.M. Vlad, A. Giles, **M.C. Kolios** and G.J. Czarnota
102. 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
103. 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
104. 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
105. A Transmission Ultrasound Imaging Technique To Guide Thermal Therapy  
Elham Soleimankhani and **Michael C. Kolios**  
CANADIAN ASSOCIATION OF Physicists (CAP) ANNUAL CONGRESS,  
Saskatoon, JUNE 2007
106. A Study On Opto-Mechanical Properties Of Biomaterials And Their Effects On Optoacoustic Signals  
Behrouz Soroushian, William Whelan, **Michael Kolios**
107. 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
108. High-Frequency Ultrasound Scattering From Mixtures Of Two Different Cells Lines: Tissue Characterization Insights, (Invited)  
**Michael C. Kolios**, Anoja Giles and Gregory J. Czarnota

109. High-frequency ultrasound imaging of cell structural changes following radiation therapy,  
Roxana Vlad, Anoja Giles, **Michael C. Kolios** and Gregory J. Czarnota
110. 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
111. Functional Imaging of Apoptosis in Tumors With High-Frequency Ultrasound Imaging and Spectroscopy  
Chu, William; **Kolios, Michael**; Czarnota, Gregory J.
112. High-Frequency Ultrasound Imaging of Cell Structural Changes Following Radiation Therapy  
Roxana, Vlad M.; Giles, Anoja; **Kolios, Michael C.**; Czarnota, Gregory J.
113. Cepstrum Analysis of High-Frequency Ultrasound Backscatter Data From Purple Sea Urchin Embryos  
Nathanael, George; Baddour, Ralph; Vaziri, Homayoun; Czarnota, Gregory; **Kolios, Michael C.**
114. Conventional Low-Frequency Ultrasound Detection of Apoptosis  
Azrif, Muhammad; Ranieri, Shawn; Giles, Anoja; Debeljevic, Branislav; **Kolios, Michael C.**; Czarnota, Gregory J.
115. An Investigation of the High-Frequency Ultrasonic Backscatter From Ensembles of Cells and Cell Analogues  
Baddour, Ralph E.; Czarnota, Gregory J.; **Kolios, Michael C.**
116. 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
117. 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
118. 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

119. 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
120. Investigating the Effect of Cell Size on the Backscatter from Suspensions of Varying Volume Fractions, R. E. Baddour, **M. C. Kolios**
121. 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
122. Finite Element Modeling of Ultrasound Scattering by Spherical Objects and Cells  
O. Falou, J. C. Kumaradas, **M. C. Kolios**
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**  
5th International Conference On Ultrasonic Biomedical Microscanning, September 2006 Cargese, Corsica, France
124. Elucidating the acoustic scattering centres in cells at high frequencies  
Ralph Baddour and **Michael C. Kolios**
125. 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
126. 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.)
127. 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
128. Visualization of Apoptotic Cells using Scanning Acoustic Microscopy.  
S. Brand, E.C. Weiss, G.J. Czarnota, R. Lemor and **M.C. Kolios**

129. The Effect of Volume Fraction on the Backscatter from Nucleated Cells at High Frequencies  
Baddour, R.E. and **Kolios, M.C.**
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 Annual Conference Of The Canadian Acoustical Association, October 2005, London, Ontario
131. 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
132. 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
133. 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**
134. High frequency ultrasound to characterize cell acoustical parameters  
RM Vlad , GJ Czarnota , A Giles, MD Sherar , JW Hunt and **MC Kolios**
135. 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
136. 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
137. 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
138. Ultrasound Attenuation Mapping for the Monitoring of Thermal Lesions,  
Parmar N. and **Kolios, M.C.**

- 4th International Conference On Ultrasonic Biomedical Microscanning (2004)
139. 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
140. 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
141. 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)
142. 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
143. 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**
144. 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
145. 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**  
IEEE International Ultrasonics Symposium 2003
146. 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
147. 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



148. Modeling high frequency ultrasound scattering of cellular ensembles to deduce the apoptotic index  
Baddour R., **Kolios MC** and Sherar M.D.
149. 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
150. 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
151. 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
152. 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
153. 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
154. 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.**
155. 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.
156. 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.**
157. Ultrasound Imaging of the Chromosome Structure  
Czarnota, G.J. **Kolios, M.C.** Sherar, M.D. Ottensmeyer, F.P. and Hunt, J.W.
158. 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.  
5thsep. 8th, 2000

159. 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
160. 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.
161. 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
162. 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
163. 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
164. 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
165. 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)
166. 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.  
28thsep. 1st, 1998
167. 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

- 168.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.
- 169.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
- 170.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.
- 171.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.
- 172.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
- 173.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