CURRICULUM VITAE

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

b. DEGREES:

PhD., 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:

2001-	Associate Professor, Department of Physics (prior Mathematics, Physics and Computer Science), Ryerson University
2001-	Adjunct Professor, Department of Medical Biophysics, Full Member School Graduate Studies, University of Toronto
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:

Canada Research Chair, Tier II, Biomedical Applications of Ultrasound, 2009-2014
Teaching Excellence Award, Faculty of Engineering and Applied Science, Ryerson University, 2008
Japan Association for the Advancement of Medical Equipment fellowship (*JAAME fellowship)*, 2008
Canada Research Chair, Tier II, Biomedical Applications of Ultrasound, 2004-9
Research Excellence Award, Faculty of Engineering and Applied Science, Ryerson University, 2007
Premier's Research Excellence Award, Round 5, 2000
Ryerson University, *Competitive Merit Award*, 1998-2008
Canadian Organization of Medical Physicists *Young Investigators Award* - 3rd prize (1997)
Ontario Graduate Scholarship (1997)
North American Hyperthermia Society Conference *Travel Award* (1997)
National Cancer Institute of Canada Senior Doctoral *Travel Award* (1997)
University of Toronto Open *Doctoral Fellowship* (1994-1997)
VII International Congress of Hyperthermic Oncology *Travel Award* (1996)
Radiation Research Society Conference *Travel Award* (1995)
Hellenic-Canadian Federation Milionis *Student Award* (1991)
Atomic Energy of Canada *National Studentship* (1990)

e. SCHOLARLY AND PROFESSIONAL ACTIVITIES:

Grant Reviewer

1. NSERC Strategic Project Grants reviewer , 2010
2. The Office of the Congressionally Directed Medical Research Programs (CDMRP), Breast Cancer Research Program Concept Award – Grant reviewer, 2010
3. Ministry of Research and Innovation, Early Researcher Award competitions reviewer and panel member, 2008, 2009,2010
4. SHARCNET Dedicated Resources (2009) - reviewer
5. Seeds4Hope / Windsor & Essex County Cancer Centre Foundation - reviewer
6. NIH (grant reviewer and panel member)
    a. **[2009/October]** 2010/01 ZRG1 SBIB S91
    b. [2009/June] ZRG1 SBIB-S (30) / ZRG1 SBIB-S (91)
    c. [2009/Jan] SBIB-S 91
    d. [2008/Oct] 2009/01 ZRG1 SBIB-S (50)
    e. [**2008/Jun**] 2008/10 ZEB1 OSR-B (O1) R
    f. [2005/] Ultrasound SBIR Study Section, SBIR-12
7. US-Israel Binational Science Foundation (2008)
8. International Science and Technologies Partnerships Canada Inc. (ISTP) 2008
9. Canadian Institutes of Health Research, Grant reviewer, MPI 2007,09
10. Canadian Institutes of Health Research, Internal reviewer, MPI 2006
11. NSERC grant reviewer (panel 29, 2003-09).

Journal Reviewer

1. Ultrasound in Medicine and Biology (Editorial Board)
2. Cancer Research (2010)
3. Journal of Biomedical Optics (2010,11)
4. Annals of Biomedical Engineering (2008)
5. IEEE Transactions of Ultrasonics, Ferroelectrics and Frequency Control (07-11)
6. IEEE Transactions of Medical Imaging (2008, 2010)
7. Journal of the Acoustical Society of America (2004-08, 2010)
8. Journal of Applied Physics (07,08)
9. Medical and Biological Engineering and Computing (1999,2000,01,02,03,05,06,08)
10. Medical Physics (2000-08, 2010)
11. Physics in Medicine and Biology (1997-2008)
12. Optics Letters (2008,2010)
13. Journal of Biomechanical Engineering (2004)

Conference Abstract Reviewer

Abstract reviewer for the 2011 Joint AAPM/COMP Meeting
Abstract reviewer for the AIUM 2011 Convention (2010)
Abstracts reviewer for the World Congress on Medical Physics and Biomedical Engineering / 11th internal congress of the IUPESM (2009)
Abstracts reviewer for the 2009 Annual AAPM meeting (2009)

Abstracts reviewer for the IEEE Ultrasonics Symposium (2008-09)
Abstracts reviewer for the American Institute for Ultrasound in Medicine (AIUM) annual conference (2003-09)
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

1. Graduate Program Director, Biomedical Physics program, Ryerson University (July 1 2010 – present)
2. Elected Member of the Ryerson University Senate (2009-11)
3. Member of the IEEE International Ultrasonics Symposium Technical Program Committee (2008-present)
4. Chair of the High Frequency Ultrasound Pre-Clinical and Clinical Imaging Section, American Institute of Ultrasound in Medicine (AIUM), 2005-007
5. Member of the Bioeffects committee of the AIUM (2006-present)
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: **15 M.Sc., 2 Ph.D.**
In progress: **4 PhD., 7 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, 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 Zalev, 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

In progress:

1. Chester Santiago, M.Sc., Stabilization and Characterization of Ultrasound Contrast Agents for Cancer Therapy, Sept 2010-present (co-supervised with Dr. Derick Rousseau)

2. Eric Strohm, PhD., Ultrahigh Frequency Photoacoustic Characterization of Perfluorocarbon Droplets, Sept 2010-present
3. Eno Hysi, M.Sc., Photoacoustic Detection of Erythrocyte Aggregation, Sept 2010-present
4. Marjan Razani, M.Sc. OCT shear wave elastography, Sept 2010-present
5. Amin Jafari Sojahrood, M.Sc., Optimization of bubble dynamics in medical ultrasonics, Sept 2009-present
6. 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) Sept 2009-present
7. Barry Vuong, Ph.D., The Integration of Optical Coherence Tomography and Ultrasound Imaging Platforms, (co-supervised with Dr. Victor Yang) Sept 2009-present
8. Golnaz Farhat, Ph.D., Ultrasound and OCT spectroscopy for the determination of cell structural changes during cancer therapy (co-supervised with Dr. Gregory Czarnota) Jan 2007-present

Supervisory Committee:

Completed: **8 M.Sc., 4 Ph.D.**
In progress: **4 PhD., 7 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-August 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.
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. Nazinin Nayebi (M.Sc., Biomedical Physics, Ryerson University) Synthetic Aperture Imaging: Applications in High-Frequency Ultrasound. Sept. 2006 - Sept. 2008

11. Bane Debeljevic, (M.Sc., ECE, Ryerson University) Development of analysis platform for high frequency ultrasound imaging, Sept. 2006 – 2008 (did not complete)
12. Veronica Barbisan (M.Sc., Molecular Science, Ryerson University) Fc Receptors in Raw Cells Sept. 2007 – July 2009
13. Sharam Mashouf (M.Sc., Biomedical Physics, Ryerson University) Sept. 2007 – Sept. 2009
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) Sept. 2007 – Sept. 2009
16. Judith Weidman (M.Sc., Biomedical Physics, Ryerson University) The combined effects of heating and low intensity pulsed ultrasound on bone cells. Sept. 2007 – January 2010
17. Adrian Mariampillai, (**Ph.D**., Medical Biophysics, UofT) Development of a High Resolution Microvascular Imaging Toolkit for Optical Coherence Tomography, Sept 2005-August 2010
18. Michaela Pop, (**Ph.D**., Medical Biophysics, UofT), Magnetic Resonance Imaging in Radio-frequency Ablation of Cardiac Arrhythmias, Dec. 2003-Aug. 2010

In progress:

1. Robin Castelino (Ph.D., Medical Biophysics, UofT), Sept. 2007-Present
2. Ahmed El Kaffas (Ph.D., Medical Biophysics, UofT), Sept. 2008-Present

UNDERGRADUATE STUDENT SUPERVISIONS:

Thesis Students:

1. Hamed Moazami, Cell deformation from micropipette pulling, Sept 2007-2008
2. Denys Kozhevnikov, Sept 2009-April 2010
3. Eno Hysi, Sept 2009-April 2010
4. Hamed Basseri, Particle Microrheology of Cells, Sept 2009-April 2010
5. Igor Deresciuc, Attenuation correction algorithms in ultrasound, Sept 2010-April 2011
6. Behzad Safinejad, Measuring scattering from cells and contrast agents, Sept 2010-April 2011
7. Woomee Cho, acoustic microscopy of benign and malignant cells, Sept 2010-April 2011

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-August 2010, Work-study RA September 2010 to March 2011, NSERC USRA May-August 2011
4. Chester Santiago, co-Supervised, May-September 2010

5. Michael Dobson, Work Study Summer RA, May-August 2010, September 2010-March 2011, URO May-July 2011
6. Na Li, Work-Study Summer RA, June-August 2010, September 2010-March 2011
7. Georg Lempe, Research Exchange Student, June-December 2010
8. Yan Wang, Coop research assistant January- August 2011
9. Firas Almasri, research assistant September 2010- January 2011
10. Benno Koberstein-Schwarz, Research Exchange Student, July-September 2011
11. Maurice Pasternak, May-August 2011

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-August 2010
5. Martin Stanisz, Volunteer, August 2010
6. Sharon Yeung, ROPES Program at Ryerson, July 2011
7. Abra Shen, ROPES Program at Ryerson, July 2011

Graduate Examinations [65]:

Master of Science External Examiner:

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

Doctoral Candidate external examiner:

3. *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"*
4. *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"
5. *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*"
6. *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. Mehdi Moslemi (September 2011, **Ph.D**. Oral Examination - Chair of Examination, Civil Engineering, Ryerson University) Dynamic Response Of Circular And Conical Elevated Tanks
2. 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
3. Irina Schelkanova (August 2011, M.Sc. Oral Examination - Chair of Examination, Biomedical Physics, Ryerson University) Development of Signal Processing of Broadband Near Infrared Spectroscopy
4. *Barry Vuong* (July 2011, **Ph.D**. Qualifying Examination, Electrical and Computer Engineering, Ryerson University) Ultrasound and Magnetic Resonance Imaging Guided Optical Coherence Tomography
5. Ervis Sofroni (April 2011, M.Sc. Oral Examination, Computer Science, Ryerson University), Tissue Characterization of Prostate Cancer Using Quantitative Analysis of Low Frequency Ultrasound.
6. 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.
7. *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.
8. *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.
9. *Robert Tkaczyk* (September 2010, M.Sc. Oral Examination - Chair of Examination Biomedical Physics, Ryerson University), The Design and Synthesis of a Stereotactic Radiosurgical Phantom.
10. *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.
11. *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.
12. *Adrian Mariampillai* (August 2010, **Ph.D.** Oral Examination, Medical Biophysics, UofT) Development of a High Resolution Microvascular Imaging Toolkit for Optical Coherence Tomography
7. *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.

8. *Marika Archambault-Wallenburg* (August 2010, M.Sc. Oral Examination, Medical Biophysics, UofT) Two-photon microscopy and polarimetry for assessment of myocardial tissue organization
9. *Ahmed El Kaffas* (July 2010, **Ph.D.** Qualifying Examination, Medical Biophysics, UofT) Investigating Vascular Targeting Strategies for Enhancing Radiation Response
10. *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
11. *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.
12. *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.
13. *Robin Castelino* (January 2010, **Ph.D.** Qualifying Examination, Medical Biophysics, UofT) Monitoring Gold Nanorod Loaded Microbubbles using High Frequency Photoacoustic/Ultrasound Imaging
14. *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
15. *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
16. *Eric Strohm* (August 2009, M.Sc., Biomedical Physics, Ryerson University) The Calculation of the Mechanical Properties of Apoptotic Cells Using Time Resolved Acoustic Microscopy
17. *Veronica Barbisan* (July 2009, M.Sc. Oral Examination Molecular Science, Ryerson University) Fc Receptors in Raw Cells
18. *Antonio Mauro* (June 2009, M.Sc., Biomedical Physics, Ryerson University) High Speed Rotary System for Catheter Based 3-D Imaging with Optical Coherence Tomography
19. *Roxana Vlad* (April 2009, **Ph.D**. Oral Examination, Medical Biophysics, UofT) Quantitative ultrasound characterization of responses to radiotherapy in vitro and in vivo.
20. *Jane Walter* (December 2008, **Ph.D.** Qualifying Exam, Medical Biophysics, UofT) Optical Spectroscopy for Disease Risk Screening
21. *Golnaz Farhat* (November 2008, **Ph.D**. Qualifying Exam, Medical Biophysics, UofT) Combining Optical Coherence Tomography and High Frequency Ultrasound for Monitoring Cell Death
22. *Ahmed El Kaffas* (September 2008, M.Sc. Oral Examination, Biomedical Physics, Ryerson University) Measuring the mechanical properties of apoptotic cells using particle tracking microrheology
23. *Sara Iradji* (September 2008, M.Sc. Oral Examination, Biomedical Physics, Ryerson University) Optimization of Subharmonic Generation from Ultrasound Contrast Agents at High-Frequency Ultrasound

24. *Nazinin Nayebi* (September 2008, M.Sc. Oral Examination, Biomedical Physics, Ryerson University) Synthetic Aperture Imaging: Applications in High-Frequency Ultrasound.
25. *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.
26. *Eli Lechtman* (August 2008, M.Sc. Oral Examination, Biomedical Physics, Ryerson University) New Algorithms for Computed Tomography Image Reconstruction to Eliminate Artifacts
27. *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
28. *Robin Castelino* (January 2008, M.A.Sc. Oral Examination, ECE, RU) Biomedical Applications of Photoacoustics for Thermal Therapy
29. *Nicole Carmichael* (November 2007, **Ph.D.** Chair of Oral Examination, Dept. Physiology, UofT) The Timecourse of Neuroinflammation and the Effect of Modulatory Agents
30. *Elham Soleimankhani* (October 2007, M.A.Sc. Oral Examination, ECE, RU) An investigation of the use of transmission ultrasound to guide minimally invasive thermal therapy
31. *Toby Lam*, (October 2007, M.Sc. Oral Examination, Medical Biophysics, UofT) Nonlinear parameter (B/A) imaging
32. *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
33. *Adrian Mariampillai*, (June 2007, **Ph.D.** Qualifying Examination, Medical Biophysics, UofT) Resolving microvascular structure and function using swept source Doppler optical coherence tomography
34. *Claire McCann* (March 2007, **Ph.D.** Oral Examination, Medical Biophysics, UofT) A novel radiofrequency coil for interstitial thermal therapy
35. *Omar Falou* (March 2007, **Ph.D.** Qualifying Examination, ECE, RU) Finite Element Modelling of High Frequency Ultrasound Scattering from Cells and Contrast Agents
36. *Madhu Jain* (January 2007, M.Sc. Chair of Oral Examination, ECE, RU) A thermal dose controller for Laser Interstitial Thermal Therapy
37. *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
38. *Darren Morofke* (September 2006, M.A.Sc. Oral Examination, ECE, RU) Evaluation of Velocity Estimation Algorithms for Doppler Optical Coherence Tomography
39. *Harshitha Nallapareddy* (June 06, M.Eng. Oral Examination, ECE, RU) Parametric Analysis of Ultrasound Backscattered Signals for Monitoring Cancer Cell Structural Changes
40. *Omar Falou*, (Dec. 2005, M.A.Sc. Oral Examination ECE. RU) Finite element modeling of acoustic wave scattering from fluid, rigid and elastic spheres, Ryerson University, Dec. 2005

41. *Gloria Spirou* (August 2005, M.Sc. Oral Examination Med.Biophys. UofT) An investigation of pulsed & frequency domain photoacoustics and their applicability to biomedical studies
42. *Neeta Parmar* (April 2005, M.A.Sc. Oral Examination ECE. RU) Acoustic transmission imaging for the detection of lesions during thermal therapies
43. *Adam Tunis* (Jan 2005, M.Sc. Oral Examination Med.Biophys. UofT) Monitoring Structural Changes in Cells and Tissues with High Frequency Ultrasound Signal Statistics
44. *Trudy Freeman* (Dec 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
45. *Roxana M. Vlad* (Dec 2004, M.Sc. Oral Examination Med.Biophys. UofT) High Frequency Ultrasound for Monitoring Liver Changes During Preservation
46. *Noushin Farnoud* (Aug 2004, M.A.Sc. Oral Examination ECE. RU) Autoregressive signal analysis for ultrasound signal classification
47. *Jennifer Evans* (July 2004, M.Sc. Oral Examination Med.Biophys. UofT) MRI of Ultrasound Fields
48. *Ralph Baddour* (Jan 2004, M.Sc. Oral Examination Med.Biophys. UofT) High Frequency Ultrasound Scattering from Microspheres and Single Cells.
49. *Xuegang Su*. (Jan 2004, M.A.Sc. Oral Examination ECE. RU) Pulse encoding techniques for improving SNR for high frequency ultrasound,
50. *Mihaela Paula Pop* (Dec. 2003, M.Sc. Oral Examination Med.Biophys. UofT) Radiofrequency Thermal Therapy of Renal Cell Carcinoma.
51. *General Leung* (Dec. 2003, M.Sc. Oral Examination Med.Biophys. UofT) Motion compensation in MRI using variable density spiral trajectories.
52. *Claire McCann* (Nov.2003, **Ph.D.** Qualifying Exam, Med.Biophys. UofT) A Novel Radiofrequency Coil for Interstitial Thermal Therapy
53. *Mike Strauss* (Sept. 2003, M.Sc. Oral Examination Med.Biophys. UofT) Cryelectron microscopy of membrane proteins: lipid bilayer supports and vacuum-cryo-transfer.
54. *Cathy Nangini* (Mar. 2003, reclassification exam, Med.Biophys. UofT)) Neurovascular Coupling in the Human Primary Somatosensory Cortex using fMRI.
55. *Claudia Strobele* (Mar. 2003, reclassification exam, Med.Biophys. UofT) A novel approach to image analysis and its application to Medical Imaging.
56. *Olivier Couture* (Feb. 2003, reclassification exam, Med.Biophys. UofT) Study of targeted contrast agent for high frequency ultrasound
57. *Carol Kolb* (Jan. 2003, M.Sc., Physiology, UofT) High frequency ultrasound imaging of mice
58. *Kamyar Hazaveh* (Dec. 2002, M.Sc. Oral Examination, Dept. ECE, RU) Optimally Weighted Local Discriminant Bases – Theory and Applications in Statistical Signal and Image Processing
59. *Nicholas Block* (April 2002, reclassification exam, Med.Biophys. UofT) Multiple-Mouse Magnetic Resonance Imaging

POST-DOCTORAL FELLOWS [5]:

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

In Progress

5. Dr. George Noble, Computational modeling of magnetic nano-particles for ultrasound detection and targeted hyperthermia of sentinel lymph nodes, July 2010 – present
6. Dr. Lauren Wirtzfeld, Quantitative Ultrasound of Cell Death in Tissue Engineered Constructs to Evaluate Sensitivity for Cancer Therapy Monitoring, March 2011 – 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-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
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	G	$14,920	Research	P.I. M. C.Kolios

	Health Research - International Opportunities Program			Operating	
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
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 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)

2. Ultrasound Imaging of Apoptosis: DNA Damage Visualized
   Czarnota, G.J. **Kolios, M.C.** Hunt, J.W. and Sherar, M.D. In Didenko, V. (Ed.), Methods in Molecular Biology, Humana Press, 203:257-77(2002)

Papers in refereed Journals

1. Detecting apoptosis using dynamic light scattering with optical coherence tomography
   G. Farhat, A. Mariampillai, V.X.D. Yang, G.J. Czarnota and **M.C. Kolios** (2011)
   Journal of Biomedical Optics Letters

2. Vaporization of perfluorocarbon droplets using optical irradiation
   Eric Strohm, Min Rui, Ivan Gorelikov, Naomi Matsuura, and **Michael Kolios** (2011)
   Biomedical Optics Express, Vol. 2, Issue 6, pp. 1432-1442

3. A simulation study on photoacoustic signals from red blood cells
   Ratan K Saha, and **Michael C Kolios** (2011)

Journal of the Acoustical Society of America 129(5), 2935-2943

4. Hybrid Quantum Dot-Fatty Ester Stealth Nanoparticles: Toward Clinically Relevant in Vivo Optical Imaging of Deep Tissue
   Adam J. Shuhendler, Preethy Prasad, Ho-Ka Carol Cha†, Claudia R. Gordijo, *Behrouz Soroushian*, **Michael Kolios**, Kui Yu, Peter J. O'Brien, Andrew Michael Rauth, and Xiao Yu Wu (2011)
   ACS Nano 5(3) - 1958-1966

5. Detecting cell death with spectroscopic optical coherence tomography and envelope statistics
   G. Farhat, V.X.D. Yang, G.J. Czarnota and **M.C. Kolios** (2011)
   Journal of Biomedical Optics 16(2) -026017

6. Study of laser induced thermoelastic deformation of native and coagulated ex-vivo bovine liver tissues for estimating their optical and thermo-mechanical properties
   Behrouz Soroushian, William M. Whelan, **Michael C. Kolios** (2010)
   Journal of Biomedical Optics 15(6) - 065002

7. Quantitative measurements of apoptotic cell properties using acoustic microscopy
   Eric M. Strohm, Gregory J. Czarnota, and **Michael C. Kolios** (2010)
   IEEE Transactions on Ultrasonics, Ferroelectrics, and Frequency Control, vol. 57, no. 10. 2293-2304.

8. Ultrasound Detection of Cell Death
   Gregory J. Czarnota and **Michael C. Kolios** (2010)
   Imaging in Medicine 2(1), 17-28.

9. An increase in cellular size variance contributes to the increase in ultrasound backscatter during cell death
   Roxana M Vlad, Ratan K. Saha, Nehad M. Alajez, Shawn Ranieri, Gregory J Czarnota and **Michael C Kolios** (2010)
   Ultrasound in Medicine and Biology 36(9), 1546-1558.

10. The measurement of ultrasound scattering from individual micron-sized objects and its application in single cell scattering.
    Omar Falou, Min Rui, *Ahmed El Kaffas*, J. Kumaradas, and **Michael C. Kolios** (2010)
    Journal of the Acoustical Society of America 128(2), 894-902.
    [Selected by the American Physical Society and the American Institute of Physics for inclusion in the Virtual Journal of Biological Physics Research – August 15 2010 issue]

11. Evaluating the extent of cell death in 3D high frequency ultrasound by registration with whole-mount tumor histopathology

Roxana M Vlad, **Michael C Kolios**, Joanne L Moseley, Gregory J Czarnota, Kristy K Brock (2010)
Medical Physics 37(8), 4288-4297.
[Selected by the American Physical Society and the American Institute of Physics for inclusion in the Virtual Journal of Biological Physics Research – August 1 2010 issue]

12. Single cell size estimation from backscattered spectrum by using some weak acoustic scattering approximations
Ratan K Saha, Subodh K Sharma and **Michael C Kolios** (2010)
Canadian Acoustic 38(2), 31-34

13. Potential use of ultrasound for the detection of cell changes in cancer treatment
Michael C. Kolios and Gregory J. Czarnota [invited editorial] (2009)
Future Oncology 5(10), 1527–1532 (2009)

14. Quantitative Ultrasound Characterization Of Responses To Radiotherapy In Cancer Mouse Models
Roxana M. Vlad, *Sebastian Brand*, Anoja Giles, **Michael C. Kolios** and Gregory J. Czarnota (2009)
Clinical Cancer Research 15(6): 2067-2075

15. Monitoring of cell death in epithelial cells using high frequency ultrasound spectroscopy
Sebastian Brand, *Bindiya Solanki*, Deborah Foster, Gregory Czarnota and **Michael C. Kolios** (2009)
Ultrasound in Medicine and Biology 35(3): 482-493

16. A study of high frequency ultrasound scattering from non-nucleated biological specimens
Omar Falou, *Ralph Baddour*, *George Nathanael*, Gregory Czarnota, J. Carl Kumaradas, and **Michael C. Kolios** (2008)
The Journal of the Acoustical Society of America 124(5): EL278-EL283
[Selected by the American Physical Society and the American Institute of Physics for inclusion in the Virtual Journal of Biological Physics Research / Volume 16 / Issue 8 / 2008]

17. Quantitative ultrasonic characterization of cancer radiotherapy effects in vitro
Roxana M. Vlad, Nehad M. Alajez, Anoja Giles, **Michael C. Kolios** and Gregory J. Czarnota (2008)
International Journal of Radiation Oncology, Biology, Physics 72(4): 1236 - 1243

18. Detecting the Effects of Photodynamic Therapy in vivo by High Frequency Ultrasound Spectroscopy: a Novel Way of Monitoring Tumour Response
Behzad Banihashemi, *Roxana Vlad*, *Bane Debeljevic*, Anoja Giles, **Michael C. Kolios**, Gregory J. Czarnota (2008)

Cancer Research 68(20): 8590-8596

19. High frequency ultrasound tissue characterization and acoustic microscopy of intracellular changes
Sebastian Brand, Weiss EC, Lemor RM, and **Kolios M.C.** (2008)
Ultrasound in Medicine and Biology 34(9): 1396-1407

20. Parametric Analysis of Ultrasound Backscatter Signals for Monitoring Cancer Cell Structural Changes during Cancer Treatment
Harshita Nallapareddy, Sridhar Krishnan and **Michael C. Kolios** (2007)
Canadian Acoustics 35(2): 47-54

21. High-frequency ultrasound assessment of antimicrobial photodynamic therapy in-vitro
Ralph E. Baddour, Farhan N. Dadani, **Michael C. Kolios** and Stuart K. Bisland (2007)
Journal of Biological Physics 33(1): 61-66

22. Ultrasonic Characterization of Viable Whole Cells and Isolated Nuclei,
Linda Taggart, *Ralph E. Baddour*, Anoja Giles, Gregory J. Czarnota and **Michael C. Kolios** (2007)
Ultrasound in Medicine and Biology 33 (3): 389-401

23. The fluid and elastic nature of nucleated cells: Implications from the cellular backscatter response
Ralph E. Baddour and **Michael C. Kolios** (2007)
The Journal of the Acoustical Society of America 121 (1): EL16-EL22

24. Wide dynamic range detection of bidirectional flow in Doppler optical coherence tomography using a two-dimensional Kasai estimator
Darren Morofke, **Michael C. Kolios**, I. Alex Vitkin and Victor X. D. Yang (2007)
Optics Letters 32 (3): 253-255
[Selected by the American Physical Society and the American Institute of Physics for inclusion in the Virtual Journal of Biological Physics Research – Jan 15 2007 issue]

25. An Investigation of the Use of Transmission Ultrasound to Measure Acoustic Attenuation Changes in Thermal Therapy
Parmar N and **Kolios MC** (2006)
Medical and Biological Engineering and Computing 44:583-591

26. Monitoring Structural Changes in Cells with High Frequency Ultrasound Signal Statistics
A.S. Tunis, G.J. Czarnota, A. Giles, M.D. Sherar, J.W. Hunt and **M.C. Kolios** (2005)
Ultrasound in Medicine and Biology 31(8), 1041-1049

27. High frequency ultrasound scattering from microspheres and single cells
Baddour R E, Sherar M D, Hunt J W, Czarnota G J and **Kolios M C**

Journal of the Acoustical Society of America, 2005, 117(2) 934-943
[Selected by the American Physical Society and the American Institute of Physics for inclusion in the Virtual Journal of Biological Physics Research – Feb 1 2005 issue]

28. High-frequency ultrasound for monitoring changes in liver tissue during preservation
R.M. Vlad, G.J. Czarnota, A. Giles, M.D. Sherar, J. W. Hunt and **M.C. Kolios** (2005)
Physics in Medicine and Biology, 50, 197-213

29. Changes in dielectric properties at 460 kHz of kidney and fat during heating: importance for radiofrequency thermal therapy
Pop M., Molckovsky A., Chin L., **Kolios M.C**., Jewett M.A.S. and Sherar M.D. (2003) Physics in Medicine and Biology 48, 2509-2525

30. Ultrasonic spectral parameter characterization of apoptosis
Kolios M.C., Czarnota G.J., Lee M., Hunt J.W. and Sherar M.D. (2002) Ultrasound in Medicine and Biology 28(5), 589-597

31. A model based upon pseudo-regular spacing of cells combined with the randomization of nuclei can explain the signicant changes in high-frequency ultrasound during apoptosis
Hunt J.W., Worthington A., Xuan A., **Kolios M.C**. Czarnota G.J. and Sherar M.D. (2002) Ultrasound in Medicine and Biology 28(2) 217-226

32. Comparison of thermal damage calculated using magnetic resonance thermometry with magnetic resonance imaging post treatment and histology after interstitial microwave thermal therapy of rabbit brain
M. D Sherar, J. A. Moriarty, **M.C. Kolios**, J.C. Chen, R.D. Peters, L.C. Ang, R.S. Hinks, R.M. Henkelman, M.J. Bronskill, W. Kucharczyk (2000)
Physics in Medicine and Biology 45, 3563-3576

33. The Effects of Dynamic Optical Properties During Interstitial Laser Photocoagulation
Iizuka M.N., Vitkin A.I., **Kolios M.C**., Sherar M.D. (2000)
Physics in Medicine and Biology 45, 1335-1357

34. Ultrasonic imaging of apoptosis: high-resolution non-invasive imaging of programmed cell death in vitro, in situ and in vivo
Czarnota G.J., **Kolios M.C.**, Abraham J., Portnoy M., Ottensmeyer F.P., Hunt, J.W. and Sherar M.D.(1999)
British Journal of Cancer 81(3), 520-527

35. An investigation of the flow dependence of temperature gradients near large vessel during steady state and transient tissue heating
Kolios M.C., Worthington A.E., Holdsworth D.W., Sherar M.D. and Hunt J.W. (1999)
Physics in Medicine and Biology 44(6), 1479-1497

36. A Theoretical Comparison of Energy Sources: Microwave, Ultrasound and Laser, for Interstitial Thermal Therapy
    Skinner M., Iizuka M**., Kolios M.C.** and Sherar M.D. (1998)
    Physics in Medicine and Biology 43(12), 3535-3547

37. Experimental evaluation of two simple thermal models using transient temperature analysis
    Kolios M.C., Worthington A. E., Sherar M.D. and Hunt J.W. (1998)
    Physics in Medicine and Biology 43(11), 3325-3340

38. Ultrasonic imaging of viable, dead and apoptotic cells
    Czarnota G.J[1] , **Kolios M.C**[1], Vaziri H[1] , Benchimol S., Ottensmeyer F.P., Sherar M.D. and Hunt J.W. (1997) Ultrasound in Medicine and Biology 23(6), 961-965[1] authors have made equal contribution

39. Magnetic resonance imaging of temperature changes during interstitial microwave heating: a phantom study
    Vitkin I.A., Moriarty J.A., Peters R.D., **Kolios M.C**., Gladman A.S., Chen J.C., Hinks R.S., Hunt J.W., Wilson B.C., Easty A.T., Bronskill M.J., Kucharczyk W., Sherar M.D. and Henkelman R.M. (1997)
    Medical Physics 24, 269-277

40. Blood flow cooling and ultrasonic lesion formation
    Kolios M.C., Sherar M.D. and Hunt J.W. (1996)
    Medical Physics 23(7), 1287-98

41. Large vessel cooling in heated tissues: a numerical study
    Kolios M.C., Sherar M.D. and Hunt J.W. (1995)
    Physics in Medicine and Biology 40, 1-18

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

In Press

43. Effects of cell spatial organization and size distribution on ultrasound backscattering
    Ratan K Saha, and **Michael C Kolios** (2011)
    IEEE Transactions on Ultrasonics, Ferroelectrics, and Frequency Control

Submitted

1. Effects of erythrocyte oxygenation on photoacoustic signals
   Ratan K Saha, and **Michael C Kolios**
   Journal of Biomedical Optics

Papers in Refereed Conference Proceedings [4]

1. Temperature Dependent Properties and Ultrasound Thermal Therapy
   Kolios M.C., Sherar M.D. and Hunt J.W. (1999)
   In E.P. Scott (Ed.) Advances in Heat and Mass Transfer in Biotechnology HTD Vol.363 / BED- Vol.44, 113-118. American Society of Mechanical Engineers
.
2. The Effect of Heat Induced Changes in Microwave Tissue Properties on Thermal Therapy for Prostate Cancer
   Sherar M.D., Chin, L. **Kolios M.C**. and Gladman, A.S. (1999)
   In E.P. Scott (Ed.) Advances in Heat and Mass Transfer in Biotechnology HTD Vol.363 / BED-Vol.34, 109-112. American Society of Mechanical Engineers.

3. Monitoring tissue response to photodynamic therapy: The potential of minimally invasive electrical impedance spectroscopy and high frequency ultrasound
   Wilson B.C., Molckovsky A., Czarnota G.J., Sherar M.D., **Kolios M.C**. Lilge, L. Dattani R.S., Osterman K.S., Paulsen K.D., Hoopes P.J. (1999)
   In S.L. Jacques (Ed.) Proceedings of the 1999 SPIE, Vol. 3592, 73-82.

4. Thermal model predictions of ultrasonic lesion formation
   Kolios M.C., Sherar M.D. and Hunt J.W. (1995)
   In L.J. Hayes (Ed.), Advances in Bioheat and Mass Transfer in Biotechnology, HTD-Vol.322 / BED-Vol.32,139-144. American Society of Mechanical Engineers.

Papers in non-Refereed Conference Proceedings

1. 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

2. 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

3. 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

4. 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

5. 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

6. 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

7. 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

8. 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

9. 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

10. 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

11. A Theoretical Model for RF Ablation of Kidney Tissue and its Experimental Validation
    Mihaela Pop, Sean R. H. Davidson, Mark Gertner, Michael A.S. Jewett, Michael D. Sherar and **Michael C. Kolios** (2010)
    Lecture Notes in Computer Science, Volume 5958, p 119-129

12. 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)

13. 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)

14. 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

15. 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

16. 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

17. 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

18. 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

19. Measuring the Mechanical Properties of Cells using Acoustic Microscopy
    Eric M. Strohm, **Michael C. Kolios**
    Proc. 2009 IEEE EMBS, pp. 6042-6045

20. 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

21. 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

22. Biomedical ultrasound imaging from 1 to 1000MHz
    Michael C. Kolios (2009)
    Canadian Acoustics / Acoustique canadienne Vol. 37 No. 3, p 35-42

23. Optoacoustic imaging of thermal lesions

Michel G. Arsenault, **Michael C. Kolios** and William M. Whelan (2009)
Proc. SPIE 2009 Volume 7177, pp. 71771V

24. 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

25. 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)

26. New Insights into High Frequency Ultrasonic Tissue Scattering
M.C. Kolios and G.J. Czarnota (2008) 3nd International Symposium on Medical, Bio- and Nano-Electronics in Sendai, Japan [O4-2]

27. 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.

28. 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

29. 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

30. Transmission ultrasound imaging to guide thermal therapy
E. Soleimankhani, **M. C. Kolios** (2007) Proceedings of the IEEE International Ultrasonics Symposium, Pages: 1812 - 1815

31. 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

32. Two-Dimensional Velocity Estimation for Doppler Optical Coherence Tomography
D Morofke, **M Kolios**, VXD Yang (2007) SPIE Symposium on Biomedical Optics, 6429-86, 2007

33. 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

34. 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

35. 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

36. 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

37. 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

38. 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

39. 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.

40. 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.

41. 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

42. 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

43. 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

44. 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

45. 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

46. 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

47. 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

48. 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

49. 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

50. 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

51. Ultrasound backscatter microscopy/spectroscopy and optical coherence (Doppler) tomography for mechanism-specific monitoring of photodynamic therapy in vivo and in vitro
    Yang, Victor X., Gzarnota, 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.

52. 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

53. 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

54. 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)

55. 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. Editorgrapica srl, Roma.

<u>Invited contributions and/or technical reports</u>.

1. [**Keynote address**] *International Workshop on Biomedical Sciences and Technologies (IWBMST-2011), Chennai, India, March 2011*
Biomedical ultrasound and photoacoustics: probing disease using sound and light

2. Seminar at the University of Prince Edward Island, August 2010
Biomedical applications of ultrasound and photoacoustics: From 1 to 1000 MHz.

3. *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

4. [**Plenary Talk**] *2009 Annual Conference of the Canadian Acoustical Association* Biomedical ultrasound imaging from 1 to 1000MHz

5. *AIUM 2009 Annual Convention*
   Acoustic microscopy of live cells and cell aggregates

6. *UBM 2008: 6th International Conference on Ultrasonic Biomedical Microscanning* High frequency ultrasound scattering from cell aggregates at different frequencies: tissue characterization and insights

7. *Imaging Network of Ontario 2008 Symposium* – 7th Imaging Symposium (Focused Ultrasound Devices for Noninvasive Surgery and Drug Delivery) On the Potential of Photoacoustic Imaging for Monitoring Thermal Therapies

8. *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.

9. *Radiation Oncology Rounds, Sunnybrook Health Science Center, March 2008* – Functional Optoacoustic Imaging in Biology and Medicine

10. *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

11. *3nd International Symposium on Medical, Bio- and Nano-Electronics in Sendai, Japan, March 2008* - New Insights into High Frequency Ultrasonic Tissue Scattering

12. *Lawson Health Research Institute Seminar Series, October 2007* - Functional Optoacoustic Imaging in Biology and Medicine

13. *Third Ontario Consortium for Small Animal Imaging High-Frequency Ultrasound Workshop, London Ontario, June 2007* - High Frequency Ultrasound Tissue Characterization

14. *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

15. *Physics Department Seminar Series, Brock University, March 2007* – Ultrasound Imaging And Spectroscopy For The Detection Of The Structural Changes During Cell Death

16. *Physics & Astronomy Colloquium, University of Western Ontario, February 2007* - High Frequency Ultrasound Imaging and Spectroscopy: Applications to Cancer Treatment Monitoring

17. *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)

18. *Lizzi Memorial Session, meeting of the Acoustical Society of America in Providence, Rhode Island, June 6th, 2006* - Scattering of high frequency ultrasound cells and cell ensembles: In search of the dominant scattering source

19. *Toronto-Waterloo Biophysics Symposium University of Waterloo, April 21, 2006* - Monitoring Structural Changes of Cells and Tissues Using High Frequency Ultrasound Backscatter

20. *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

21. *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

22. *AIUM 2005 Annual Convention Orlando, Florida* – Monitoring Structural Changes of Cells and Tissues Using High Frequency Ultrasound Backscatter

23. *Toronto Biotechnology Initiative* – Micrometer particle sizing using high frequency ultrasound with biological applications, Feb. 2005, Toronto, Ontario

24. *Ontario Consortium for Small Animal Imaging / High Frequency Ultrasound Workshop* – Ultrasound tissue characterization at high frequencies, Feb. 2005, London Ontario

25. *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))

    a. Micrometer particle sizing using high frequency ultrasound with biological applications (invited by chair of the division of Instrumentation and Measurement Physics)
    b. 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)

26. WFUMB/AIUM 2003 Congress, Montreal 2003
Ophthalmology/HFU session - Ultrasound Imaging of Apoptosis

27. *Seventeenth Annual Meeting Of the North American Hyperthermia Society*, "What Is New In Hyperthermia Technology" Session Louisville, Kentucky, 1997
Ultrasound lesion formation and tissue changes

Abstracts and/or papers read [129]

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

1. 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
2. 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**
3. 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,
4. Quantitative and parametric analysis employing conventional frequency ultrasound of cancer treatment effects in vivo
Naum Papanicolau, Anoja Giles, **Michael Kolios** and Gregory Czarnota
5. 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**
6. A simulation study on the photoacoustic signals from nonaggregating and aggregating erythrocytes
Ratan K. Saha, Eno Hysi and **Michael C. Kolios**

[Session Chair and Organizer] Tumor Monitoring Session

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

7. Theoretical considerations for ultrasound contrast agent amplitude modulation techniques at high frequencies
Amin Jafari Sojahrood and **Michael C. Kolios**
8. 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

9. High frequency ultrasound and optical coherence tomography imaging of cell death
   G. Farhat, V.X.D. Yang, G.J. Czarnota and **M.C. Kolios**
10. 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

11. Optimization of the Shear Stress Induced by Ultrasonically-Stimulated Oscillating Microbubbles: A Theoretical Investigation
    Amin Jafari Sojahrood, Raffi Karshafian, **Kolios Michael**
12. The Utilization of the Bubble Pressure Dependent Harmonic Resonance Frequency for Enhanced Heating During High Intensity Focused Ultrasound Treatments
    Amin Jafari Sojahrood, **Kolios Michael**

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

13. Optical droplet vaporization of micron-sized perfluorocarbon droplets and their photoacoustic detection (Paper 7899-127)
    Eric Strohm, Ivan Gorelikov, Naomi Matsuura, **Michael C. Kolios**
14. 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**
15. 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
16. Detecting abnormal vasculature from photoacoustic signals using wavelet-packet features (Paper 7899-94)
    Jason Zalev, **Michael C. Kolios**
17. 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**
18. 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

19. A simulation study on ultrasound backscattering by cell aggregates with poly-disperse cells
    Ratan K Saha and **Michael C.Kolios**

20. Optical droplet vaporization (ODV): photoacoustic characterization of perfluorocarbon droplets
    Eric M. Strohm, **Michael C. Kolios**, I. Gorelikov, and N. Matsuura
21. 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
22. 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
23. Optical Coherence Tomography Methods for Detecting Cell Death
    G. Farhat, A. Mariampillai, V.X.D. Yang, G.J. Czarnota and **M.C. Kolios**
24. 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
25. Fluorescence flow phantom imaging using combined laser scanning confocal fluorescence microscopy and optical coherence tomography
    Timothy Luk and **Michael C. Kolios**
26. 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
27. 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
28. Ahmed El Kaffas, Eric Strohm, Devesh Bekah, Gregory J. Czarnota, **Michael C. Kolios**

    SPIE PHOTONICS WEST – SAN FRANSISCO, CALIFORNIA, JANUARY 2010
29. Gigahertz optoacoustic imaging for celluar imaging
    Sankar Narasimhan, Wolfgang Bost, Frank Stracke, Eike Weiss, Robert Lemor, **Michael C. Kolios**

IMAGING NETWORK ONTARIO SYMPOSIUM – TORONTO 2009

30. 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

31. 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

32. 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

33. Quantifying ultrasonic properties of cells during apoptosis using time resolved acoustic microscopy [1C-4]
    Eric Strohm, **Michael Kolios**
34. 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**
35. 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)

36. High Frequency Optoacoustic Microscopy
    Bost W., Stracke F., Weiß E., Narasimhan S., **Kolios M.**, Lemor R.
37. 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

38. 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
39. 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

40. Conventional frequency evaluation of tumor cell death in response to treatment in vivo
    Papanicolau Naum; Banihashemi Behzad, Czarnota Gregory J, **Kolios Michael**; Sadeghian Alireza
41. 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.
42. Acoustic microscopy of live cells and cell aggregates
    [Invited] **Michael C. Kolios**

BIOS 2009 – BIOMEDICAL OPTICS – SAN JOSE, JANUARY 2009

43. Optoacoustic imaging of thermal lesions (Paper 7177-68)
    William M. Whelan, **Michael C. Kolios**, Kris T. Lund, Michelle P. Macphee
44. 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

45. 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

46. 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

47. 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

48. Modeling scattering from cells and biological structures
    [Invited] **Michael C. Kolios**
49. 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

50. Conventional-Frequency Ultrasound Detection Of Apoptosis In Vivo
    Papanicolau, Naum; Azrif, Muhammad; Karshafian, Rafii; Giles, Anoja; Sadeghian, Alireza; **Kolios, Michael C**.; Czarnota, Gregory J.
51. 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.
52. 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.
53. 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

54. 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

55. 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

56. 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**
57. 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**
58. Transmission ultrasound imaging to guide thermal therapy
    E. Soleimankhani, **M. C. Kolios**

59. 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
60. High frequency ultrasound imaging of cell structural changes following radiation therapy
    R.M. Vlad, A. Giles, **M.C.Kolios** and G.J. Czarnota
61. 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
62. 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
63. 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
64. 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
65. A Study On Opto-Mechanical Properties Of Biomaterials And Their Effects On Optoacoustic Signals
    Behrouz Soroushian, William Whelan, **Michael Kolios**
66. 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
67. High-Frequency Ultrasound Scattering From Mixtures Of Two Different Cells Lines: Tissue Characterization Insights, (Invited)
    Michael C. Kolios, Anoja Giles and Gregory J. Czarnota
68. High-frequency ultrasound imaging of cell structural changes following radiation therapy,
    Roxana Vlad, Anoja Giles, **Michael C. Kolios** and Gregory J. Czarnota
69. 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

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

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

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

75. 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
76. Ultrasound imaging and spectrosocopy of cancer radiation therapy effects
    Gregory J. Czarnota, William Chu, Anoja Giles, **Michael C. Kolios**.

BIOS 2007 – BIOMEDICAL OPTICS – SAN JOSE, JANUARY 2007

77. 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

78. 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

79. Investigating the Effect of Cell Size on the Backscatter from Suspensions of Varying Volume Fractions
    R. E. Baddour, **M. C. Kolios**
80. 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.
81. Finite Element Modeling of Ultrasound Scattering by Spherical Objects and Cells
    O. Falou, J. C. Kumaradas, **M. C. Kolios**
82. 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
83. Elucidating the acoustic scattering centres in cells at high frequencies
    Ralph Baddour and **Michael C. Kolios**
84. 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
85. 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.)
86. 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
87. Visualization of Apoptotic Cells using Scanning Acoustic Microscopy.
    S. Brand, E.C. Weiss, G.J. Czarnota, R. Lemor and **M.C. Kolios**
88. The Effect of Volume Fraction on the Backscatter from Nucleated Cells at High Frequencies
    Baddour, R.E. and **Kolios, M.C.**
89. 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

90. 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
91. 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
92. 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**
93. High frequency ultrasound to characterize cell acoustical parameters
    RM Vlad , GJ Czarnota , A Giles, MD Sherar , JW Hunt and **MC Kolios**
94. (invited) Tissue characterization using high frequency ultrasound: potential and Pitfalls, **MC Kolios**
    J Ultrasound Med 23:S4, June 2004

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

    2005 USNCB SYMPOSIUM ON FRONTIERS IN BIOMECHANICS
95. 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
96. 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
97. Ultrasound Attenuation Mapping for the Monitoring of Thermal Lesions,
    Parmar N. and **Kolios, M.C.**

    4TH INTERNATIONAL CONFERENCE ON ULTRASONIC BIOMEDICAL MICROSCANNING (2004)
98. 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
99. 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

100. 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)

101. 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

102. 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**

103. 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

104. High Frequency Ultrasound Monitoring of Structural Changes in Cells and Tissue
A.S. Tunis, A. Giles, D. McAlduff, D. Spurrell, M. Hariri, R. Khoka, G.J. Czarnota, M.D Sherar, J.W. Hunt and **M.C. Kolios** * received 3rd place poster award

IEEE INTERNATIONAL ULTRASONICS SYMPOSIUM 2003

105. 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

106. 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

107. Modeling high frequency ultrasound scattering of cellular ensembles to deduce the apoptotic index
Baddour R., **Kolios MC** and Sherar M.D.

108. 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

109. 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

110. 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

111. 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, UNIVERISTY OF TORONTO APR. 7TH, 2001

112. 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

113. 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.**

114. 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.

115. 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.**

116. Ultrasound Imaging of the Chromosome Structure
Czarnota, G.J. **Kolios, M.C.** Sherar, M.D. Ottensmeyer, F.P. and Hunt, J.W.

117. Ultrasound properties of macromolecular components of cells Warrignton, 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

118. 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

119. 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.

120. 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

121. 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

122. 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

123. 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 MILLENNIUMî, 1999 BIOCHEMISTRY AND MOLECULAR BIOLOGY MEETING

124. 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)

125. 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

126. 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

127. 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.

128. 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

129. 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.

130. 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.

131. 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

132. 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: 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,

2. **Provisional Patent**: Methods of monitoring cellular death using low frequency ultrasound,
United States Patent: 20070167755 (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

3. **Patent**: Axial Kasai autocorrelation for Velocity Detection in optical coherence tomography
United States, Patent No. 7,894,046, 2011
Co-inventors: D Morofke, VXD Yang

1. **Provisional Patent**: Optical Coherence Tomography Speckle Decorrelation for Measuring Intracellular Motion as Indicator of Cell Death
   Filed: 2011
   Co-inventors: Golnaz Farhat, VXD Yang, Gregory C. Czarnota, Adrian Mariampillai