14th Annual Alberta Biomedical Engineering Conference

Program and Proceedings

Alberta BME

October 25th – 27th, 2013
The Banff Centre
Banff, Alberta

University of Calgary

University of Lethbridge

University of Alberta

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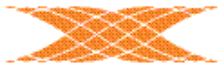

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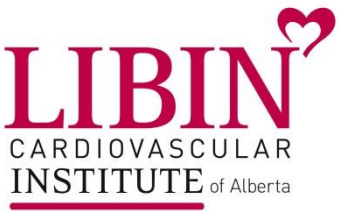

Centre for Bioengineering Research and Education

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October 25-27, 2013
The Banff Centre
Banff, AB

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	Roman Krawetz, University of Calgary
	Christopher Dennison, University of Alberta
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	Jonathon Schofield, University of Alberta

SUPERSTAR

Conference Event Coordinator	Lisa Mayer, University of Calgary

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	Albert Vette	Marwan El-rich

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Queen's University	Stephen Walden
University of Saskatchewan	Daniel Chen

POSTER JUDGES

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	Armin Eilaghi	Dwayne Dickey
	Chris d'Esterre	
University of Alberta	Vivian Mushahwar	Edmund Lou
	Chris Dennison	Douglas Hill
University of Saskatchewan	James Johnston	

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		Sohail Noor	
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Audio/Visual Committee (Students)		Adam Bloom	
Social Activities Committee (Students)		Britta Jorgenson	
Volunteers	Jonathon Schofield		
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		Erin Hildebrandt	Alyssa Mah
Session Chairs	Alex Forbich	Britta Jorgenson	Kenneth Fuh
	Amirali Toossi	Swathi Damaraju	Scott Moorman
		Emily Bishop	Adam Bloom
		Quinn Thomson	Geoff Power
		Chris Sarsons	Chris Waters
Package Assembly		Linda Tamez	Swathi Damaraju
		Maria Yamamoto	Aubrey Blair-Pattison
		Saleem Abubacker	
		Sam Dorosz	Erin Hildebrandt
		Pierre Wijdenes	Kelsey Collins
		Kathryn Boon	Krysta Powers
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		Christopher Sarsons	Quinn Thomson
		Adam Bloom	Chris Waters
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Reviewing Undergrad Funding		Saleem Abubacker	Emily Bishop
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		Adam Bloom	Sam Dorosz
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HONOURABLE MENTIONS

University of Calgary	Bess Mullaney	Conference Event Administrator & Photographer
	Amanda Lottermoser	NSERC Create Training Program (Admin)

A BIG THANK YOU TO ALL OUR VOLUNTEERS WHO HELPED WITH THE ORGANIZATION AND PLANNING OF OUR CONFERENCE THIS YEAR!

PROGRAM

Podium Sessions are in the Max Bell Auditorium.
Poster Sessions are in the Max Bell 251 and Max Bell 253.

FRIDAY

4:30 - 8:30 pm — **REGISTRATION and CHECK-IN – Professional Development Center (PDC) Front Desk / Lounge**

7:30 pm — **Opening Reception – Kinnear Centre KC 103/105**

Welcome: Dr. Roman Krawetz
Kinnear Centre KC 103/105

SATURDAY

7:00 – 8:00 am — **BREAKFAST – Vistas Dining Room**

8:00 – 8:05 am — **Welcoming Remarks – Dr. Nigel Shrive**

8:05 – 8:45 am — **Guest Speaker #1: Dr. Aaron Fenster,** University of Western Ontario

"Use of 3D Ultrasound imaging in atherosclerosis monitoring and image-guided interventions"

Session Chair: Swathi Damaraju, Emily Bishop, University of Calgary

8:45 – 9:55 am — **Student Podium Presentation Session #1**

Session Chair: Britta Jorgenson, Quinn Thomson, University of Calgary

Ryan Lewinson	01	Hip strength does not correlate with the knee adduction moment during walking
Adam Bloom	02	Investigating the Effect of Proteoglycan 4 on Hyaluronan Solution Properties using Confocal Fluorescence Recovery after Photobleaching
Wadena (Dena) Burnett	03	Regional depth-specific subchondral bone density measures in osteoarthritic and normal patellae: in vivo precision and preliminary comparisons
Amirali Toossi	04	Electrochemically safe electrodes for Intra-Spinal Micro-Stimulation (ISMS) in humans
Jordyn Vienneau	05	Whole Body Vibration Results in Significantly Larger Increases in Electromyography in Older Adults Compared to Young Adults
Chris Sarsons	06	Optimizing the delivery of gadolinium-loaded, targeted nanoparticles: the effect of steric hindrance on folate receptor-mediated cellular uptake in vitro

9:55-11:10 am

Poster Session #1 (ODD NUMBERED POSTERS)

COFFEE/BEVERAGE BREAK
Max Bell 251(Fish Bowl) and Max Bell 253

Judges: Drs.–Jeff Dunn, Armi Eilaghi, Chris d'Esterre, University of Calgary and Drs. Vivian Mushahwar, Chris Dennison, Edmond Lou– University of Alberta, and Dr. James Johnston - University of Saskatchewan

David Adair	01	TACTICS: A Novel Stereotactic Neurosurgery Planning Application
Yang Yu	03	Forming and Optimizing Beta-Cell Aggregates
Churchill Oseghale	05	Cell–Seeded Skin Tissue Substitute: The Material Properties of Skin Tissue
Gennaro Andrea Mancino	07	Correlation of bone quality between skeletal sites: peripheral measurement as an indication of systemic bone quality and fracture risk.
Jared Collette	09	Nanoparticle Diffusion in Type I Collagen Hydrogels
Madison Adam	11	Validation of subject-specific µFE model for off-axis fracture of intact distal radial bone
Payam Zandiyeh	13	An Algorithmic Approach to Compute the Parameters of the Stabilogram Diffusion Plot
Jaspreet Kaur	15	Fitting membrane resistance along with net current using genetic algorithms
Sean Crooks	17	SERIAL SARCOMERE LOSS IN RABBIT TRICEPS SURAE MUSCLES FOLLLOWING A FIVE HOUR ELECTRICAL STIMULATION PROTOCOL
Scott Sibole	19	A Preliminary Step to Understanding In Situ Cartilage Micromechanics
Hooman Esfandiari	21	Fast Procedure for Pose Estimation of an Intramedullary Nail
Negar Behzadi Fard	23	Evaluation of FSA pressure mats over a small active area
Cory Meeuwisse	25	EFFECT OF OBESITY ON GAIT SYMMETRY FOLLOWING ANTERIOR CRUCIATE LIGAMENT TRANSECTION
Raied Aburashed	27	Modeling the Wall Thickness of Abdominal Aortic Aneurysms
Scott Moorman	29	Anatomical Structure of Intervertebral Discs Following Enzymatic Digestion of Collagen and Elastin with Ultra High Field MRI
Xing Wang	31	Voxel-based Relaxometry of Focal Epilepsy
Ashkan Rahmani	33	Variable pressure 2H NMR studies of bicellar mixtures and anionic bicellar mixtures
Morteza Amini	35	Validation of Proximal Tibial FE model in Prediction of Subchondral Bone's Stiffness
Amin Ghazanfari	37	Effects of Optical Mapping Recordings on Cardiac Measurements
Douglas Kurrant	39	Breast Surface Estimation and Adaptive Sensor Positioning for Microwave Breast Imaging
Emily Bishop	41	Comparison of MRI-based and Marker-based Coordinate Systems for FHA Calculation
Akash Fichadiya	43	Do osteoarthritic macrophages alter mesenchymal stem cell phenotype in vitro?
Kaleena Johnston	45	An Examination of Sarcomere Length Non-Uniformities in Actively Stretched Muscle Myofibrils

11: 10 12:30 pm **Student Podium Presentation Session #2**

Session Chair: Ken Fuh, University of Calgary and Alex Forbich, University of Alberta

Kelsey Collins	07	Is Obesity an Independent Risk Factor For OA?
Mari Boesen	08	Dynamic MR Imaging of the Carotid Arteries
Britta Jorgenson	09	Cortical porosity by high-resolution peripheral quantitative computed tomography
Seyed Majid Nazemi	10	Measurement of Fabric Tensor Main Eigenvalue from Quantitative Computed Tomography Images with Limited Resolution
Yuno Iwabuchi	11	Adsorption of PRG4 on Commercially Available Contact Lenses
Mark Krongold	12	Cerebral Infarct Volume Change Over Time In Ischemic Stroke
Swathi Damaraju	13	The functional role of cell communication in loaded osteoblasts in a collagen-I scaffold

LUNCH – Vistas Dining Room

1:45 – 2:30 pm **Industry Panel Speakers:**

Greg Pierce, PhD, Alberta Health Services
Leonard Lee, Founder, Lee Valley Tools & Canica Design
John Person, VP, Tangent Engineering Design

Session Chair: Scott Moorman, Adam Bloom, University of Calgary

BREAK – Group Pictures

2:35-3:50pm **Poster Session #2 (EVEN NUMBERED POSTERS)**
COFFEE/BEVERAGE BREAK
Max Bell 251 (Fish Bowl) and Max Bell 253

Judges: Drs.–Jeff Dunn, Armi Eilaghi, Chris d'Esterre, University of Calgary and Drs. Vivian Mushahwar, Chris Dennison, Edmond Lou– University of Alberta, and Dr. James Johnston - University of Saskatchewan

Marcela Rodriguez Ramirez	02	Estimation of Motion for Cardiac Optical Mapping images with Optical Flow and SIFT
Rachel Malone	04	IMMUNOLOCALIZATION OF PROTEOGLYCAN 4 AND HYALURONAN ON ARTICULAR CARTILAGE
Robert Butz	06	Towards a numerical tool for helmet impact liner design and simulation: approximating impact energy attenuation in a pore-fluid material using a viscoelastic material model
Craig Brideau	08	Coherent Anti-Stokes Raman Scattering Microscopy for Myelin
Militina Gorobets	10	Reducing Cross-Talk between Multiple Wireless Body Area Networks
Ken Fuh	12	Fluid Forces Alter the Epithelial-to-Mesenchymal Transition Potential of Cultured Breast Cancer Cells
Isaac Pratt	14	IN VIVO IMAGING OF CORTICAL POROSITY IN RAT BONE BY SYNCHROTRON PHASE CONTRAST MICRO COMPUTED TOMOGRAPHY
Michael Purdy	16	Using electrical cues to induce regeneration: neuronal growth guidance using a novel MEA

Anthony Killick	18	Impulse Contribution from Each Limb in Skate Cross-Country Skiing
Elizabeth Imhof	20	9.4T MRI characterization of cerebral structural and metabolic alterations in a novel model of pediatric brain injury.
Yasir Al-Saffar	22	Deformation Patterns of Cracked Articular Cartilage Under Compression
Ali Salari	24	Fabrication of a Novel Serpentine ACET Micropump for Use with Biological Fluids
Kaveh Saffar	26	Carbon Nanotube Reinforcement of Bone Tissue: Study on Strain Energy Density
Nabeela Nathoo	28	Characterizing hypoxic vascular lesions using susceptibility weighted MRI in a model of multiple sclerosis
Quinn Thomson	30	Effect of Contralateral CT Image Intensity on Observer Agreement in Acute Ischemic Stroke
Devlin Morrison	32	An Algorithm to Estimate Cobb Angle and Spinous Process Angle in 3D Clinical Ultrasound (3DCUS) Imaging of Adolescent Idiopathic Scoliosis (AIS)
Priyatha Premnath	34	Regulating proliferation and adhesion of mammalian cells through unique three dimensional nanofiber analogues of silicon-gold integrated hybrids
Kristen Barton	36	Controlling Inflammation to Prevent the Development of Osteoarthritis Following Reconstruction Anterior Cruciate Ligament and Drill Hole Surgery
Jason Robertson	38	Modifying fibre type distribution in a neuromuscular activation model
Amanda Chan	40	Determining the optimum pressure level for the brace treatment of scoliosis
Elham Behradfar	42	Modeling Dantrolene Antiarrhythmic Effects on Cardiomyocytes and Purkinje Cells
Thomas Johnson	44	Near-infrared spectroscopy of brain microvasculature to measure hypoxia and mitochondrial status in neurodegenerative diseases
Luca Li	46	The Impact of Resection on Treatment Efficacy and Quality of Life in Patients Afflicted with Glioblastoma Multiformes

3:50 – 5:10 pm **<u>Student Podium Presentation Session #3</u>**

Session Chair: Geoff Power, Chris Waters, University of Calgary

Nada Abughazaleh	14	The Influence of Maximal Intensity Exercise on Chondrocytes Death and Synovial Fluid Proteins in the Articular Cartilage of the Rabbit Knee
Alex Forbrich	15	Chromoproteins as reporter genes for photoacoustic imaging
Therese van der Hoorn	16	Improving the Dissociation of Human Skin Derived Precursor (SKP) Cell Aggregates
Rui Fang	17	Hydrogel encapsulating BIO and IGF-1 for myocardial infarction repair
Sigrun Matthiasdottir	18	Passive Skeletal Muscle Mechanics and Structural Changes Following Botox Injections
Breanna Borys	19	Oxygen Consumption of Skin Derived Precursor (SKP) Cells Expanded in Stirred Suspension Bioreactors to Improve Split Thickness Skin Grafts

6:00 – 7:00 pm **DINNER – Vistas Dining Room**

7:00 pm **"THE GREAT CHALLENGE"** Max Bell Fish Bowl

8:00 pm **Social – Elk and Oarsman**
119 Banff Avenue (2nd Floor, Above The Ski Hub)

SUNDAY

7:15 – 8:15 am		**BREAKFAST – Vistas Dining Room**
8:15 – 8:45 am		**Checkout**
8:45 – 9:25 am		**Guest Speaker #2: – Dr. Stephen Walden,** Queen's University "Cartilage Tissue Engineering in Orthopaedics and Otolaryngology" **Session Chair:** Geoff Power, Chris Waters, University of Calgary
9:25 – 10:20 am		**Student Podium Presentation Session #4** **Session Chair:** Alex Forbich, University of Alberta and Adam Bloom, University of Calgary
	Bryce Besler 20	Multi-Modal CT Imaging of Trabecular Bone for Improved Validation of Subject-Specific Finite Element Modelling
	Kevin Boldt 21	Energetics and Metabolic Economy of Cross-Country Skiing
	Krysta Powers 22	Enhanced Titin-based Force Following Activate Stretch of Mouse Psoas Myofibrils
	Eng Kuan Moo 23	The Role of Chondrocyte Membrane Reservoirs in Buffering Membrane Strain
	Pierre Wijdenes 24	A novel microchip with high temporal resolution for detecting synaptic potentials
10:20-10:40 am		**Poster Session #3 (FINALISTS ONLY)** **COFFEE/BEVERAGE BREAK** **Max Bell 251 (Fish Bowl) and Max Bell 253** **Judges**: Drs.–Jeff Dunn, Armi Eilaghi, Chris d'Esterre, University of Calgary and Drs. Vivian Mushahwar, Chris Dennison, Edmond Lou– University of Alberta, and Dr. James Johnston - University of Saskatchewan
10:40 – 11:35 am		**Student Podium Presentation Session #5** **Session Chair:** Kenneth Fuh, Britta Jorgenson, University of Calgary
	Zohreh Salimi 25	Assessment of Trunk Swing during Wheelchair Propulsion
	Karolina Urban 26	Detecting functional impairment in mild traumatic brain injury using functional Near-Infrared Spectroscopy (fNIRS)
	Erin Hildebrandt 27	Dose-dependent effects of vitamin D on bone quality: from pilot data to clinical trial
	Rachel Wang 28	BUILDING A QUANTITATIVE MR DATABASE OF THE HEALTHY POPULATION
	Samiul Hayder Choudhury 29	Three way ROC Analysis for Optic Neuritis Transfer Function Characterization
11:45 – 12:30 pm		**Final Award Presentations** **Podium and Poster Prize Presentations – Sponsored by the NSERC CREATE Training Program for Biomedical Engineers for the 21st Century** NSERC CREATE Prize presentations for Most Outstanding Student Posters a) Best Overall Poster, b) Most Creative Poster, c) Clearest Message Poster

NSERC CREATE Prize presentations for Most Outstanding Podium Presentations
1st First Prize, 2nd Second Prize, 3rd Third Prize

Canadian Society of Biomechanics/Société candienne de biomécanique
a) Podium Presentation Prize
b) Poster Presentation Prize

Closing Remarks – Dr. Roman Krawetz
AB BME Conference / Co-Chair, University of Calgary

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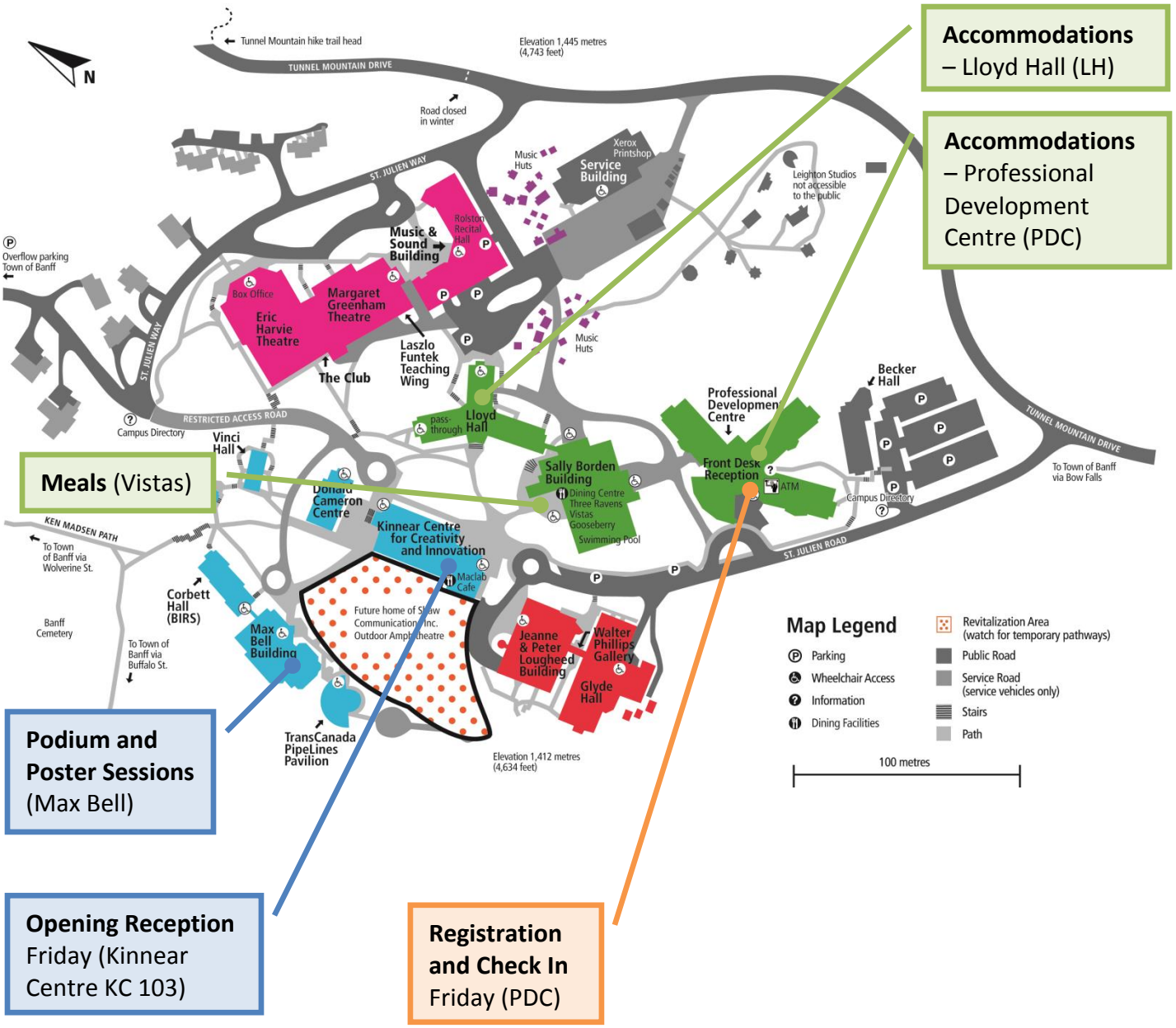
YOUR GENEROSITY IS GREATLY APPRECIATED!

Map and Meeting Location



Directions to Elk and Oarsmen (Saturday Social)

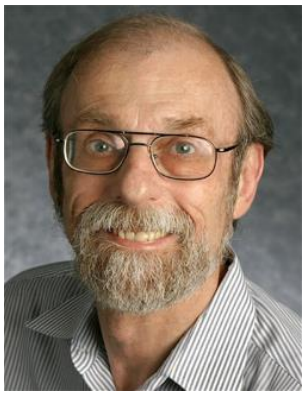
119 Banff Avenue (2nd Floor, Above The Ski Hub)

Guest Speaker #1 – Dr. Aaron Fenster

Director, Imaging Research Laboratories, Robarts Research Institute
Professor, Radiology and Medical Biophysics
University of Western Ontario

"Use of 3D Ultrasound imaging in atherosclerosis monitoring and image-guided interventions"

Abstract:



The last two decades have witnessed unprecedented developments of new imaging systems making use of 3D visualization. These new technologies have revolutionized diagnostic radiology, as they provide the clinician with information about the interior of the human body never before available. Ultrasound imaging is an important cost-effective technique used routinely in the management of a number of diseases. However, 2D viewing of 3D anatomy, using conventional ultrasound, limits our ability to quantify and visualize the anatomy and guide therapy, because multiple 2D images must be integrated mentally. This practice is inefficient, and leads to variability and incorrect diagnoses. Also, since the 2D ultrasound image represents a thin plane at an arbitrary angle in the body, reproduction of this plane at a later time is difficult.

Over the past 2 decades, investigators have addressed these limitations by developing 3D ultrasound techniques. We will describe developments of 3D ultrasound imaging instrumentation and techniques for use in diagnosis and image-guided interventions. As ultrasound imaging is an interactive imaging modality, providing the physician with real-time visualization of anatomy and function, the development of image analysis and guidance tools is challenging. Typically, these tools require segmentation, classification, tracking and visualization of pathology and instruments to be executed in real-time, accurately, reproducibly and robustly. As an illustration of these needs, we will present some diagnostic and image-guided intervention applications that would benefit from these developments. Examples will be given for imaging various organs, such as the prostate, carotid arteries, and breast, and for the use in 3D ultrasound-guided prostate therapy. In addition, we describe analysis methods to be used for quantitative analysis of disease progression and regression.

Bio.

Dr. Fenster received his PhD degree in 1976 from the Department of Medical Biophysics of the University of Toronto. In 1987 he moved to London and became a Scientist and founding Director of the Imaging Research Laboratories (IRL) at the Robarts Research Institute and Professor at The University of Western Ontario (UWO) in Radiology. Under his leadership, the IRL has grown to a staff of 250 today. In addition, he is the founder and Associate Director of new interdisciplinary graduate Program at UWO in Biomedical Engineering. He is also the Chair of the basic Science Division of the Department of Medical Imaging and the Director for the Biomedical Imaging Research Centre at UWO. This Division combines the strengths in imaging research across London's Institutions, which combined, makes the London medical imaging research community one of the largest in North America with over 350 staff and students and $100M in research equipment. In 2010 he became the Centre Director and Acting CEO of the newly formed Centre for Imaging Technology Commercialization – a federally funded Centre of Excellence in Commercialization and Research.

Currently, he holds a Canada Research Chair-Tier 1 in Biomedical Engineering. He is the first recipient of the Premier's (Ontario) Discovery Award for Innovation and Leadership (2007), the Hellmuth Prize for Achievement in Research at the UWO (2008), and the Canadian Organization of Medical Physicists (COMP) Gold Medal Award (2010).

In 2011 he was inducted into the Canadian Academy of Health Sciences. In 2013, the International Organization for Medical Physics (IOMP) honoured Fenster as one of top 50 international medical physicists for their outstanding contributions to the advancement of medical physics and health care through research, clinical developments, education & training, service development and professional matters throughout the last 50 years.

Fenster's research has resulted in 37 patents (27 awarded and 10 pending) and the formation of four companies in London based on research in his laboratory. In addition, some of his patents have been licensed to 13 different companies, which have commercialized them for world-wide distribution.

Guest Speaker #2 – Dr. Stephen Waldman, Queens University
Professor, Centre for Neuroscience, University of Alberta

"Cartilage Tissue Engineering in Orthopaedics and Otolaryngology"

Abstract:

Cartilage is a dense, load-bearing connective tissue found in many parts of the body. In joints, articular cartilage serves to not only to transmit the compressive joint loads to the underlying subchondral bone but, also to provide a low-friction interface between the contacting cartilage surfaces of the joint. Alternatively, the elastic cartilage of the outer ear is a flexible tissue that amplifies and directs sound to the auditory canal. A major clinical problem is that once cartilage is damaged, either by trauma or disease, tissue function can be permanently affected as cartilage generally has a limited capacity for repair in adults. The few surgical techniques available to repair or reconstruct cartilage have not proven to be entirely successful; thus, recent efforts have focused on tissue engineering methods to create suitable tissue for implantation. Here, we will present our recent efforts to engineer functional cartilage constructs suitable for joint resurfacing (orthopaedics) and ear reconstruction (otolaryngology) through the use of bioreactors to guide tissue growth as well as the development of patient-specific constructs that can be tailored to anatomy of the implantation site.

Bio:

After graduating in Mechanical Engineering from the University of Waterloo (1992), Stephen Waldman went on to do graduate research at Queen's University, University of Toronto and Dalhousie University in orthopaedic and then cardiovascular biomaterials. He returned to Toronto for a post-doctoral position in cartilage tissue engineering at the Institute of Biomaterials and Biomedical Engineering (UofT) and Mount Sinai Hospital (1999-2003).

His research primarily focusing on the effect of mechanical loading on cartilage cells as well as the development of bioreactors for cartilage tissue engineering. Stephen then took up a joint position at Queen's University between the Chemical Engineering and Mechanical & Materials Engineering as an Assistant Professor and Canada Research Chair (2003). Over the past ten years at Queen's, Stephen has acted as the Co-Director of the Human Mobility Research Centre at Kingston General Hospital (2006-2012) and a Co-Founder and Director of the Collaborative Graduate Program in Biomedical Engineering (2011-2012).

He has again returned to Toronto after his sabbatical leave where he was a Visiting Professor in the Department of Bioengineering at UC Berkeley to take up a position as an Associate Professor in Chemical Engineering at Ryerson University and an Associate Scientist at the Keenan Research Centre of the Li Ka Shing Knowledge Institute of St. Michael's Hospital. His laboratory is focused on the engineering of functional connective tissues, specifically: cartilage, ligaments and the intervertebral disc. Currently, his research group is working on the development of patient-specific engineered cartilage grafts, bioreactors to accelerate tissue growth, and investigation of specific mechanotransduction pathways.

Industry Panel

Greg Pierce, PhD, Alberta Health Services

Company Info:

The Tom Baker Cancer Centre in Calgary is the comprehensive cancer centre for southern Alberta and a lead centre for the province-wide prevention, research and treatment program. The Tom Baker Cancer Centre provides advanced medical and supportive cancer care, patient and professional education, and conducts research through the Alberta Cancer Research Institute. The Alberta Cancer Foundation raises charitable donations in support of the Tom Baker Cancer Centre.

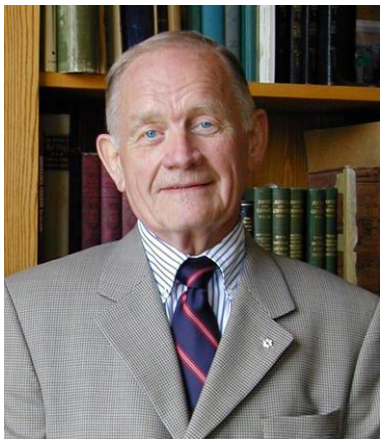
Bio.

Greg works as a Medical Physicist at the Tom Baker Cancer Centre (part of Alberta Health Services). He provides support for implementation of new technologies for the radiation therapy treatment of cancer, teaches graduate level course through the University of Calgary and conducts clinical research in the field of patient motion management. Greg received a Bachelor's of Applied Science in Engineering Physics from Queen's University followed by a PhD in Medical Biophysics from Western University. He completed his clinical Medical Physics residency through the London Regional Cancer Program before joining the team at the Tom Baker Cancer Centre earlier this year.

Industry Panel

Leonard Lee, C.M., Founder, Lee Valley Tools & Canica Design

Bio.



Personal: Born 1938, Wadena, Saskatchewan
Married and has two sons
Education: Grade School and High School
Algrove and Archerwill, Saskatchewan
1960 Diploma, Civil Engineering
Royal Roads Military College
Victoria, British Columbia
1963 Honours B.A. (Economics)
Queen's University, Kingston, Ontario

Employment History

1963-69	Canadian Foreign Service: Vice-Consul, Chicago; Head of Commercial Division, Canadian Embassy, Lima, Peru
1969-71	Executive Director, Canadian Consumer Council
1971-72	Executive Director, National Dairy Council of Canada
1972-78	Department of Industry, Trade and Commerce
1978	Founded Lee Valley Tools, retailing quality woodworking and gardening tools by mail order, nationally and internationally, as well as through 15 stores from Halifax to Victoria.
1985	Founded Veritas Tools Inc. (Lee Valley's manufacturing arm)
1991	Founded Algrove Publishing Ltd., specializing in woodworking and gardening titles.
1998	Founded Canica Design Inc., which designs and develops medical tools and systems.
Currently:	Chairman, Lee Valley Tools Ltd. Chairman, Veritas Tools Inc. (Canada) President, Veritas Tools Inc. (U.S.A.) President, Canica Design Inc. President, Algrove Publishing Ltd. Honorary Director, The Public Policy Forum

Honours & Awards

1992	Popular Mechanics Magazine Design and Engineering Award
1993	Canada Awards for Business Excellence in Industrial Design
1994	Canada Awards for Business Excellence in Marketing
1995	One of Canada's 50 Best Managed Private Companies
1998	Ottawa-Carleton Board of Trade Business Person of the Year
1999	Doctor of Engineering (Honorary), Carleton University, Ottawa
2003	Order of Canada
2003	Queen's Golden Jubilee Medal.
2007	Doctor of Laws (Honorary), Royal Military College, Kingston
2008	Honorary Colonel, 14 Air Maintenance Squadron, Greenwood, NS
2011	Doctor of Engineering (Honorary), Ottawa University, Ottawa
2011	Doctor of the University of Ottawa (Honorary), Telfer School of Business, Ottawa

Publications

1995	*The Complete Guide to Sharpening*, published by Taunton Press, publishers of Fine Woodworking magazine.

Industry Panel

John Person, MSc, PEng
VP, TANGENT Design Engineering Ltd

Company Bio.

TANGENT is a full service design engineering firm providing core expertise in engineered solutions and product design. Scope of services includes equipment and system design, prototype development, stress analysis, and fluid flow modeling.

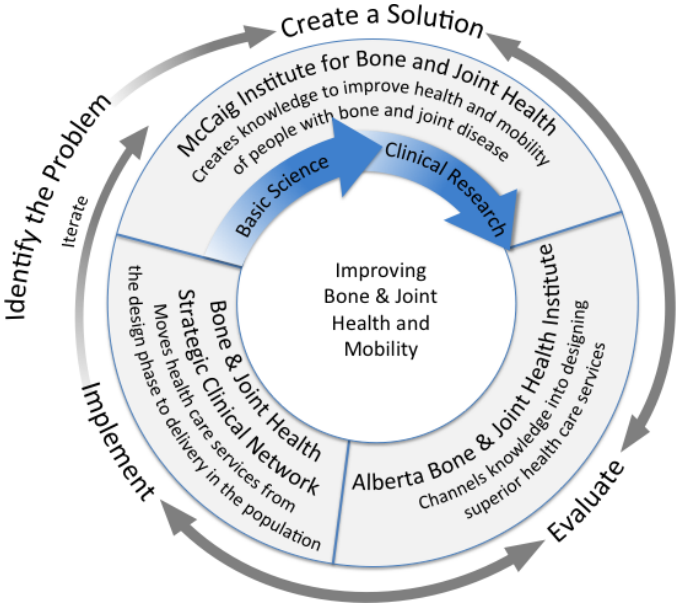
Bio.

John holds a Master of Applied Science Degree in Biomedical Engineering from the University of British Columbia, where his thesis work was focused on design and assessment of tools for Minimally Invasive Surgery.
For the past 14 years living in Calgary, John has been focused on working on 'front line' new product development and engineering design in a wide range of applications including medical devices for surgery and radiography applications, industrial equipment and measurement devices for oilfield applications, aircraft ground support equipment design, and consumer devices and fitness products.
In 2005, John and his business partner started Tangent with one employee and the goal to establish an engineering design and prototyping business in Calgary focused on the core idea that excellence in executing the engineering development process provides big value to client projects. Since then, the business has grown to 16 employees and owns an office and prototyping facility in NE Calgary. Tangent has worked with key clients to develop medical equipment, including advanced tools for orthopaedic surgery and computer aided surgical devices. This year Tangent will become the first contract engineering design firm in Alberta to have ISO 13485 certification, which is a special registration required in Canada to develop medical devices.

McCaig Institute for Bone and Joint Health, Gold Sponsor

A healthy bone and joint system keeps us mobile, and thus plays a pivotal role in maintaining our overall health and well-being. The McCaig Institute is home to a multidisciplinary team of basic scientists, engineers, clinicians and health systems researchers from six faculties at the University of Calgary and four from the University of Alberta. These researchers have established high-level research programs to enhance the diagnosis, treatment and prevention of bone and joint conditions, in order to keep people moving. Much of the research is focused on osteoarthritis, rheumatoid arthritis and osteoporosis as these conditions pose some of the greatest threats to bone and joint health and rob people of their mobility and ability to live independently. The Institute is a pioneer in the multidisciplinary approach to tackling these critical conditions. Team members combine their diverse expertise to investigate questions related to all aspects of bone and joint health, from molecules to cells, to tissues, to joints, to patients, clinical populations and the way that healthcare is delivered.

Institute members were recently successful in an application to the Canada Foundation for Innovation, raising a total of over $13 million to establish the Mobility and Joint Health Clinical Facility. This facility will create a unique capability in the province, to facilitate and accelerate the application of research findings into practice far more quickly than occurs currently (11 to 17 years). As shown in the figure, the McCaig Institute will be the research component of a triumvirate of units in the province related to bone and joint health. The clinical research facility completes the translation pipeline to enable the three units to work together seamlessly on bone and joint health issues. Members of the Strategic Clinical Network of Alberta Health Services will identify problems which need solutions: these will be conveyed to members of the McCaig Institute who will work together to formulate a solution – some problems will be short term and others involve much longer term research. The solution will be assessed by the independent Alberta Bone and Joint Health Institute, implemented by the network in a pilot fashion and assessed for efficacy, again by ABJHI. This will enable evidence-based best practice to be implemented across the network to the benefit of all Albertans.



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The Graduate Students' Association of the University of Calgary (GSA) is a student led organization elected by 6000+ graduate students. The GSA has been supporting its members since 1967, enriching all aspects of the graduate student experience. While collaboratively advocating for graduate students to the university, government, and the broader community, the GSA brings an active presence to the university community and connecting graduate students with our university's resources and the wider community. The GSA also champions programs and services designed to support graduate students.

For more information about our services, please visit us here: http://gsa.ucalgary.ca/

IEEE Canada, Northern Canada Section, Silver Sponsor

The Institute of Electrical and Electronic Engineers Northern Canada Section (IEEE NCS) is pleased to be a sponsor of the 14th Annual Alberta Biomedical Engineering Conference in Banff. The Northern Canada Section serves the public and IEEE members in Alberta approximately north of Red Deer and members in the Northwest Territories, Yukon and Nunavut. The NCS has chapters in the following IEEE Societies; Engineering in Medicine and Biology; Power and Energy and Industry Applications; Computer and Communications, Antennas and Propagation and Microwave Theory and Techniques. The NCS also supports the IEEE Teacher in Service Program, Edmonton Regional Science Fair and Canadian Math Kangaroo Contest. Further information is available at http://northerncanada.ieee.ca or http://www.ieee.org

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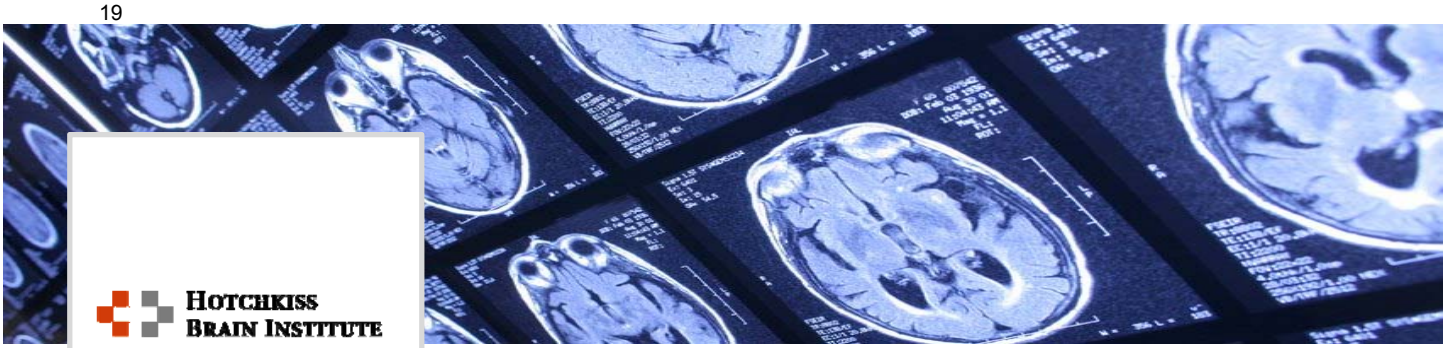

Hotchkiss Brain Institute

Our Mission
The mission of the Hotchkiss Brain Institute (HBI) is to be a centre of excellence in neurological and mental health research, translating discoveries into innovative health care solutions.
This mission will aim to support and conduct research on the healthy and diseased brain, spinal cord and peripheral nerves to assess, understand and disseminate knowledge about the diseases affecting the nervous system.

History of the HBI
The Hotchkiss Brain Institute (HBI) was launched in October 2004, under the leadership of Dr. Samuel Weiss with the University of Calgary and former Calgary Health Region, as key partners. The Institute was enabled by a foundational gift from Calgary's own Hotchkiss family.

Leadership
The Hotchkiss Brain Institute (HBI) operates as a unit within the University of Calgary's Faculty of Medicine. The HBI has several committees, some which report to our institutional partners, while others make strategic research and education decisions, as well as, provide input and guidance to the Director.

Education
Education within the HBI is a high priority. We actively promote excellence in neuroscience and mental health training through experiential courses and research opportunities at all levels ranging from undergraduate to graduate to post-graduate. We also have funding and professional development programs in place to support and promote our trainees.

Research at the HBI
Transformative, translational research is the cornerstone of the HBI. We strive to provide support to our members that will allow them to make groundbreaking discoveries and apply this new knowledge towards improvements in health.
Our priority foundational research themes are focused on areas where we can apply a critical mass of research expertise. Our members work collaboratively within three foundational research themes: Axon Biology and Regeneration; Cerebral Circulation; and Neural Systems and Behaviour. The HBI applies research discoveries towards new ways of preventing, detecting, and treating neurological and mental health issues. The HBI supports team-based programs in four translational research programs: Multiple Sclerosis; Spinal Cord and Nerve Injury; Stroke and Vascular Dementia; and Depression and Psychosis.

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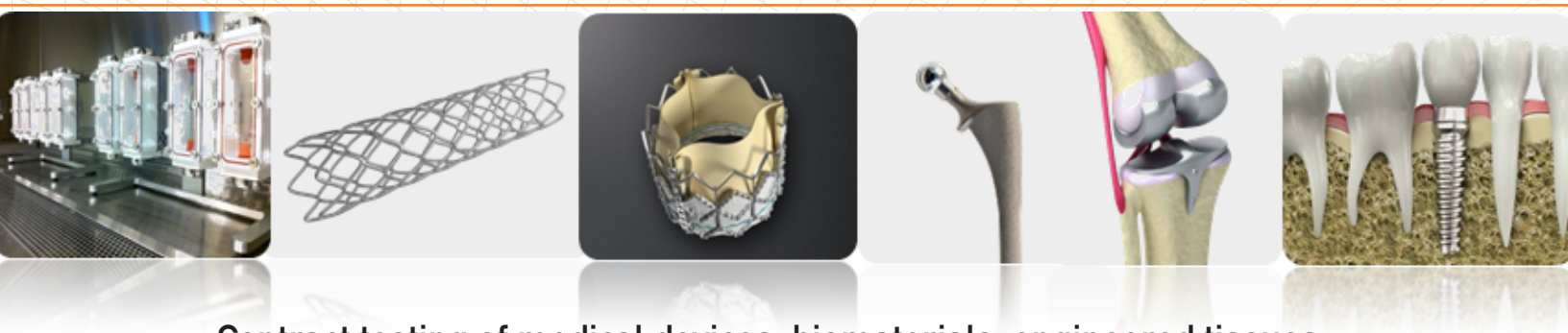

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NOTES:

NOTES:

THANK YOU for attending our
14th Annual Alberta Biomedical Engineering Conference 2013

We hope you enjoyed your stay!