

9th Alberta Biomedical Engineering Conference Banff 2008



UNIVERSITY OF
ALBERTA



UNIVERSITY OF
CALGARY



October 24 – 26, 2008
The Banff Centre
Banff, AB

PROGRAMME

FRIDAY

7:00 p.m.

Registration & Reception

Welcome: Dr. Michael Kallos & Dr. Alan Wilman
Max Bell – Fish Bowl

SATURDAY

7:00 – 8:00 a.m.

BREAKFAST – Vistas Dining Room

8:00 – 8:05 a.m.

Welcoming Remarks – Dr. Michael Kallos & Dr. Alan Wilman

8:05 – 8:45 a.m.

Guest Speaker #1: Dr. Pascal Laugier
University of Paris VI
Laboratoire d'Imagerie Paramétrique UMR
Paris, France

Key Note Title:
Trends in very high resolution and quantitative ultrasound

Session Chair: Dr. Lawrence Le

8:45 – 10:15 am

Student Podium Presentations – Session Chair: **Dr. Tannin Schmidt**

Andrew Wong	Osteogenic and Adipogenic Induction Potential Of Human Gingival Fibroblasts
Patricia Nadworny	Activity of Nanosilver-Derived Solutions Varies with Dissolution Conditions
Robert Teed	High Sensitivity <i>In Vivo</i> Multiplexing Of Photoacoustic Molecular Imaging Agents
Wenhui Liu	Electrical Model for Radiofrequency Atrial Ablation Tools
Chris Bouwmeester	Application of a New Reservoir-Wave Concept to the Pulmonary Circulation
James Cardiff	Does Manganese Effect Single Pellet Reaching in Rats?
Leandro Solis Aguila	Changes In Superficial Pressure And Tissue Oxygenation Due To Intermittent Electrical Stimulation For The Prevention Of Deep Tissue Injury
Breanne Landry	Is the Anti-inflammatory Activity of Nanocrystalline Silver Transferable?

10:15 – 11:15 a.m.

COFFEE/BEVERAGE BREAK combined with Poster Session #1
Max Bell Fish Bowl and Max Bell 253**Judges: Drs. Tina Rinker, Anders Nygren – UofC and Drs. Richard Thompson, Roger Zemp - UofA**

Daniel Zbinden	Wireless Implantable Sensor Platform
Brad Holinski	Restoring Stepping after Spinal Cord Injury using Novel Electrical Stimulation and Feedback Control Strategies
Chan Zhang	Measurements of Phase Velocity and Attenuation in Cellular Aluminum Foams as a Potential Cancellous Bone-Mimicking Phantom
Marion Cavanagh	Comparison of Antimicrobial Activity of Various Commercial Silver-Containing Dressings
Mike Jones	<i>In Vivo</i> μ CT and μ MRI Analysis of Antiresorptive and Anti-inflammatory Drugs as Preventative Treatments of Osteoarthritis
Anne-Lise Aulanier	Targeted Molecular Contrast Agents To Detect Early Atherosclerosis
Patrick Boyle	Accelerating Cardiac Simulations With Rosenbrock Integration Methods
Audree McKenzie	An Experimental Model Of Dilated Cardiomyopathy
Jack Fu	Computer-Assisted Surgery System for Resurfacing the Patella in Total Knee Arthroplasty
Brandon Hisey	Interspecies Differences in the Thermal Dependence of Isometric Muscle Force in Frogs
Kory Mathewson	Imaging Microvasculature with a Fast-Scanning Combined Ultrasound-Photoacoustic Biomicroscope and Real-Time Display
Kayla Viegas	Influence Of Flow Conditions On Methicillin Resistant <i>Staphylococcus Aureus</i> Biofilm Formation

Rohit Kalvapalle	Testing Novel Antiresorptive Drug Formulations in Osteoclast Cell Cultures
Michèle Vaillant	The Effect of the Duration of Spinal Manipulations on Spinal Stiffness
Mathew Reynolds	Using Digital Image Correlation for Ligament Strain Correlation
Sang-Kuy Han	Mechanical Loading Of In Situ Chondrocytes In Their Native Environment

11:15 a.m. – 12:30 p.m.

Student Podium Presentations – Session Chair: Dr. Zoly Koles

Sharul Dol	Micro-PIV Study of a Flow Chamber Used in Studies of Microbial Biofilms and Endothelial Cells
Krishna Panchalingam	Bioprocessing of Human Brain Cancer Tumor Tissue
Saul Godkewitsch	Diffusion Tensor Tractography Of Neurodevelopment In The Corpus Callosum
Catherine Lebel	Brain Lateralization and Cognitive Ability in Children
Tia Gareau	Scaled-up Production of Murine Embryonic Stem Cell (mESC) Derived Osteoblasts in Serum Free Media
Marc Lebel	Robust MRI Relaxometry with Stimulated Echo Compensation

12:30 – 1:45 p.m.

LUNCH – Vistas Dining Room

1:45 – 2:25 p.m.

Guest Speaker #2: Dr. Dieter Scharnweber
Max Bergmann Center of Biomaterials
Technische Universität Dresden
Dresden, Germany

Key Note Title:

Methods of Surface Engineering for Biomedical Applications

Session Chair: Dr. Arin Sen

2:25 – 3:20 p.m.

Student Podium Presentations – Session Chair: Dr. Carolyn Anglin

Jerome Yerly	Rapid MR Catheter Visualization for Endovascular Therapy Using Compressive Sampling
Megan Hunt	Culture Techniques for the Large Scale Expansion of Human Embryonic Stem Cells
Go Suzuki	Estimation of Defibrillation Threshold based on Electrogram Signal Disorganization
Anthony Ng	Fractal Analysis of Osteoporotic Human Wrists
Kyle Nishiyama	Image Registration To Achieve Improved Reproducibility For <i>In Vivo</i> Micro-Computed Tomography Bone Quality Measurements

3:20 – 3:40 p.m.	COFFEE BREAK – Group Pictures
3:40 – 4:35 p.m.	<u>Student Podium Presentations</u> – Session Chair: Dr. Carolyn Anglin
Gabrielle Lam	Validating a Computer-Assisted Method of Measuring Vertebral Rotation in AIS
Jenni Karl	Longitudinal In Vivo MRI Of Perilesional Tissue Thickness After Motor Cortex Stroke In Rats
Hamza Jalal	Gadolinium-Enhanced MR Imaging As A Means Of Detecting Blood Brain Barrier Disruption <i>In Vivo</i>
Aliaa Rehan Youseff	Spontaneous Arthritis in Rabbit Is Not Aggravated by the Increase in Physical Activity
Graham Campbell	Recovery of Bone Architecture after RANKL Administration in Rats is Characterized by Increased Bone Mass on Existing Trabeculae Assessed by In Vivo Micro-CT
6:00 – 7:00 p.m.	DINNER – Vistas Dining Room
7:00 p.m.	“THE GREAT CHALLENGE” Max Bell Fish Bowl
7:15 p.m.	Joint UA, UC, UL Faculty Meeting – Max Bell, Room 252
8:00 p.m.	Social – St. James Gate (207 Wolf Street)

SUNDAY

7:00 – 8:00 a.m.	BREAKFAST – Vistas Dining Room
8:30 – 9:10 a.m.	<u>Guest Speaker #3:</u> Dr. Andy Ruina Cornell University Ithaca, New York
	Key Note Title: Some Issues in the Control of Bipedal Locomotion
	Session Chair: Dr. Walter Herzog

9:10 – 9:55 a.m.

Student Podium Presentations – Session Chair: Dr. Larry Unsworth

Kelvin Chow	Correcting for the Effects of Respiration on Magnetic Resonance Lung Imaging
Jennifer Happe	Impact of Viscosity on <i>Salmonella typhimurium</i> Gene Expression and Phenotype
Colleen Decker	The Effects of Soft Tissue in Spinal Frequency Response Testing
Adrian Tsang	Assessment of Penumbra Tissue in Acute Ischemic Stroke Patients via Sodium MRI

9:55 – 10:55 a.m.

**COFFEE/BEVERAGE BREAK combined with Poster Session #2
Max Bell Fish Bowl and Max Bell 253**

Judges: Drs. Tina Rinker, Anders Nygren – UofC and Drs. Richard Thompson, Roger Zemp - UofA

Stacy Waldal	Tissue Mechanics Of The Atrium: Confocal And Uniaxial Studies Of Explanted Atrium Specimens
Marion Hettiarachi	Cryopreservation Protocols for Adult Human Bone Marrow and Adipose Tissue-Derived Mesenchymal Stem Cells
Swathi Damaraju	Assessing Scoliosis using full torso 3D features
Katherine Louman-Gardiner	Computational Models of Degeneration in the Intervertebral Disc
Karen Ho	Computed Tomography Imaging of Knee Mechanics After Joint Replacement
Ephram Takele	Activation of the Leg Motor Cortex via Muscle Afferents in Humans
Helen Dry	Development of Clinically Acceptable Culture Protocols to Produce Synovium-Derived Stem Cells
Michelle Adrian	Effect of Varied Sputtering Parameters on the Antimicrobial Activity of Silver Thin Films
Yves Pauchard	Using <i>In Vivo</i> Micro-Computed Tomography To Predict Bone Architecture
Jason Motkoski	Pre-Clinical and Phase I Studies of NeuroArm: A Novel Image-Guided Surgical Robot
Aron Su	Development of a Virtual Ulna Simulator for Training Fracture Fixation
Miroslava Tringelova	Biomechanical Study of Heart Tissue Behavior
Ethan MacDonald	Fourier Domain Extrapolation to Improve MR Perfusion
Craig Mathison	Biomechanical Evaluation of Locking Plate with Fibular Allograft Implementation as a Fixation Technique for Proximal Humerus Fractures
Stephanie Kos	Gene Expression and Transcriptional Regulation in Fluid Flow Conditioned Cells
Xuhui Chen	A New Photoacoustic Method For Measuring Optical Scattering Coefficients Of Biological Tissue

10:55 – 11:40 a.m.

Student Podium Presentations – Session Chair: Dr. Larry Unsworth

Andrew Sawatski	Changes in Patellofemoral Contact Pressure due to Imbalance of the Knee Extensors
Andrew Walker	Shear Rates Derived From Ultrasound Images and Particle Image Velocimetry
Neal Austin	In Vivo Skeletal Muscle Fibre Function During Cycling
Kamal Frazz	A Preliminary Study of a Gait Pattern Monitoring System

11:40 – 11:55 a.m.

Closing Remarks – Dr. Nigel Shrive

11:55 a.m. – 12:25 p.m.

AIF Undergraduate Award Presentations – Ms. Nadine Cyr

Podium and Poster Prize Presentations

BOSE and Imaging Dynamics, Inc. Prize for First Place – Most Outstanding Podium Presentation – Mr. Robert Fink - BOSE

BOSE and Imaging Dynamics, Inc. Prize for Best Overall Poster – Mr. Robert Fink - BOSE

Imaging Dynamics, Inc. Second and Third Place Prizes for Most Outstanding Podium Presentations

Imaging Dynamics, Inc. Prizes for Most Creative and Clearest Message Posters