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 *In Vivo* 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  
*In Vivo* µCT and µMRI 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 *Staphylococcus Aureus* 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 Scharmweber
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 In Vivo Micro-Computed Tomography Bone Quality Measurements
3:20 – 3:40 p.m.  
**COFFEE BREAK – Group Pictures**

3:40 – 4:35 p.m.  
**Student Podium Presentations – 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 *In Vivo*

- 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.  
**Guest Speaker #3:** 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**

<table>
<thead>
<tr>
<th>Name</th>
<th>Title</th>
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<tbody>
<tr>
<td>Kelvin Chow</td>
<td>Correcting for the Effects of Respiration on Magnetic Resonance Lung Imaging</td>
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<tr>
<td>Jennifer Happe</td>
<td>Impact of Viscosity on <em>Salmonella typhimurium</em> Gene Expression and Phenotype</td>
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<td>Colleen Decker</td>
<td>The Effects of Soft Tissue in Spinal Frequency Response Testing</td>
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<tr>
<td>Adrian Tsang</td>
<td>Assessment of Penumbral Tissue in Acute Ischemic Stroke Patients via Sodium MRI</td>
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### 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**

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