Exploring New Dimensions of Cardiovascular Flow and Motion  
February 1-2, 2012  
Marriott World Center, Orlando, FL

Organizing and Scientific Program Committee

- Noam Alperin, Miami, USA
- Reza Razavi, London, UK
- John Oshinski, Atlanta, USA
- Michael Jerosch-Herold, Boston, USA
- Debiao Li, Los Angeles, USA
- Orlando Simonetti, Columbus, USA
- Alex Frydrychowicz, Madison, USA
- Michael Markl, Chicago, USA

Wednesday, February 1, 2012
Flow and Motion in the Human Body from Head to Toe: State-of-the Art and Emerging Applications

8:15 am – 8:30 am  Welcome and Introduction

8:30 am – 9:00 am  Keynote Lecture
Moderators: Michael Markl, PhD; Orlando Simonetti, PhD
Physiology of Blood Flow and Vessel Walls
Wilmer W. Nichols, PhD

9:00 am – 10:30 am  Session 1 - Head
Moderators: Noam Alperin, PhD; David Saloner, PhD
9:00 am  Intracranial Blood Flow and Aneurysms: In-vivo Flow and Analysis and CFD
Vitaliy Raiz, PhD
9:25 am  CSF Flow: Acquisition Strategies and Applications
Victor Haughton, MD
9:50 am  Oral Abstract Presentation: 4D MR imaging of cerebrospinal fluid flow in Chiari I malformation with and without syringomyelia and flow changes after decompressive surgery
10:02 am  Oral Abstract Presentation: Characterization of cerebral aneurysms using 4D FLOW MRI
10:14 am  Oral Abstract Presentation: 4D phase contrast MRI in intracranial aneurysms: A comparison with patient-specific computational fluid dynamics with temporal and spatial velocity boundary conditions as measured with 3D phase contrast MRI

10:30 am  Coffee Break

11:00 am – 12:00 pm  Session 2 - Neck
Moderators: Tosiaki Miyati, PhD, DMSc; John Oshinski, PhD
11:00 am  Carotid Plaques: In-vivo Characterization and Computational Fluid Dynamics
David Saloner, PhD
11:25am  Oral Abstract Presentation: Respiratory Effects on Phase Contrast Imaging of the Jugular Vein
11:37am  Oral Abstract Presentation: Vectorial wall shear stress calculations in vessel structures using 4D PC-MRI
11:49am  Oral Abstract Presentation: Accuracy of MRI Wall Shear Stress Estimation

12:00 pm – 1:00 pm  Lunch
1:00 pm – 2:30 pm **Session 3 - Great Vessels**
Moderators: Debiao Li, PhD; Oliver Wieben, PhD
1:00 pm *Blood Flow in the Aorta: 3D Visualization and Quantitative Analysis*
Tino Ebbers, PhD
1:25 pm *Flow MRI and Modeling in Congenital Heart Disease*
Mark Fogel, MD
1:50 pm Oral Abstract Presentation: Flow-sensitive four-dimensional magnetic resonance imaging facilitates the quantitative analysis of systemic-to-pulmonary collateral flow in patients with univentricular hearts
2:02 pm Oral Abstract Presentation: Quantification of Caval contribution to flow in the Right and Left Pulmonary Artery of Fontan patients with 4D Flow MRI
2:14 pm Oral Abstract Presentation: Assessment of energy loss across aortic valves using accelerated CMR multi-point flow measurements
2:26 pm Oral Abstract Presentation: Four-dimensional velocity encoded MRI improves blood flow quantification in patients with semilunar valve stenosis

2:30 pm – 3:00 pm Coffee Break

3:00 pm – 4:40 pm **Session 4 - Abdomen**
Moderators: James Carr, MD, PhD; Smita Sampath, PhD
3:00 pm *Comprehensive Characterization of Renal Arteries*
Oliver Wieben, PhD
3:25 pm *Portal Venous and Arterial Hemodynamics*
TBD
4:00 pm Oral Abstract Presentation: Quantification of Blood Flow in the Portal Circulation Before and After an Intervention
4:22 pm Oral Abstract Presentation: Lower extremity amputation increases oscillatory flow in the infrarenal aorta: A new potential risk factor for abdominal aortic aneurysm development
4:24 pm Oral Abstract Presentation: Repeatability and Internal Consistency of Abdominal 2D and 4D PC MR Flow Measurements

4:40 pm – 5:20 pm **Session 5 - Peripheral Vasculature**
Moderator: Christopher Macgowan, PhD
4:40 pm-5:05 pm *Flow-sensitive MRI and Non-contrast Enhanced Peripheral MRA*
James Carr, MD
5:05 pm-5:17 pm Oral Abstract Presentation: FourFlow - Open Source Code Software for Quantification and Visualization of Time-Resolved Three-Directional Phase Contrast Magnetic Resonance Velocity Mapping

5:20 pm – 7:00 pm Poster Reception

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**Thursday, February 2, 2012**

**Cardiac Tissue Mechanics & Flow**

8:30 am – 9:00 am Keynote Lecture
Moderators: Michael Jerosch-Herold, PhD; Reza Razavi, MD
*Physiology and Clinical Importance of Cardiac Function*
Philip Kilner, MD

9:00 am – 10:30 am **Session 6 - MR Techniques for the Analysis of Regional Cardiac Function**
Moderator: Leon Axel, MD, PhD
9:00 am *Tagging & HARP, SENC & DENSE & Velocity Mapping: How to and What to use*
Frederick Epstein, PhD
9:25 am *Emerging Application of MR based Analysis of Myocardial Function*
Leon Axel, MD
9:50 am Oral Abstract Presentation: Polar HARP for the Polar CMR Tagging
10:02 am Oral Abstract Presentation: Automated Cardiac Motion Estimation from 3D Cine DENSE MRI
10:14 am Oral Abstract Presentation: Cardiac Deformation Analysis from Orthogonal CSPAMM (OCSPAMM) Tagged MRI
10:30 am – 11:00 am  Coffee Break

11:00 am – 12:30 pm  **Session 7 - Novel Techniques for the Assessment of Regional Cardiac Function**
Moderators: Daniel Ennis, PhD; Frederick Epstein, PhD

11:00 am  **Cardiac Elastography**
Arun Kolipaka, PhD

11:25 am  **Computational Analysis of Tissue Motion in CINE Images**
Gianni Pedrizetti, PhD

11:50 am  Oral Abstract Presentation: *A Method to Determine Regional Mechanical Left Ventricular Dyssynchrony Based on High Temporal Resolution Short Axis SSFP Cine Images*

12:02 pm  Oral Abstract Presentation: *Mitral Valve Annular Velocity Measurements Derived from Cine MRI: Validation Against Doppler Echocardiography*

12:14 pm  Oral Abstract Presentation: *Quantitative Assessment of Myocardial Motion from Displacement Measurements Derived from Velocity Encoded MRI*

12:30 pm – 2:00 pm  Lunch – Vendor Presentations and Panel Discussion of Future Directions
Moderators: Jens Frahm, PhD; Michael Markl, PhD

2:00 pm – 3:30 pm  **Session 8 - Intra-Cardiac Blood Flow and Coronary Arteries**
Moderators: Tino Ebbers, PhD; Philip Kilner, MD

2:00 pm  **3D Blood Flow Through the Heart and Valves**
JJ Westenberg, PhD

2:25 pm  **Coronary Blood Flow**
Freddy Stahlberg, PhD

2:50 pm  Oral Abstract Presentation: *Diastolic function imaging: A comparison of Real-Time Phase Contrast Magnetic Resonance (CMR) Imaging with Segmented Phase Contrast CMR and Doppler Echocardiography*

3:02 pm  Oral Abstract Presentation: *Equal stroke volumes different costs: Left ventricular 4D flow in normal and failing hearts*

3:14 pm  Oral Abstract Presentation: *Flow vortex quantification in the left atrium*

3:30 pm – 4:00 pm  Coffee Break

4:00 pm – 5:30 pm  **Session 9 - What's New: Emerging Techniques, Applications and Hot Topics**
Moderators: Michael Markl, PhD; Freddy Stahlberg, PhD

4:00 pm  **CCSVI: Abnormal Venous Flow and Neurodegenerative Disease**
E. Mark Haake, PhD

4:25 pm  **Real-time Cardiovascular Magnetic Resonance**
Jens Frahm, PhD

4:50 pm  Oral Abstract Presentation: *Accelerated Phase Contrast Imaging using Compressed Sensing with Complex Difference Sparsity*

5:02 pm  Oral Abstract Presentation: *Velocity Unwrap for High Resolution Slice-Selective Fourier Velocity Encoding Using Spiral SENSE*

5:14 pm  Oral Abstract Presentation: *Technique for Retrospective Respiratory and Cardiac-Gated Phase Contrast Flow Measurements*