
Registration Fees

- ❑ Full 625 SFr (~Euro 415)
- ❑ ISMRM Member 475 SFr (~Euro 315)
- ❑ Student 400 SFr (~Euro 265) (provide letter of confirmation)

- ❑ Workshop Social Activity 50 SFr (~Euro 35)

Registration Form and details are available from the Workshop website.

Attendees of the 2004 Swiss – Japanese Joint Society for Neurosurgery will be eligible for a 75 SFr (~Euro 50) rebate.

Refunds and Cancellations: A refund of the registration fee, less 120 SFr (~Euro 80) for administration charges, will be made when a written request is received by the workshop organizer on or before 15th June 2004. No refunds are possible after that date.

Final Program

2004 International Interdisciplinary Workshop on Flow and Motion

ISMRM endorsed



July 11-13, 2004

University Hospital Zurich

Hosted by:

Institute of Neuroradiology,
University Hospital Zurich
&

Institute of Biomedical Engineering,
University and Swiss Federal Institute of Technology (ETH),
Zurich, Switzerland

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Workshop Venue

Grosser Hörsaal, Nordtrakt 1, Level C
University Hospital Zurich
Frauenklinikstr. 10
CH-8091 Zurich

Sunday, July 11th, 2004

12:00 – 16:00

Welcome

Keynote Speech

Roderic Pettigrew, NIH, Bethesda, USA

Plenary Lectures

Flow in Vascular Physiology

Colin Caro, London, England

Interacting Luminal, Mural & Subarachnoid Components of Cerebral Aneurysms: Implications for Imaging and Treatment

Anton Valavanis, Zurich, Switzerland

Break

Flow in Cardiovascular Disease

Philip Kilner, London, England

Flow in Neurovascular Disease

Charles Kerber, San Diego, USA

Focus Session

Principles of MR Flow Measurements

Erik Pedersen, Aarhus, Denmark

16:20 – 17:50

Topic Session: Flow MRI: Ready for Prime Time?

Quantitative Flow Measurement:

Precision, Accuracy, Spatial and Temporal Resolution

Romhild Hoogeveen, Best, Netherlands

Measurement Accuracy: Eddy, Maxwell and 3T

Sebastian Kozerke, Zurich, Switzerland

Phase Contrast SSFP: Velocity Mapping of the Future?

Klaus Scheffler, Basel, Switzerland

Particle Tracing and Pressure Calculation

Lars Wigström, Linköping, Sweden

Accelerating Cine Flow Measurement with *k-t* BLAST & *k-t* SENSE

Jeff Tsao, Zurich, Switzerland

17:55 – 18:45

Proffered Papers Session

Listed below

Monday, July 12th, 2004

08:30 – 09:10

Focus Session

Vascular Flow Imaging

David Saloner, San Francisco, USA

09:10 – 10:55

Topic Session: Cardiovascular Applications & Implications of Flow & Motion

Coronary Flow Measurement

Jennifer Keegan, London, England

How to Cope With Motion in Coronary MRA

Peter Börnert, Hamburg, Germany

New Advances in Tissue Phase Mapping

Bernd Jung, Freiburg, Germany

From Flow to Pressure: Estimation of Pressure Gradient and Derivative by MR Acceleration Mapping

Jacques Bittoun, Paris, France

Catheter-based Real-time Flow Measurement

Michael Bock, Heidelberg, Germany

ISMRM Flow & Motion Study Group

Guidelines for Clinical and Research Use- part II

Martin Graves & Christopher Macgowan

11:10 – 12:35

Topic Session: Intracranial Hemodynamics & Hydrodynamics

The Role of CSF and Interstitial Fluid in Health and Neurological Disease

Roy Weller, Southampton, England

From Hemo-Hydrodynamic Linkage to Non-invasive Intracranial Pressure Measurement by Phase Contrast MRI (MR-ICP)

Noam Alperin, Chicago, USA

The Cranium as Oscillator; Analysis of Phase Relationships of Intracranial Blood and CSF Pulsations Using Flow-sensitive MRI

Mike Egnor, New York, USA

Blood and CSF flow in Neurohydrodynamic Related Diseases

Olivier Baledent, Amiens, France

12:35 – 14:00

Lunch Break

Monday, July 12th, 2004

14:00 – 15:30

Topic Session: Flow and Perfusion

Neurovascular Regulation of Flow and Perfusion

Jeroen van der Grond, Utrecht, Netherlands

Extravascular Contrast Agent Perfusion vs Coronary Flow

Jürg Schwitter, Zurich, Switzerland

Intravascular Contrast Agents

Jens Bremerich, Basel, Switzerland

Dual Sequence Measurement of Arterial Input Function

Peter Gatehouse, London, England

Realities in MR Perfusion Mapping of the Brain

Denis Ducreux, Paris, France

15:30 – 16:45

Topic Session: In-vivo Wall Shear Stress

In-vivo Wall Shear Stress at the Limits of Resolution

Ian Marshall, Edinburgh, Scotland

Direct Estimation of Wall Shear Stress by MRI

John Oshinski, Atlanta, USA

Vascular Imaging and Wall Shear Stress

Erik Pedersen, Aarhus, Denmark

Quantification of Wall Shear Stress using 4D PCMRI

Charles Taylor & Erik Bekkers, Stanford, USA

17:05 – 18:00

Proffered Papers Session

Listed below

18:05 – 19:05

Vendor's Forum

Vendor's Views of Flow Measurements & Modeling

(Philips, Siemens GE, Fluent)

20:00

Dinner – Zunfthaus zur Zimmerleuten

By ticket only

Tuesday, July 13th, 2004

08:00 – 09:10

Panel Session

Guidelines for Clinical and Research Use- part II

09:10 – 10:40

Focus Session

Vascular Computational Fluid Dynamics (CFD)

Ross Ethier, Toronto, Canada

Topic Session: Image-based Vascular CFD

Challenges for Longitudinal Image-based CFD Studies

David Steinman, London, Canada

Image-based CFD Modeling of the Carotid Bifurcation

X Yun Xu, London, England

Hemodynamics and Morphological Changes of Cerebral Aneurysms

Liang-der Jou, San Francisco, USA

CFD and Paediatric Cardiac Surgery

Francesco Migliavacca, Milan, Italy

MRI-based CFD: Patient-specific Models for Treating Aortoiliac and Pulmonary Vascular Disease

Charles Taylor, Stanford, USA

11:00 – 12:30

Topic Session: Advanced Topics in Vascular CFD

The Role of CFD in Simulation of Biomedical Systems

Yiannis Ventikos, Oxford, England

A Computational Model Combining Vascular Biology and Hemodynamics for Thrombosis Prediction in Anatomically Accurate Cerebral Aneurysms

Shankar Sundaram, Huntsville, USA

Patient Based MRI-CFD Study of Infrainguinal Distal Bypass Grafts

Spencer Sherwin, London, England

MRI-based CFD Prediction of Mass Transport in Arteries

Peter Walker, Leeds, England

Experience in In-vitro Modeling of Intracranial Aneurysms

Makoto Ohta, Geneva, Switzerland

12:30 – 13:40

Proffered Papers Session

Listed below

Concluding Comments and Closing

Proffered Papers Presentations

Sunday 17:55 – 18:45

Correction of Phase Errors in Cine Phase-contrast MR Velocity Quantification

J. Tim Marcus, Amsterdam, The Netherlands

Velocity-slice Selection

Ludovic de Rochefort, Le Kremlin-Bicêtre, France

Accelerated Fourier Velocity Encoding by Exploiting Velocity-Spatial-Temporal Correlations

Michael Schacht Hansen, Aarhus, Denmark

Improving Velocity to Noise Ratio and Extending Dynamic Range of Phase Contrast Magnetic Resonance Velocity Imaging with 3-D and 4-D Unwrapping Methods

Maria Salfity, Loughborough, England

Evaluation of Segmental Pulmonary Blood Flow Using Phase Contrast MRI and Correlation Analysis

Christopher Macgowan, Toronto, Canada

Monday 17:05 – 18:00

Non-invasive In-vivo Investigation of Carotid Arteries Mechanical Properties: Combination of MRI and Numerical Simulation

Loïc FIN, Amiens, France

An Electrical Analog Model of Brain Hydrodynamics Validated by Flow-sensitive MRI

Guy Kongolo, Amiens, France

In Vivo Wall Shear Stress Assessment in the Carotid Bifurcation by a Combination of the Finite Element Approach and MRI

Frieke Box, Leiden, The Netherlands

Functional Analysis of Aortic Valve Prostheses: Shear rate Assessment Using MRI

Andrew Kiruluta, Boston, USA

Motion Correction in High-Resolution Coronary MRI Using Measurements from Intra-Vascular Tracking Catheters

Marcel Rutten, Eindhoven, The Netherlands

High Spatial and Temporal Resolution Myocardial Tagging in a Free-breathing Exam Using Multi-echo SSFP and PAGE

Vinay Pai, New York, USA

Postoperative Diastolic Regurgitation of Left to Right Pulmonary Artery in Patients with Competent Pulmonary Valve Replacement Demonstrated by MR Phase Contrast Flow Measurements

Stefanie Pertschy, Hannover, Germany

Tuesday 12:30 – 13:40

Parametric Geometry Modeling of the Carotid Artery Bifurcation: The Need for New Flow Metrics

Neil Bressloff, Southampton, England

Low-Reynolds Number Turbulence Modelling in a Realistic Stenosed Carotid Artery Geometry

Jason Beech-Brandt, Edinburgh, Scotland

Flow Dynamics of the Anatomic TCPC: An Integrated MRI, In-Vitro Experimentation, and CFD Approach for Surgical Applications

Ajit Yoganathan, Atlanta, USA

Application of the Multiscale Approach to Investigate Fluidynamics in Surgical Procedures for the Treatment of Congenital Heart Diseases

Katia Laganà, Milna, Italy

Combined Visualization and Analysis of Blood Flow and Motion in the Left Ventricle

Raghavendra Chandrashekar, London, England

Study of Flow Patterns in Left Ventricle by the Combination of CFD and MRI

Quan Long, Uxbridge, England

Flow Patterns in the Proximal Coronary Arteries Determined from MRI and CFD – Relation to Localization of Atherosclerotic Plaques

John Oshinski, Atlanta, USA

Evaluation of Image-based CFD Models of Cerebral Aneurysms Using MRI

Juan Cebal, Fairfax, USA

Proffered Posters

Detection and Quantification of Pulmonary Arterial Hypertension Caused by Increased Pulmonary Resistance Using MR Flow Measurements
Nasreddin Abolmaali, Waldorf, Germany

Anatomically Accurate Computational Hemodynamics in the Aorta and the Coronary Arteries
Evangelos Boutsianis, Zurich, Switzerland

Observations on the Flow of Blood in Experimental Arteriovenous Fistulae
Vidyasagar Casikar, Penrith, Australia

Cerebral Aneurysm Genesis: A Computational Model
Iordanis Chatziprodromou, Zurich, Switzerland

3D Volume Selective Turbo Spin Echo Imaging for Carotid Artery Wall Imaging With Navigator Detection of Swallowing
Lindsey Crowe, London, England

Identification and Removal of Residual Signal from Slow Flowing Blood in 3D Volume Selective Turbo Spin Echo Arterial Wall Imaging Using a Velocity Sensitive Phase Reconstruction Method
Lindsey Crowe, London, England

Real-Time Flow Measurement using Spiral RF pulse and EPI Readout During Breath-hold and Free Breathing
Lindsey Crowe, London, England

Computation Simulation for the Apheresis Process with a Non-Newtonian Model
Sandro De Gruttola, Zurich, Switzerland

Stereoscopic Particle Image Velocimetry: Parallel In-vitro Measurement of In-vivo Flow Studies for Cardiovascular Fluid Mechanic Applications
Pramote Hochareon, Minneapolis, USA

Phase Ordering with Automatic Window Selection (PAWS) with Half Fourier for Increased Scan Efficiency and Image Quality
Permi Jhooti, London, England

CSF Pressure and Flow Calculation in the Ventricular Space Using CFD
Vartan Kurtcuoglu, Zurich, Switzerland

Evaluation of Intracranial Elastance Using MRI in Patient with Normal-pressure Hydrocephalus
Tosiaki Miyati, Kanazawa, Japan

Monte Carlo Simulation to Verify Near-infrared Spectroscopy
Regina Mudra, Zurich, Switzerland

Analysis and Correction of Off-center Gradient Non-linearity and B₀ Inhomogeneity Related Scaling Errors in Phase Contrast Flow Measurements
Johannes Peeters, Utrecht, The Netherlands

MRI-based Multiscale Models for the Haemodynamic and Structural Evaluation of Surgically Reconstructed Aortic Arches
Simone Pittaccio, London, England

MR Flow Measurements in the Iliac Artery during Reactive Hyperemia
Oliver Wieben, Freiburg, Germany

In Vitro Validation of MR Volumetric Flow Measurement
Meide Zhao, Chicago, USA

Vendor's View Presentations

Monday 18:05 – 19:05

Philips Medical Systems
Marc Kouwenhoven

Siemens Medical Solutions
Carmel Hayes

GE Healthcare
Jason Polzin

Fluent GmbH
Ralf Kroeger