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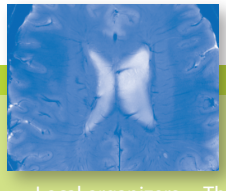
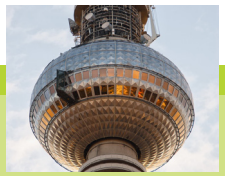
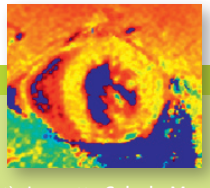
9th Annual Scientific Symposium

Friday, September 14th 2018
8.45 a.m. – 8 p.m.

Max Delbrück
Communications Center (MDC.C), Berlin

Ultrahigh Field Magnetic Resonance:
Clinical Needs, Research Promises and Technical Solutions



Local organizers: Thoralf Niendorf (MDC, Berlin), Lucio Frydman (Weizmann Institute of Science, Rehovot), Jeanette Schulz-Menger (Charité, Berlin), Min-Chi Ku (MDC, Berlin), Sonia Waiczies (MDC, Berlin), Andreas Pohlmann (MDC, Berlin) Sebastian Schmitter (PTB, Berlin)

Program Overview

WELCOME

Chair: Thoralf Niendorf, Berlin, Germany
Sonia Waiczies, Berlin, Germany

08.45 KEY NOTE: From Cardiovascular Imaging to Fluid Mechanics and Aerodynamics: MRI Takes It All
Sven Olaf Grundmann, University of Rostock, Germany

SCIENTIFIC SESSION I

Chair: Jutta M. Ellermann, Minneapolis, USA
Sebastian Schmitter, Berlin, Germany

GETTING TO THE MATTER OF THE HEART: CLINICAL NEEDS AND RESEARCH PROMISES OF CARDIOVASCULAR AND BODY UHF-MR

09.10-09.30 Impact of Magnetic Field Strength on Quantification of Aortic Flow Volumes, Peak Velocity and Wall Shear Stress using 4D Flow MRI
Stephanie Funk, Charité - Universitätsmedizin Berlin, Germany

09.30-09.50 Towards In Vivo Electrolyte Mapping of the Human Heart: Enabling Technology for Sodium and Potassium MRI at 7.0 T
Daniel Wenz, Max Delbrück Center for Molecular Medicine, Berlin, Germany

09.50-10.10 Myocardial T2* Mapping at 7.0 T: Deciphering the Molecular Meaning of the UHF-MR Imaging Findings
Min-Chi Ku, Max Delbrück Center, Berlin, Germany

10.10-10.20 Poster Power Session
A 3D high resolution MRI method for visualization of fibro-fatty infiltration in arrhythmogenic right ventricular cardiomyopathy (ARVC) in human heart.
Kylian Haliot, University of Bordeaux, France
A simple method for improving cardiac magnetic resonance imaging in the small and fast beating heart at 9.4 T
Luana Fernandes, Max Delbrück Center, Berlin, Germany
Intracranial flow measurements at 7.0 T gated with Doppler ultrasound
Karin Markenroth Bloch, Lund University, Sweden
Functional cardiac MRI for imaging myocardial remodeling in humanized HCM mouse models
Min-Chi Ku, Max Delbrück Center for Molecular Medicine, Berlin, Germany

10.20-11.00 COFFEE BREAK: B.U.F.F.et + Poster Session + Technical Exhibition

SCIENTIFIC SESSION II

Chair: Jeanette Schulz-Menger, Berlin, Germany
Kamil Ugurbil, Minneapolis, USA

GETTING TO MATTER OF THE BRAIN: CLINCIAL NEEDS AND RESEARCH PROMISES FOR NEUROVASCULAR UHF-MR AND RELATED FIELDS

11.00-11.20 Clinical Applications of 7.0 T MRI and the Inescapable Attraction of Even Higher Fields: The Clinicians View
Anja van der Kolk, University Medical Center, Utrecht, The Netherlands

11.20-11.40 Ultrahigh field MRI in Clinical Neuroimmunology: A Potential Contribution to Improved Diagnostics and Personalised Disease Management
Tim Sinnecker, University Hospital Basel, Switzerland

11.40-12.00 A Window into Brain Functional Physiology: Insights from Neuroimaging at 7.0 T and 9.4 T
Kamil Uludag, Maastricht University, The Netherlands

12.00-12.20 Pushing UHF-MRI from the Mesoscopic to the Microscopic Scale: Bridging the Gap between Noninvasive Human Imaging and Optical Microscopy
Lawrence Wald, Martinos Center and Harvard Medical School, Boston, USA

12.20-12.30 Poster Power Session
MP2RAGE with k-Space Shutter and Fat-Navigator Based Motion Correction
Wietske van der Zwaag, Spinoza Centre for Neuroimaging, Amsterdam, The Netherlands
The impact of multimodal 7T MRI in presurgical evaluation of patients with severe epilepsy
Olaf B. Paulson, Rigshospitalet, Copenhagen, Denmark
Transient enlargement of brain ventricles in the course of neuroinflammatory disease
Jason Millward, Max Delbrück Center for Molecular Medicine, Berlin, Germany
True laminar resolution fMRI of the human visual cortex at 7T
Kamil Uludag, Maastricht University, The Netherlands
BOLD Mouse fMRI Under Pressure
Henning Reimann, Max Delbrück Center for Molecular Medicine, Berlin, Germany

12.30-13.40 LUNCH BREAK: B.U.F.F.et + Poster Session + Technical Exhibition

SCIENTIFIC SESSION III

Chair: Min-Chi Ku, Berlin, Germany
Lawrence Wald, Boston, USA

TRANSLATIONAL RESEARCH: FROM BLUE SKY EXPLORATIONS EN ROUTE TO CLINICAL APPLICATIONS

13.40-14.00 Dissecting Functional MRI Signal Source in the Striatum Using Novel Brain Modulation Tools at High Magnetic Field
Yen-Yu Ian Shih, University of North Carolina, Chapel Hill, USA

14.00-14.20 En Route to Precision Medicine: Fluorine-19 MRI at 21.1T to Detect Brain Inflammation
Sonia Waiczies, Max Delbrück Center for Molecular Medicine, Berlin, Germany

14.20-14.40 19F MRI of Brain Oxygenation in a Model of Vascular Cognitive Impairment Using a Cryogenic Radiofrequency Coil
Philipp Böhm-Sturm, Charité - Universitätsmedizin Berlin, Germany

14.40-15.00 Advancing Systems Biology with Magnetic Resonance in Live Zebra Fish
Alia Alia Matysik, University of Leipzig, Germany

15.00-15.20 Progress in MRI of Small Rodents at Translational Research and High Field Strengths: Technology and Applications
Wulf-Ingo Jung, Bruker Biospin MRI GmbH, Ettlingen, Germany

15.20-15.30 Poster Power Session
Traveling-wave MRI with a parallel-plate cavity resonator at 15.2 T
Alfredo Rodriguez, UAM Iztapalapa, Mexico City, Mexico
Multicomponent T2 relaxation analysis in the muscles of Leptin-deficient Zebrafish
Muhamed Nour Hashem Eeza, University of Leipzig, Germany
Towards secure magnesium based degradable implants: A longitudinal, non invasive follow up in a rat model using structural, functional and metabolic MR information
Martin Meier, Hannover Medical School, Germany
Compressed Sensing Improves Detection of Fluorine-19 Nanoparticles in a Mouse Model of Neuroinflammation
Ludger Starke, Max Delbrück Center for Molecular Medicine, Berlin, Germany
Fluorine-19 Magnetic Resonance Imaging as a Method for the Individualized Theranostic of Fluorine Labelled Drugs in Neuroinflammation
Christian Prinz, Max Delbrück Center for Molecular Medicine, Berlin, Germany

15.30-16.15 COFFEE BREAK: B.U.F.F.et + Poster Session + Technical Exhibition

SCIENTIFIC SESSION IV

Chair: Thoralf Niendorf, Berlin, Germany
Anja van der Kolk, Utrecht, The Netherlands

LOOKING AT THE HORIZON

16.15-16.35 New UHF Musculoskeletal Imaging Applications for the Paediatric and Young Adult Patient Population: Promises and Preliminary Results
Jutta M. Ellermann, CMRR, University of Minnesota, Minneapolis, USA

16.35-16.55 About Metasurfaces and Dielectric Resonators to Improve Imaging at Ultrahigh Fields
Rita Schmidt, Weizmann Institute of Science, Rehovot, Israel

16.55-17.15 Radiofrequency Applicator Concepts for Thermal Intervention and MRI of Glioblastoma Multiforme at 7.0 T (298 MHz)
Eva Oberacker, Max Delbrück Center for Molecular Medicine, Berlin, Germany

17.15-17.35 The UHF-MR Saga Goes On: A Case for Pushing the Field Strength Boundaries with a 10.5 Tesla Human MR System
Kamil Ugurbil, CMRR, University of Minnesota, Minneapolis, USA

17.35-17.55 Toward Clinical Ultrahigh Field Magnetic Resonance: Mission & Vision
Christina Triantafyllou, Siemens Healthcare GmbH, Erlangen, Germany

18.15 Adjourn - buses leaving from the venue for the social event

19.30 Social Event at Stadtbad Oderberger

From ultrahigh to extreme field MR: Where physics, engineering, physiology and medicine meet
Thoralf Niendorf, Max Delbrück Center for Molecular Medicine, Berlin, Germany

Max Delbrück Center for Molecular Medicine
in the Helmholtz Association

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Free registration: **www.uhf-mr.de**

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