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ISMRM Benelux

ANNUAL MEETING **2024**

PROGRAM BOOK

ISMRM Benelux

ANNUAL MEETING **2024**

Welcome

We extend a warm welcome to all participants and guests to the ISMRM Benelux Chapter Meeting 2024! 🎉 We are thrilled to have you join us in ‘s-Hertogenbosch for a day filled with exciting new perspectives, networking opportunities, and the exchange of knowledge.

This year's event promises to be both informative and inspiring, bringing together a diverse community of MR scientists, researchers, and industry professionals. We hope you make the most of the scientific sessions, workshops, and engaging discussions.

In the context of MRI research, open science encourages the sharing of data, methodologies, and results, enabling researchers to build upon each other's work and collectively advance the understanding of medical imaging.

We are very grateful to our speakers, sponsors and attendees whose contributions have played a pivotal role in shaping this conference.

Here's to a day of discovery, learning, and connecting with fellow enthusiasts in the field of MRI!

Best regards,

Eva Aalbregt
On behalf of the ISMRM Benelux Meeting committee 2024

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- Implant
- Diffusion
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1. Adaptive-C-SENSE-Net technology is the winner of Fast MRI Challenge hosted by Facebook AI research and New York Langone Health.
2. Compared to Philips SENSE.
3. On average, measured across a sample of sites from Philips MR installed base.

Board

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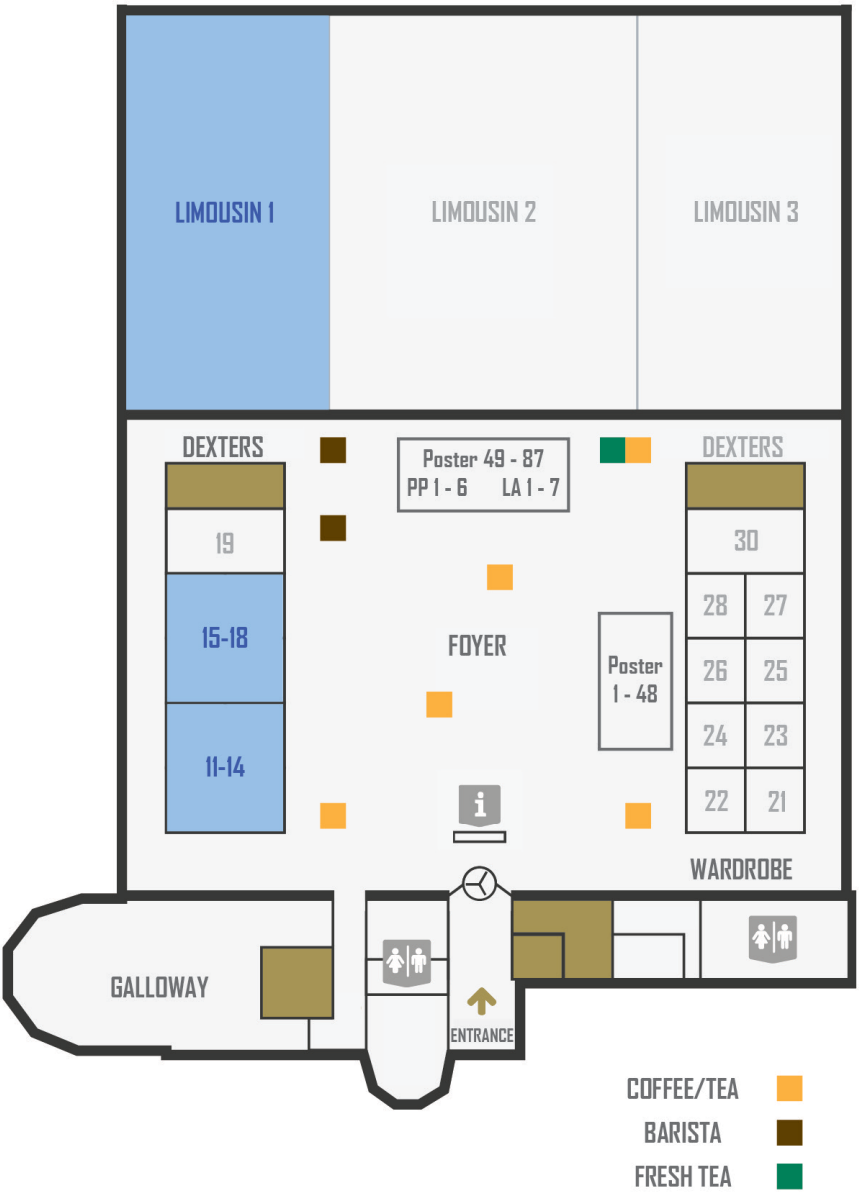
Floor Plan


LIMOUSIN 1
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GALLOWAY
ENTRANCE
COFFEE/TEA
BARISTA
FRESH TEA

PROGRAM

8:45	Registration and coffee/tea	Foyer
9:30	Opening session Keynote by Petra van Houdt	Limousin 1
10:45	Poster session I + coffee break	Foyer
11:40	Parallel session I	
	Oncology	Dexter 11-14
	Neuro clinical I	Limousin 1
	Reconstruction	Dexter 15-18
12:40	Lunch	Foyer
	Parallel: ALV 13:00 - 13:30	Dexter 11-14
13:30	Workshops	
	Skope: hardware	Dexter 11-14
	Lygature: public-private relations	Limousin 1
	Interventional CMR	Dexter 15-18
14:10	Parallel session II	
	Perfusion	Dexter 11-14
	Motion	Dexter 15-18
	Neuro clinical II	Limousin 1
15:10	Poster session II + coffee break	Foyer
16:00	Parallel session III	
	Pre-clinical	Dexter 11-14
	Hardware	Dexter 15-18
	Reproducibility	Limousin 1
16:50	Closing ceremony + challenge + awards	Limousin 1
17:30	Drinks	Foyer
19:00-20:30	Dinner	Galloway

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Power Pitches

Plenary session: 9:30-10:45 Limousin I

PP-01 Thomas Olausson – UMC Utrecht

Time-Resolved Cardiac function: Myocardium Strain and First-Pass Perfusion Using MR-MOTUS.

Computational Imaging Group for MR Therapy and Diagnostics, University Medical Center Utrecht, Utrecht, The Netherlands.

PP-02 Masa Bozic-Iven – TU Delft

Double Inversion Recovery in myocardial Arterial Spin Labeling (ASL) for reduced physiological noise.

Department of Imaging Physics, Delft University of Technology, Delft, The Netherlands.

PP-03 Daan Bosshardt – Amsterdam UMC

Differences in 4D aortic motion derived from 3T bSSFP CMR between Marfan syndrome patients and healthy volunteers.

Radiology and Nuclear Medicine, Amsterdam University Medical Centers, Amsterdam, The Netherlands.

PP-04 Marius Burman – UMC Utrecht

Investigating the relation between cardiac-induced brain strain and both global boundary conditions and local microstructure.

Department of Radiology, UMC Utrecht, Utrecht, The Netherlands.

PP-05 Patrick Tang – Erasmus MC

Hitting the mark: Comparing APT-weighted MTRasym and LD-maps for personalized radiotherapy target delineation of glioblastoma.

Brain Tumor Center, Erasmus MC Cancer Institute, University Medical Center Rotterdam, Rotterdam, The Netherlands.

PP-06 Constant Noordman – Radboud UMC

Real-time MR image reconstruction in interventional MR-guided biopsies.

Department of Medical Imaging, Radboud University Medical Center, Nijmegen, The Netherlands.

Parallel session I - Oncology

Parallel session I: 11:40-12:40 Dexter 11-14

Moderators: **Mies Korteweg**, *Amsterdam UMC*
Beatrice Lena, *Leiden UMC*

O-01 Karleen Oonk – UMC Utrecht
^{31}P MRSI in Pediatric Low Grade Gliomas During Treatment at 7T.
Department of Radiology, UMC Utrecht, Utrecht, Netherlands.

O-02 Jamila Guichelaar – UMC Utrecht
***Ex-vivo 7T* MRI to Determine Resection Margins for Tongue Cancer Resection Specimens.**
Radiotherapy, University Medical Center Utrecht, Utrecht, The Netherlands.

O-03 Rob Colaes – KU Leuven
Changes in MRS brain metabolites and serum neurofilament after chemotherapy in patients with breast cancer.
Department of Imaging & Pathology, KU Leuven, Leuven, Belgium.

O-04 Sarah Jacobs – UMC Utrecht
Automated MR Spectroscopy single-voxel placement in suspected diffuse glioma based on tumor biology.
Center for Image Sciences, University Medical Center Utrecht, Utrecht, the Netherlands.

O-05 Jiying Dai – UMC Utrecht
^{31}P MRSI multi-channel signal combination using ^{23}Na coil sensitivity profiles at 7T: further evaluations in silico, on phantom, and in vivo.
UMC Utrecht, Utrecht, Netherlands.

Parallel session I - Neuro Clinical I

Parallel session I: 11:40-12:40 Limousin I

Moderators: **Merel van der Thiel**, *Maastricht UMC+*
Nikos Priovoulos, *Spinoza Centre for Neuroimaging*

O-06 Ivana Kancheva – Leiden UMC
Cerebrovascular Reactivity Impairment in Genetic Frontotemporal Dementia.
LUMC, Leiden, The Netherlands.

O-07 Eva van Heese – Amsterdam UMC
MRI measures of brain clearance in narcolepsy type 1.
Department of Anatomy and Neurosciences, Amsterdam UMC location Vrije Universiteit, The Netherlands.

O-08 Lars Vermeer – Maastricht UMC+
Structural 7T MRI Reveals Thalamic Volume Differences In Patients With Focal Epilepsy.
Department of Radiology and Nuclear Medicine, MUMC+, Maastricht, The Netherlands.

O-09 Ingmar Eiling – Leiden UMC
The association between cerebral dirty-appearing white matter and progression of small vessel disease in community-dwelling older adults.
Department of Radiology, Leiden University Medical Center, Leiden, The Netherlands.

O-10 Mar Barrantes-Cepas – Amsterdam UMC
Showing treatment effects of cladribine tablets using data driven patterns of regional matter atrophy in multiple sclerosis
MS Center Amsterdam, Anatomy and Neurosciences, Vrije Universiteit Amsterdam, Amsterdam Neuroscience, Amsterdam UMC location VUmc, Amsterdam, The Netherlands

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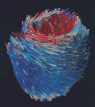
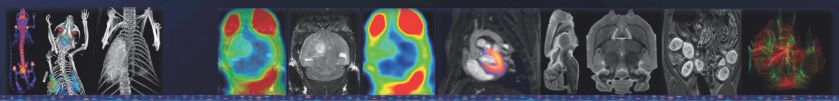
Oncology
Cardiology
Neurology



Angiography
Diffusion
Relaxometry



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Parallel session I - Reconstruction

Parallel session I: 11:40-12:40 Dexter 15-18

Moderators: **Miha Fuderer**, *UMC Utrecht*
Martijn Nagtegaal, *Leiden UMC*

O-011 Thierry Meerbothe – UMC Utrecht
Complex B1+ field predictions to evaluate Electrical Properties Tomography reconstructions.
Department of Radiotherapy, Division of Imaging and Oncology, UMC Utrecht, Utrecht, The Netherlands.

O-012 Natalia Korobova – Amsterdam UMC
A correction for modeling of radial, spiral, and PROPELLOR DCE data: time-averaged extended Tofts.
Department of Radiology and Nuclear Medicine, Amsterdam UMC, Amsterdam, The Netherlands.

O-013 Max van Riel – UMC Utrecht
Time-Resolved Biomechanics using Spectro-Dynamic MRI: Proof of Principle in the Muscles of the Thigh.
Department of Radiotherapy, Computational Imaging Group for MR Diagnostics and Therapy, UMC Utrecht, Utrecht, The Netherlands.

O-014 Luka Stam – Radboud UMC
Comparing Pilot-Tone and Free Induction Decay navigators for Single-Spoke Binning in radial stack-of-stars MRI.
Department of Medical Imaging, Radboud University Medical Center, Nijmegen, the Netherlands.

O-015 Oscar van der Heide – UMC Utrecht
Towards online 3D MR-STAT reconstructions.
Computational Imaging Group for MR Diagnostics & Therapy, Center for Image Sciences, University Medical Center Utrecht, Utrecht, Netherlands.

WaveTronica

On the frontier of MRI technology development.

WaveTronica B.V. excels in building RF hardware for high-field and ultra-high field MRI and spectroscopy. WaveTronica B.V. builds and installs RF hardware for MRI research with expertise on RF coil design, hardware installation and phantom building and it brings together experience in research, (multi-transmit) SAR simulations and MRI hardware development.

It is unique in that it develops beyond state-of-the art MRI hardware, while simultaneously developing a full service. Being in close contact to key stakeholders in high-end MRI research, WaveTronica B.V. has access to know-how to enable rapid prototyping for the research community and an established network with the world's leading MRI producers. WaveTronica B.V. provides the hardware including system integration and safety assessments to obtain unique images of patients with an MRI system: both metabolic imaging as well as ultra-high-resolution MR images.

WaveTronica B.V. looks forward to collaborating with you on all MRI hardware-related projects.

Founded in in 2018, Spin-off company of UMCU, The Netherlands

Workshops 13:30-14:10

Workshop by Skope — Dexter 11-14

Field monitoring and advanced imaging schemes

Skope focuses on bringing accuracy and detail to MRI by combining sensor technology with advanced MR signal processing and image reconstruction. At the heart of our technology is the accurate and real-time monitoring of the encoding fields dynamics. This information is key to achieve the best image quality possible and really push the scanner to its limit. Indeed, field monitoring enables to reconstruct images based on the actual k-space trajectories. This leads to artifact-free images which are inherently more geometric consistent and hence reproducible.

Workshop by AmsterdamUMC and Imricor — Dexter 15-18

Interventional cardiac MR put into practice

This workshop will focus on clinical implementation of iCMR involving 1) iCMR infrastructure & equipment; 2) iCMR team from the MR technician's perspective; and 3) current clinical applications of MRI-guided cardiac ablations.

Workshop by Lygature — Limousin I

Public-Private Partnerships

Public-Private Partnerships: Key success factors in public-private partnerships.
There is more to Public-Private Partnerships (PPP) than the 1:1 Academic-Industry collaboration. In this workshop you will learn about other successful types of PPP, what these can bring to you and what you need to know about setting-up and running these PPP.

Parallel session II - Perfusion

Parallel session II: 14:10-15:10 Dexter 11-14

Moderators: **Patricia Clement**, *Ghent University*
Lydiane Hirschler, *Leiden UMC*

O-16 Elles Elschot – Maastricht UMC+
Measuring intra-to-extra-vascular cerebral water-transport in patients with small vessel disease using 3D T2-prepared time-encoded pCASL.
Department of Radiology and Nuclear medicine, MUMC, Maastricht, The Netherlands.

O-17 Beatriz Padrela – Amsterdam UMC
ASL blood-brain barrier permeability is associated with amyloid and cognitive impairment.
Department of Radiology and Nuclear Medicine, Amsterdam University Medical Center, Location VUmc, Amsterdam, The Netherlands

O-18 Mathijs Dijsselhof – Amsterdam UMC
ASL-derived cerebrovascular brain-age improves associations with cognitive decline.
Department of Radiology and Nuclear Medicine, Amsterdam University Medical Centers, Vrije Universiteit, Amsterdam, The Netherlands.

O-19 Damon Verstappen – Maastricht UMC+
Arterial Spin Labeling and Phase-Contrast MRI suggest impaired cerebral blood flow autoregulation in small vessel disease.
Department of Radiology & Nuclear Medicine, Maastricht University Medical Centre, Maastricht, The Netherlands.

O-20 Benthe Ariëns – Amsterdam UMC
The effect of SGLT2-inhibition on the kidney perfusion and diffusion in patients with T2D.
Internal medicine, Amsterdam UMC, Amsterdam, The Netherlands.

Parallel session II - Motion

Parallel session II: 14:10-15:10 Dexter 15-18

Moderators: **Eric Schrauben**, *Amsterdam UMC*
Marnix Maas, *Radboud UMC*

O-21 Myrte Wennen – Amsterdam UMC
Imaging of thorax and diaphragm movement in mechanically ventilated mice and rats.
Department of Radiology and Nuclear Medicine, Amsterdam University Medical Centers, Amsterdam, The Netherlands.

O-22 Katrinus Keijnemans – UMC Utrecht
Better motion-compensated daily imaging using 4D-MRI for MR-linac gating workflows.
Department of Radiotherapy, University Medical Center Utrecht, Utrecht, The Netherlands.

O-23 Reagan Tompkins – Amsterdam UMC
Retrospective motion correction for fetal 4D flow MRI.
Department of Radiology & Nuclear Medicine, Amsterdam University Medical Center, location University of Amsterdam, the Netherlands.

O-24 Matthias Maeyens – UAntwerp
Multi-resolution super-resolution reconstruction for better motion correction.
Molecular-morphology-microscopy, University of Antwerp, Antwerp, Belgium.

O-25 Frédérique van Gameren – UMC Utrecht
Analysis of motion-compensated MRI efficiency in lung cancer patients based on a 1D-navigator signal.
Department of Radiotherapy, University Medical Center Utrecht, Utrecht, Netherlands

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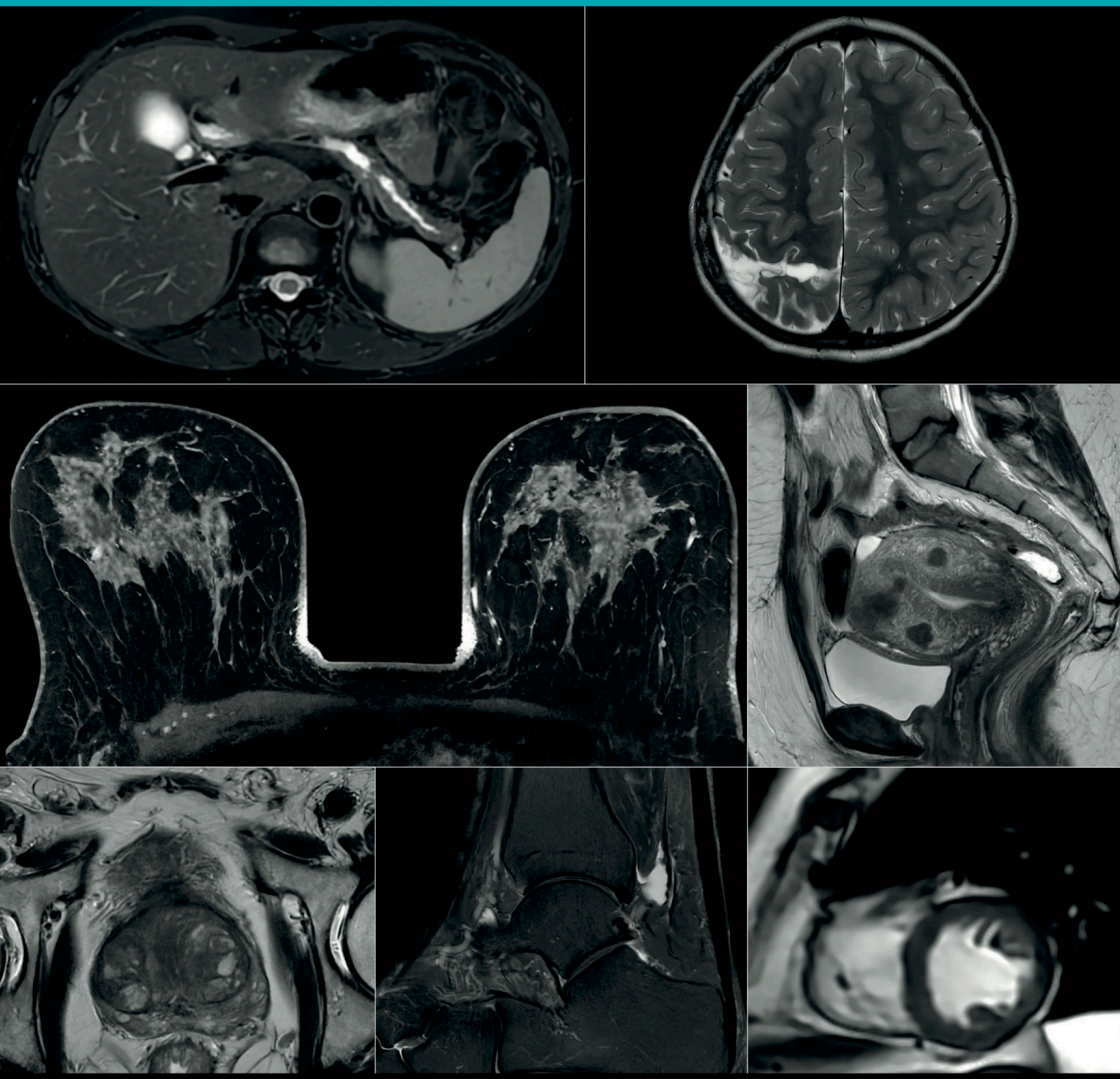
This is just the beginning



Parallel session II - Neuro Clinical II

Parallel session II: 14:10-15:10 Limousin I

Moderators: **Evita Wiegers**, *UMC Utrecht*
Anouk Schrantee, *Amsterdam UMC*

O-26 Noa van der Knaap – Maastricht UMC
Long-term microvascular hypoperfusion in COVID-19 ICU survivors: a prospective multi-b-value DWI study.
Department of Radiology & Nuclear Medicine, Maastricht University Medical Center, The Netherlands.

O-27 Siebe Leysen – KU Leuven
Blind spherical deconvolution of multi-shell diffusion MRI to model regional changes in pathology.
Department of Electrical Engineering, ESAT/PSI, KU Leuven, Leuven, Belgium

O-28 Stanley Pham – UMC Utrecht
Associations between small vessel function and progressive white matter injury in CADASIL using advanced 7T MRI.
Center for Image Sciences, University Medical Center Utrecht, Utrecht, The Netherlands.

O-29 Zarah van der Pal – Amsterdam UMC
Stimulant medication and development of the dopamine system in ADHD: a pharmacological MRI study.
Department of Radiology & Nuclear Medicine, Amsterdam UMC location University of Amsterdam, Amsterdam, The Netherlands.

O-30 Inge van Ooijen – UMC Utrecht
Inhomogeneous Magnetization Transfer Imaging in Extremely Preterm Neonates at 7T.
Department of Neonatology, University Medical Center Utrecht, Utrecht, The Netherlands.

Parallel session III - Pre–Clinical

Parallel session III: 16:00-16:45 Dexter 11-14

Moderators: **Elisabeth Jonckers**, *UAntwerp*
Bram Coolen, *Amsterdam UMC*

O-31 Matic Pusovnik – KU Leuven
Real time monitoring of Ca^{2+} homeostasis by manganese enhanced cMRI in a remotely induced myocardial ischemia reperfusion injury mouse model.
Biomedical MRI, Department of Imaging and Pathology, KU Leuven, Leuven, Belgium.

O-32 Leonardo Ricciardi – UAntwerp
In vivo tracking of transcranial Manganese delivery with a novel hyaluronic acid hydrogel (HA)-based delivery device.
Bio-Imaging lab, University of Antwerp, Antwerp, Belgium

O-33 Vanja Curcic – UMC Utrecht
From microscopy data to hemodynamic simulations: a vascular graph approach to understand the fMRI signal formation.
Department of Radiology, UMCU, Utrecht, The Netherlands.

O-34 Sam de Waegenaere – UAntwerp
Correlations between alterations in resting-state functional dynamics and memory impairments in the TgF344-AD rat model of Alzheimer's Disease
Bio-Imaging lab, University of Antwerp, Antwerp, Belgium.

Parallel session III - Hardware

Parallel session III: 16:00-16:45 Dexter 15-18

Moderators: **Martijn Froeling**, *UMC Utrecht*
Wyger Brink, *University of Twente*

O-35 Rik Weersink – UMC Utrecht
Accelerating MRI with a Wireless Insert Gradient Coil.
Department of Radiology, University Medical Center Utrecht, Utrecht, The Netherlands.

O-36 Koen Vat – TU Eindhoven
Evaluating Fractionated Dipole Antenna performance for 14 Tesla head imaging.
Biomedical Engineering, Eindhoven University of Technology, Eindhoven, The Netherlands.

O-37 Mathijs Kikken – UMC Utrecht
Temperature Changes in the Brain due to External Heat Sources: an MR Thermometry Study.
Center for Image Sciences – Computational Imaging Group, University Medical Center Utrecht, The Netherlands.

O-38 Michael McGrory – UMC Utrecht
Preliminary Results on Torso PNS Thresholds at the Ultrasonic Driving Frequency of 20 kHz using a Whole-Body Gradient Coil.
Department of Radiology, University Medical Center Utrecht, Utrecht, The Netherlands.

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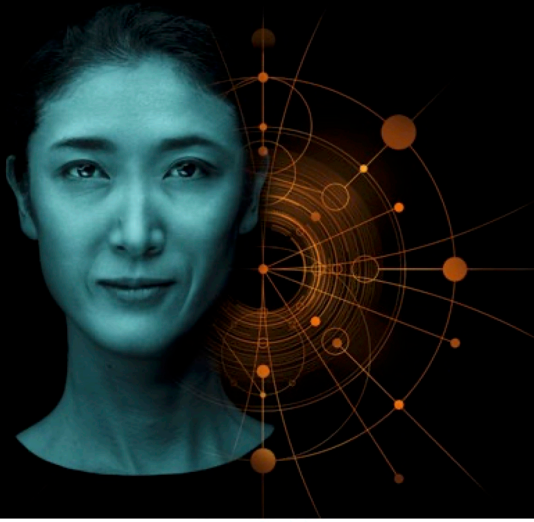
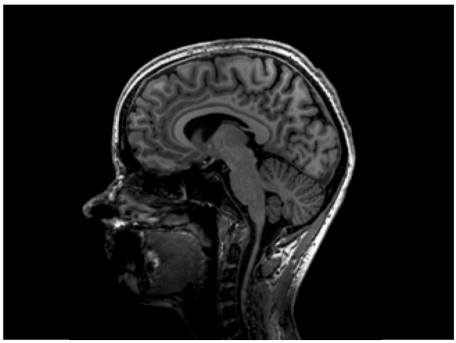


MAGNETOM Terra.X* introduces the next generation 7T MRI that will enable you to make the difference. With its groundbreaking Ultra IQ Technology, it will deliver unprecedented image clarity that allows you to confidently assess subtle pathological details. In combination with our AI-powered Deep Resolve, MAGNETOM Terra.X ultimately will take clinical routine to a new level. MAGNETOM Terra.X makes the difference for clinicians and scientists.



StudyID: 4aaaa0264 / 8Tx32Rx head coil

** MAGNETOM Terra.X is still under development and not commercially available yet. Its future availability cannot be ensured.*

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Parallel session III - Reproducibility

Parallel session III: 16:00-16:45 Limousin I

Moderators: **Henk-Jan Mutsaerts**, *Amsterdam UMC*
Koen Baas, *Amsterdam UMC*

O-39 Marie Galteau – Donders Institute
How Variable Are Our Rat Sensory-Evoked Functional MRI Datasets?
Donders Institute for Brain, Behaviour, and Cognition, Nijmegen, The Netherlands

O-40 Laura Kemper – Erasmus MC
Multi-site multi-vendor reproducibility of APTw-CEST MRI at 3T.
Department of Radiology & Nuclear Medicine, Erasmus MC, Rotterdam, The Netherlands

O-41 Lonneke Bos – Amsterdam UMC
Variability of brain-age estimates in multiple sclerosis within and between three different MR scanners.
MS Center Amsterdam, Radiology and Nuclear Medicine, Vrije Universiteit Amsterdam, Amsterdam Neuroscience, Amsterdam UMC location VUmc, Amsterdam, The Netherlands.

O-42 Paul Roos – Leiden UMC
Noninvasive Left Ventricular Pressure-Volume Loops Derived from 4D Flow CMR and CFD.
Radiology, LUMC, Leiden, The Netherlands.

Poster Index

ODD posters in poster session I: 10:45-11:40 Foyer
EVEN posters in poster session II: 15:10-16:00 Foyer

LA = late breaking abstract, PP = power pitch

Abdominal

P-46	Evaluating Fetoplacental Response to Hypercapnia in Pregnant Rats: A Comparison Between T2* MRI and Photoacoustic Imaging
P-47	Testing diagnostic quality after speeding up prostate MRI by reducing the number of echo-trains in T2-weighted TSE
P-48	Multiparametric MRI as a Diagnostic Tool for Metabolic Dysfunction-Associated Steatotic Liver Disease
P-49	MR-based real-time bowel tracking for radiotherapy

Acquisition strategies

P-22	Simultaneous multi-slice MR-STAT for robust high-resolution full-brain relaxometry
P-23	Reduced gadolinium dose by an optimized multi-parametric MR-STAT protocol
P-24	Vendor-agnostic pulse programming on gammaSTAR: a traveling head experiment to test the Philips driver
P-25	pTx Pulseq in hybrid sequences: Universal Pulses, made Truly Universal
LA-7	Optimizing Prostate MRI: Assessing GRAPPA calibrated once's Impact on Prostate Image Quality and Scan Time

Interventional MRI

P-16	Reduction of RF-heating on bilateral DBS leads using two channel RF-shimming on 3T MRI
PP-6	Real-time MR image reconstruction in interventional MR-guided biopsies
LA-3	Integrated assessment of perfusion quality and TARE microsphere distribution through normothermic machine perfusion and MRI in ex vivo porcine livers

Poster Index

ODD numbers in poster session I, **EVEN** posters in poster session II
LA = late breaking abstract, PP = power pitch

Contrast mechanisms

Spectroscopy

Poster Index

ODD numbers in poster session I, **EVEN** posters in poster session II
LA = late breaking abstract, PP = power pitch

Ultra-high field

P-84	Geometry Matters: High Performance Acceleration with Twisted Pair and Conventional Coil Designs at 7T MRI
P-85	Simulation-based evaluation of the Coax Monopole antenna as a transmit array element for head imaging at 14T
P-86	Combining pTx proton MR imaging and sTx localized phosphorus MR spectroscopy of leg muscles over a large FOV at ultra-high field

Functional MRI

P-37	BOLD fMRI at 9.4T with 3D spiral readouts using Pulseq
P-38	Simulating pulsatile flow: towards understanding MRI sequences targeting microvascular fluid-structure interactions
P-39	Explainable depression classification: a machine learning approach based on brain network size and functional connectivity
P-40	One-year follow-up of visually stimulated task-based fMRI in Dutch-type and sporadic Cerebral Amyloid Angiopathy
P-41	Microvascular specificity of spin-echo BOLD fMRI at 7T: the impact of EPI echo train length
P-42	Exploring the cerebellar cortical stripes in humans with 7T, motion-corrected, RF-shimmed MRI
P-43	Protocol for awake task free fMRI using freely behaving head fixed mice.
LA-6	Evaluating acute stress effects on resting-state fMRI connectivity in awake habituated rats

Poster Index

ODD numbers in poster session I, **EVEN** posters in poster session II
LA = late breaking abstract, PP = power pitch

Cardiovascular

P-50	Adiabatic pulses for outer volume suppression in non-contrast coronary Magnetic Resonance Angiography
P-51	Signal intensity and volume of carotid intraplaque hemorrhage on MRI and ipsilateral cerebrovascular events: the Plaque At RISK (PARISK) study
P-52	19F-MRI to detect treatment effect on inflammation after myocardial ischemia reperfusion injury
P-54	Complex B1+ field-based conductivity mapping in the human myocardium at 3T
P-55	Combining 4D balanced SSFP and 4D flow MRI for highly localized 3D pulse wave velocity calculations
P-56	A dynamic contrast-enhanced (DCE) MRI protocol optimized for imaging abdominal aortic aneurysms
PP-1	Time-Resolved Cardiac function: Myocardium Strain and First-Pass Perfusion Using MR-MOTUS.
PP-2	Double Inversion Recovery in myocardial Arterial Spin Labeling (ASL) for reduced physiological noise.
PP-6	Real-time MR image reconstruction in interventional MR-guided biopsies
LA-4	Quantifying hepatic arterial blood flow with 4D flow MRI to improve transarterial radioembolization: initial results from a repeatability study

Musculoskeletal

P-45	The MOTION study – First quantitative muscle MRI results in a large cross-sectional cohort of healthy subjects
LA-5	Magnetic resonance of skeletal muscle metabolic and contractile function: Normative values and repeatability in healthy volunteers

Poster Index

ODD numbers in poster session I, **EVEN** posters in poster session II
LA = late breaking abstract, PP = power pitch

Neuroimaging

Diffusion

Poster Index

ODD numbers in poster session I, **EVEN** posters in poster session II
LA = late breaking abstract, PP = power pitch

Neuroimaging

P-8	An investigation of functional activity and connectivity disturbances within the cerebellum in multiple sclerosis using 7T MRI
P-9	Quantifying Spatial Variations of Cardiac-Induced Volumetric Strain Using DENSE MRI: Insight from an Observational Study
P-10	Effects of radiofrequency thermoCOagulation on brain NeTwork ACTivity in patients with epilepsy: CONTACT study. Study design
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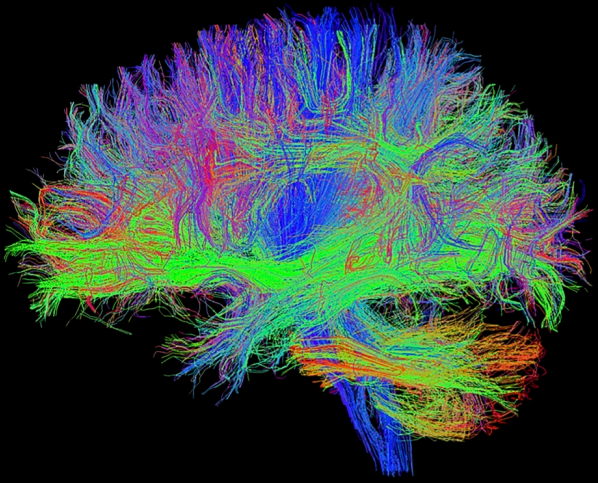

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