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MAGNETIC RESONANCE

ISMRRM & SMRT Annual Meeting & Exhibition



An Online Experience

15-20 MAY 2021

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Welcome

FROM THE 2020-2021 ISMRM PROGRAM CHAIR

Nicole Seiberlich, Ph.D.

Program Chair, ISMRM Annual Meeting 2021

As your 2021 Program Chair of the ISMRM Annual Meeting Program Committee (AMPC), it is my honor and great pleasure to welcome you to the 2021 Annual Meeting of the ISMRM & SMRT. As you know, this meeting is being presented as a virtual experience, where all of our sessions will be offered online instead of in person. The decision to cancel the face-to-face portion of the meeting in Vancouver, Canada, was made based on the continuing impact of COVID-19 around the world. While we would have loved to gather together in person, the AMPC has been hard at work developing a program which takes advantage of the digital nature of this meeting to ensure that it is both innovative and interactive!

We are confident that this year's Annual Meeting will be as dynamic and informative as ever, packed with familiar features as well as new types of content and delivery designed to enhance our program. I want to take a moment to highlight some of the new features that will make our 2021 Annual Meeting special this year:

- The new *Breast MRI: Special Focus Meeting*, a targeted meeting within the Annual Meeting designed for breast radiologists
- A variety of hands-on tutorials, using innovative online formats such as small-group teaching, scheduling in different time zones, challenges with online support, and the first-ever ISMRM teaching session in gather.town!
- An online reincarnation of the popular demo sessions of open-source software, scheduled in different time zones so no one has to miss out!
- Junior Fellows Symposium "Shark Tank," where MRI innovators pitch their big idea to a panel of judges (physicians, physicists, radiographers, industry leaders) to get feedback and prizes
- EDI Forum, entitled "ISMRM for All: An Asia-Pacific Perspective"
- Yoga studio, with both on-demand activities and times for the MRI community to practice together
- The Whole Meeting Closing Party Game, with great prizes (including socks!)

The core of the Annual Meeting will be our outstanding scientific and educational presentations which comprise 80 oral scientific sessions, 177 poster sessions, 13 Combined Education and Scientific (CES) sessions, and 93 educational sessions, distributed over 6 days. We know that it can be difficult to dedicate just one week to focus on the Annual Meeting when not physically away from home and at the meeting, and thus all scientific and educational presentations will be available for asynchronous, on-demand viewing starting on May 1, 2021.

Also new this year is our interactive virtual meeting platform, which will further elevate our meeting and massively improve our ability to connect with one another. Each presentation will be associated with a dedicated space for comments, questions, and answers. We encourage all attendees to take advantage of this feature to contact presenters and make connections. There will be discussion channels and interactive chat features,

including options to enhance networking opportunities such as 1-1 on-video calls and hang-out lounges. When entering the Annual Meeting platform for the first time, do take a moment to familiarize yourself with all the features so that you can make the most of this meeting!

For the week of the actual meeting, May 15-20, we will run our live sessions, which will build on the on-demand content. All abstracts, whether classified as "oral" or "poster," will have a dedicated interactive Q&A session taking place in small Zoom sessions where presenters and attendees can discuss science (watch for our Moderators and Poster Facilitators who are tasked with engaging our speakers to liven up these sessions!). Educational sessions will include recaps and "Test Your Knowledge" quizzes to allow attendees to solidify their learning. The best way to prepare for this week of live sessions is to review educational and scientific presentations and to come with questions for the presenters!

Of course, we have continued our Named Lectures as highlights of the program. ISMRM President Tim Leiner has selected Simon Singh, Ph.D., to present this year's Presidential Lecture on Wednesday, May 19. Dr. Singh, a particle physicist, TV producer and director, and bestselling author, will discuss how to present complex topics to an audience of laypeople in his lecture entitled "From the Big Bang to Homer's Last Theorem." The Mansfield Lecture will be delivered on Sunday, May 15, by Dr. Pia Maly Sundgren, whose talk will focus on the collaboration between members of the ISMRM and SMRT and is entitled "Viribus Unitis." On Tuesday, May 17, Dr. Katja Pinker-Domenig will present her cutting-edge research in breast MRI in the NIBIB New Horizons Lecture entitled "Precision MRI of the Breast: Reality or Utopia?" Finally, the Lauterbur Lecture will be delivered on Thursday, May 20, by Dr. John Gore, who will share his perspective on "Adventures in Contrast."

We have also retained our widely popular plenary sessions, with topics and speakers designed to highlight the breadth of our field and capture the attention of our entire ISMRM and SMRT community. In the interest of finding a time zone that would enable the most of our participants to join us, we have opted for these sessions to be held after the scientific and educational sessions for the day, starting at 20:00 UTC. All of these sessions will be recorded and available for viewing for those attendees who cannot join us live. This year, our plenaries include: Nurturing MR Innovators & Innovation (Sunday), CEST-MRI Challenges & Promises (Monday), Specialized High-Performance Systems (Tuesday), and Microstructure: Richness of Scales & Contrasts (Wednesday). Note that we will not have a plenary session on Thursday in order to make time for our interactive, all-attendee Closing Party Game—you won't want to miss it.

The outstanding selection of educational courses for the 2021 Virtual Meeting is the culmination of a year of careful planning by the AMPC, overseen by Vice-Chair Steven Sourbron. Together, they have organized 93 educational sessions with 325+ lectures on topics ranging from basic principles of MRI physics, to machine learning, to advanced clinical applications of MRI, and even data safety and the economics of radiology. Steven has continued several initiatives from previous years,

including speaker applications to increase participation in the Annual Meeting, and has also reorganized the AMPC to place more emphasis on transferable skills and cross-organ topics. One particular highlight which Steven has championed is the use of hands-on tutorial sessions, which enable teachers and learners to interact to improve knowledge transfer. These tutorials cover subjects such as hands-on analysis of physiological MRI, cardiovascular MRI, machine learning, software demos and software engineering, resting-state fMRI, and diffusion. The breadth and depth of the Educational program are unparalleled and provide the best in MR education anywhere in the world. CME credits will be available for a subset of educational courses, and self-assessment modules will again be available for our American M.D. members for board certification purposes.

As always, this meeting will include a virtual Exhibition Hall where attendees can meet (virtually, of course) with our corporate partners, vendors, and other exhibitors—please check it out! This meeting also has a number of special programs which will be familiar to past participants: Young Investigator

presentations, Member-Initiated Symposia (designed and presented by you, our members), the Fun Run, and Fireside Chats. Secret Sessions are also back, organized by and aimed towards early-career investigators in the society, though anyone is welcome to attend. You won't find details in the program (it's a secret — well, sort of...), so ask your friends or check social media for where to find them.

Despite the challenges over the past year, our MRI community continues to be as vibrant as ever—this is clear from the multitude of abstract submissions, enthusiasm for special sessions, and energy from our membership. We know that the Annual Meeting is an important time for our community to come together; in fact, it is my favorite professional activity (and one of my favorite yearly social activities as well!). We are thrilled with the level of participation, and cannot thank our organizers enough, including the AMPC, the ISMRM office, the moderators, the poster facilitators, the presenters, the special session planners, and of course, the attendees! On behalf of the AMPC and ISMRM, I welcome you to our Virtual Conference and Exhibition. Enjoy the meeting!



Thao Tran, M.Sc.
Program Chair, SMRT Annual Meeting 2021

Welcome

FROM THE 2020-2021 SMRT PROGRAM CHAIR

Welcome to the 2021 ISMRM & SMRT Annual Meeting & Exhibition!

Bridging Gaps: Integrating Clinical Translation of Research Developments in an Evolving Global Environment

We have put together an educational program that has something for everyone, including perspectives from our international community of clinicians, physicists, and MR radiographers/technologists, many of whom are world-renowned leaders in their field.

New This Year:

- Each session will be 2 hours in duration, beginning with lectures ranging from 30 minutes to 60 minutes in length, followed by live, interactive question-and-answer (Q&A) sessions or panel discussions.
- The 2021 SMRT President's Award and Research and Clinical Abstract Award winners will present their work, followed by two parallel live Q&A sessions: one encompassing the Clinical Category and one encompassing the Research Category. All SMRT members who submitted abstracts this year have been invited to participate. Come prepared for an interactive session!

Continuing Features:

- The 2021 SMRT Masterclass, MR Safety: From Folklore to Physics, is presented by Dr. Donald McRobbie. It is another SMRT Masterclass that's not to be missed! Dr. McRobbie's 5-part series and live Q&A sessions will include discussion of topics including: magnetism, induction, conduction, attenuation, and application.
- The meeting program is scheduled around the clock, so you can participate at a time that fits your needs.
- Pre-recorded lectures are available on demand, giving you

time to prepare your questions in advance.

- There are four (4) SMRT International Clinical Sessions presented by members in different regions of the world.
- All meeting attendees have full access to both SMRT and ISMRM programs.

We are proud to once again provide a world-class SMRT Educational program this year. Our highlighted lectures include:

SUNDAY, MAY 16, at 0:00 UTC, shown LIVE

- Plenary Lecture – Prof. Carolyn Mountford, "Trials & Tribulations of Translation into Meaningful Outcomes for the Patient"
- Keynote Lecture – Prof. Eva Ratai, "MR Spectroscopy of Neurological Disease, Infections & Cancer"

SUNDAY, MAY 16, at 14:00 UTC, shown LIVE

- President's Lecture – Prof. Tom Grist, "Go with the Flow: Lessons Learned About the importance of Radiologist-Technologist Teamwork in the Development of MRA"

In addition, to complement hours of quality educational content at your fingertips, we will have a virtual Exhibition Hall that will be open from 10:00-12:00 UTC and again from 22:00-0:00 UTC to cater to attendees in multiple time zones. Be sure to support the exhibitors and get a glimpse of what is state-of-the-art in our field.

Be on the lookout for our ever-popular Mentimeter Game Show social events scattered throughout the week. Times, dates, and Zoom connections are available through the Program-At-A-Glance. Download the app now and come ready to play!

We are looking forward to sharing our meeting with you!

CREDIT DESIGNATION

ACCREDITATION FOR THE VIRTUAL MEETING

To assist with the schedules of our attendees, some pre-recorded educational sessions are offering credit. You will simply need to watch the videos, answer some questions, and print a certificate of credit. A cumulative certificate listing all claimed sessions will be available for printing. You can begin reviewing and receiving credit on 3 May 2021 and must complete all viewings by 30 May 2021.

To receive certificates of credit, log into our learning management system and see all courses available to attendees. These courses will not be available for credit to non-registrant members until 2022.

Preliminary numbers of credit available:

Please note: 1 hour = 1 credit

AMA PRA Category 1 Credit™	Self-Assessment Module Credit (SA-CME)	Category A Credit	Certificate of Participation
175 hours	175 hours	27.5 hours	196 hours
84 sessions	84 sessions	25 sessions	109 sessions

Breast MRI: Special Focus Meeting*	23.5 hours of AMA PRA Category 1 Credit™
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*Breast MRI Meeting-only registrants, please note: all credits must be claimed by Tuesday, 18 May 2021, at 23:59 UTC. Access will be cut off at this time. No exceptions will be made.

The International Society for Magnetic Resonance in Medicine is accredited by the Accreditation Council for Continuing Medical Education (ACCME) to provide continuing medical education for physicians.

The Society for MR Radiographers & Technologists (SMRT), A Section of the ISMRM, is recognized by the American Registry of Radiologic Technologists (ARRT) as a Recognized Continuing Education Evaluation Mechanism (RCEEM). CPD credit endorsement is through the Australian Society of Medical Imaging and Radiation Therapy (ASMIRT) CPD Accreditation, the Royal Australian and New Zealand College of Radiologists (RANZCR), the New Zealand Institute of Medical Radiation Technology (NZIMRT), and the College of Radiographers (CPD NOW), United Kingdom.

VIRTUAL SESSION ETIQUETTE

STATEMENT ON INCLUSIVITY

The ISMRM embraces and values the diversity of all its community regardless of age, race, ethnicity, nationality, culture, gender, gender identity, sexual orientation, disability, religion, and socioeconomic status. It is our mission to ensure that everyone working in our field has equal and fair opportunities to contribute.

ANTI-HARASSMENT AND NON-DISCRIMINATION STATEMENT

We stand together against harassment and discrimination. Respectful and professional behavior within the ISMRM is expected at all times. All members are responsible for making the Society a safe, inclusive environment where every individual feels valued, respected, and able to do their best work. Every member of our community should feel empowered to speak up without fear if they experience or observe behavior that violates these core values. Any incidents occurring at ISMRM activities should be brought to the attention of the Society's leadership and will be appropriately addressed.

GAMIFICATION RULES

GAMES & PRIZES

- 1st Place = Waived registration to the Joint Annual Meeting ISMRM-ESMRMB 07-12 May 2022
- 2nd Place = Free membership for one year
- 3rd Place = Kindle E-Reader

RAFFLE

1 winner will be drawn at each Virtual Exhibition time slot (17 – 20 May 2021, 10:00 – 12:00 UTC and 22:00 – 00:00 UTC)

*Option of \$50 Amazon e-card or \$50 Starbucks gift card

VIRTUAL FUN RUN RAFFLE

- Share a picture in a prior-year ISMRM 5K shirt or other ISMRM & SMRT swag to the Fun Run photo album
- Spell ISMRM or SMRT during the run and share a picture of the map to the Fun Run photo album

*Starbucks gift card can only be used in US, Canada, Puerto Rico, UK, Ireland, Australia, and Mexico

ISMRM | SMRT SURVEY RAFFLE – 1 winner will be drawn from completed surveys

- Option of \$25 Amazon e-card or \$25 Starbucks gift card*

We reserve the right to adjust points if rules are not followed.

Thank You to our Corporate Members

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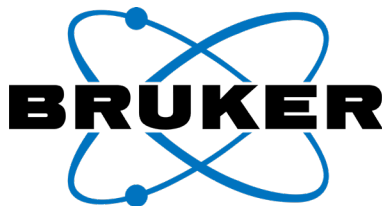


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Thank you to the **ISMRM RESEARCH & EDUCATION FUND**
for support of trainee stipends.

DAY 1: SATURDAY, 15 MAY

07:00-08:00 UTC

Tutorials
Software Demos for MRI (I)

09:00-10:00 UTC

Tutorials
Hands-On Analysis of Physiological MRI: ASL MRI I

12:00-14:00 UTC

SMRT
SMRT Welcome Address and Neuro I

13:00-13:45 UTC

Cardiovascular	Musculoskeletal	Physics & Engineering	Transferable Skills
Simultaneous Multiparameter & Multidimensional Cardiovascular MRI	MRI in Sports Imaging: Lower Extremity	MR Physics: From Spins to Scanner I	Career Development & Public Engagement

13:45-14:30 UTC

Cardiovascular	Musculoskeletal	Physics & Engineering	Transferable Skills
Cardiovascular MRI: From Disease to Diagnosis	MRI in Sports Imaging: Upper Extremity	MR Physics: From Spins to Scanner II	Statistics for MRI

14:00-16:00 UTC

SMRT
Pediatrics I

14:30-15:15 UTC

Cardiovascular	Neuro	Physics & Engineering	Image Acquisition
Vascular Pathology & Imaging	Neurodevelopmental Disorders	RF Coils for Fun & Profit	Machine Learning: Everything You Wanted to Know but Were Afraid to Ask

15:15-16:00 UTC

Tutorial	Neuro	Physics & Engineering	Image Acquisition
Software Demos for MRI: 3-Minute Pitches	Neurodegeneration & Movement Disorders	Pushing the Limit with Emerging Gradient & Non-Linear Encoding Hardware	Relaxation: Principles & Measurement Techniques

16:00-17:00 UTC

Tutorial
Hands-On Analysis of Physiological MRI I: ASL MRI II

16:00-18:00 UTC

SMRT Sessions
MSK I

16:00-20:00 UTC

Tutorial
Cardiovascular MR: From Theory to Practice (I)

17:00-19:00 UTC

Tutorial
Diffusion (I & II)

18:00-20:00 UTC

SMRT Sessions
MR Spectroscopy: Bringing IDH-Mutant Glioma MR Protocol to the Clinic I

19:00-20:00 UTC

Tutorial
Software Demos for MRI (I)

DAY 2: SUNDAY, 16 MAY

00:00-02:00 UTC

SMRT
SMRT Plenary & Keynote

02:00-04:00 UTC

SMRT
Body I

06:00-08:00 UTC

SMRT
Applications I

07:00-08:00 UTC

Tutorial
Software Demos for MRI (II)

08:00-10:00 UTC

SMRT
SMRT Masterclass with Donald McRobbie: MR Safety: From Folklore to Physics
Magnetization: Fields & Forces

09:00-10:00 UTC

Tutorial
Hands-On Analysis of Physiological MRI: CEST MRI I

12:00-14:00 UTC

SMRT Sessions
MR in Oncology I

13:00-13:45 UTC

Body	Contrast Mechanisms	Physics & Engineering	Education: Image Acquisition
Breast MRI: Special Focus Meeting Session Standardized & Quantitative Assessment in Body Imaging	Basic MR Spectroscopy 13:00-13:45 UTC Basic MR Spectroscopy 13:00-13:45 UTC Multinuclear Imaging & Spectroscopy	Multimodal Preclinical Imaging	Multiparametric Image Acquisition

13:45-14:30 UTC

Body	Contrast Mechanisms	Physics & Engineering	Image Acquisition
Breast MRI: Special Focus Meeting Session Breast MRI Basics for Diagnosis & Screening	Molecular Imaging	High-Field to Very- & Ultra-Low-Field MRI: What's Different?	Image Reconstruction

14:00-16:00 UTC

SMRT Sessions
SMRT President's Lecture

14:30-15:15 UTC

Cross-Organ	Contrast Mechanisms	Education: Transferable Skills	Image Acquisition
Antenatal & Pediatric MRI Challenges	Perfusion MRI	Breast MRI: Special Focus Meeting Session MR Data Security in a Dangerous Era	MRI Artifact & Correction Strategies

15:15-16:00 UTC

Cross-Organ	Contrast Mechanisms	Contrast Mechanisms	Transferable Skills
Imaging Degradation & Inflammation	Brain Microstructure	30 Years of Functional MRI	Money, Money, Money

16:00-17:00 UTC

Tutorial
Hands-On Analysis of Physiological MRI: CEST MRI II

16:00-18:00 UTC

Tutorial
Machine Learning in Cardiovascular MRI (I)

16:00-18:00 UTC

SMRT
Safety I

16:00-20:00 UTC

Tutorial
Resting-State fMRI: From Acquisition to Processing

DAY 2: SUNDAY, 16 MAY

17:00-19:00 UTC

Tutorial

Diffusion (III & IV)

18:00-20:00 UTC

SMRT

Data & Post-Processing I

19:00-20:00 UTC

Tutorial

Software Demos for MRI (II)

20:00-22:00 UTC

Plenary: Opening Session

20:00	Welcome	Tim Leiner, M.D., Ph.D., 2020-2021 ISMRM President
Mansfield Lecture		
Breast MRI: Special Focus Meeting Session		
20:15	Viribus Unitis	Pia Maly Sundgren, M.D., Ph.D.
Nurturing MR Innovators & Innovation		
Breast MRI: Special Focus Meeting Session		
21:00	Nurturing Beyond Our Peers: Public Engagement & Outreach	Stuart Clare, Ph.D.
21:20	Nurturing Talent: Training & Mentoring	Kaori Togashi, M.D., Ph.D.
21:40	Nurturing a Team: Healthy Team Science	Vivian Lee, M.D., Ph.D., M.B.A.
22:00	Adjourn	

23:00-00:00 UTC

Gold Corporate Symposium

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WE WISH YOU THE VERY BEST
as we look forward to the next decades.

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DAY 3: MONDAY, 17 MAY

00:00-02:00 UTC

SMRT
SMRT Masterclass with Donald McRobbie: MR Safety: From Folklore to Physics Induction: Electric Fields & Bio-Effects

02:00-03:00 UTC

SMRT
SMRT Poster Awards Session

03:00-04:00 UTC

SMRT
SMRT Poster Presentations Clinical Posters

03:00-04:00 UTC

SMR
SMRT Poster Presentations Research Posters

04:00-06:00 UTC

SMRT
COVID: MR Updates

07:00-08:00 UTC

Tutorial
Software Demos for MRI (III)

08:00-10:00 UTC

SMRT
Management I

09:00-10:00 UTC

Tutorial
Hands-On Analysis of Physiological MRI: Cerebral Oxygenation I

10:00-12:00 UTC

Virtual Exhibition

10:00-11:00 UTC

Gold Corporate Symposium Philips Healthcare

12:00-14:00 UTC

Acquisition, Reconstruction & Analysis	Cancer, Molecular Imaging, Spectroscopy, Pre-Clinical	Cardiovascular	Contrast Mechanisms
Novel Acquisitions 12:00-14:00 UTC Novel Acquisitions Digital Poster Q&As: 13:00-14:00 UTC Data Acquisition Sampling Trajectories Novel Encoding Strategies	Cancer: Contrast Agents & MRS 12:00-14:00 UTC Cancer: Contrast Agents & MRS Digital Poster Q&As: 13:00-14:00 UTC Cancer: Pre-Clinical & Clinical Cancer: Clinical	Imaging of Heart Failure Combined Edu/Sci Session 12:00-14:00 UTC Imaging of Heart Failure Digital Poster Q&As: 13:00-14:00 UTC Imaging of Heart Failure: Structure & Function Imaging of Heart Failure: Tissue Characterization	Elastography 12:00-14:00 UTC Elastography Digital Poster Q&As: 13:00-14:00 UTC Elastography: Applications Elastography: Methods
Neuro	Diffusion, Perfusion	Body	Member-Initiated Symposia
Epilepsy & TBI: Damaged Brains 12:00-14:00 UTC Epilepsy & TBI: Damaged Brains Digital Poster Q&As: 13:00-14:00 UTC Epilepsy & TBI: Damaged by Epilepsy, Etc. Epilepsy & TBI: Damaged by Trauma, Etc.	Ebb & Flow: Perfusion & Permeability from Head to Toe Combined Edu/Sci Session 12:00-14:00 UTC Ebb & Flow: Perfusion & Permeability from Head to Toe Digital Poster Q&As: 13:00-14:00 UTC Flow, Volume & Permeability: DSC-MRI & Non-Contrast Flow, Volume & Permeability: DCE-MRI	Breast MRI: Special Focus Meeting Session Breast: What's New 12:00-14:00 UTC Breast: What's New Digital Poster Q&As: 13:00-14:00 UTC Breast: DWI, AI & Emerging Techniques Breast: All About Cancer	Member-Initiated Symposia 12:00-12:30 UTC The Quest for Computational Brain Modelling: From Cell Physiology to Integrated Signals in Health & Pathology 13:00-13:30 UTC MR Neurography: A Diagnostic & Interventional Tool in the Management of Patients with Peripheral Neuropathy
SMRT			
SMRT Business Meeting 12:00-14:00 UTC SMRT Business Meeting			

DAY 3: MONDAY, 17 MAY

14:00-16:00 UTC

Acquisition, Reconstruction & Analysis Constrained & Model-Based Reconstructions 14:00-16:00 UTC Constrained & Model-Based Reconstructions Digital Poster Q&As: 15:00-16:00 UTC Parallel Imaging Reconstruction Model-Based Reconstruction	Cancer, Molecular Imaging, Spectroscopy, Pre-Clinical Contrast Agents & Preclinical Studies 14:00-16:00 UTC Contrast Agents & Preclinical Studies Digital Poster Q&As: 15:00-16:00 UTC Contrast Agents & Preclinical Studies I Contrast Agents & Preclinical Studies II	Member-Initiated Symposium Member-Initiated Symposium 14:00-16:00 UTC Hand-in-Hand: Technology & Applications for Ultra-High Field MRI	Contrast Mechanisms Novel & Multicontrast Approaches 14:00-16:00 UTC Novel & Multicontrast Approaches Digital Poster Q&As: 15:00-16:00 UTC Multicontrast Methods Novel Contrast Mechanisms
Neuro Quantitative Neuroimaging 14:00-16:00 UTC Quantitative Neuroimaging Digital Poster Q&As: 15:00-16:00 UTC Quantitative Neuro - Technical Advances Quantitative Neuro - Translational Studies	Diffusion, Perfusion Diffusion Acquisition & Post-Processing 14:00-16:00 UTC Diffusion Acquisition & Post-Processing Digital Poster Q&As: 15:00-16:00 UTC Diffusion Acquisition Diffusion Acquisition & Post-Processing	Contrast Mechanisms Breast MRI: Special Focus Meeting Session MR Physics for Clinicians: Contrast Mechanisms 14:00-14:30 UTC MR Physics for Clinicians: Contrast Mechanisms Physics & Education Breast MRI: Special Focus Meeting Session 14:30-15:00 UTC MR Physics for Clinicians: Hardware, Fields & Contrast Agents Contrast Mechanisms Breast MRI: Special Focus Meeting Session 15:00-16:00 UTC Standing Out: Contrast Mechanisms in Breast Imaging	Other Young Investigator Awards 14:00-15:00 UTC Young Investigator Awards Oral Presentations Member-Initiated Symposium Member-Initiated Symposium 15:00-15:30 UTC Motion in Minors Is No Small Thing
ISMRM & SMRT ISMRM-SMRT Joint Forum Session 14:00-16:00 UTC Myocardial T1, T2, T2* & ECV Mapping			

16:00-18:00 UTC

Acquisition, Reconstruction & Analysis Motion Correction Strategies 16:00-18:00 UTC Motion Correction Strategies Digital Poster Q&As: 17:00-18:00 UTC Motion: Methods Motion: Brain & Body	Engineering, Interventional, Safety RF Design I 16:00-18:00 UTC RF Design I Digital Poster Q&As: 17:00-18:00 UTC Developments in RF Components Novel RF Coils & Components	Body Breast MRI: Special Focus Meeting Session Breast MRI as a Problem-Solving Tool Combined Edu/Sci Session 16:00-18:00 UTC Breast MRI as a Problem-Solving Tool Digital Poster Q&As: 17:00-18:00 UTC Breast: Breast Cancer Diagnosis, Characterization & Treatment Response	Contrast Mechanisms CEST, MT & T1p 16:00-18:00 UTC CEST, MT & T1p Digital Poster Q&As: 17:00-18:00 UTC CEST T1p, MT & CEST
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DAY 3: MONDAY, 17 MAY

16:00-18:00 UTC

Neuro	Member-Initiated Symposium	Education: Physics & Engineering	Member-Initiated Symposia
<p>fMRI: Applications with Clinical Relevance & Beyond</p> <p>16:00-18:00 UTC</p> <p>fMRI: Applications with Clinical Relevance & Beyond</p> <p>Digital Poster Q&As: 17:00-18:00 UTC</p> <p>fMRI: Applications with Clinical Relevance</p> <p>fMRI Clinical Applications: Unique Data Acquisition & Processing Methods</p>	<p>Member-Initiated Symposium</p> <p>16:00-18:00 UTC</p> <p>Five Shades of Gray: Cutting-Edge & Clinically Relevant Diffusion MRI Techniques in Gray Matter</p>	<p>Preclinical MRI</p> <p>16:00-17:00 UTC</p> <p>Small Is Beautiful: Opportunities & Challenges at Ultra-High Field</p> <p>Advantages of High-Performance Gradients on Preclinical Systems</p> <p>Animal Handling & Monitoring in Preclinical MR</p> <p>MR Histology: A New Frontier</p> <p>Tutorial</p> <p>17:00-18:00 UTC</p> <p>Software Engineering for MRI: How to Get onto the Cloud</p>	<p>Member-Initiated Symposia</p> <p>16:00-16:30 UTC</p> <p>Thinking Hyperpolarization: A Multinuclear Window into the Brain</p> <p>17:00-17:30 UTC</p> <p>MRI Advances Within the Co-Clinical Cancer Trials Network: Informing Cancer Clinical Trials Through Preclinical Imaging</p>
<p>SMRT</p> <p>SMRT International Clinical Session</p> <p>16:00-18:00 UTC</p> <p>Working in Latin America: Challenges & Opportunities</p>	<p>Fireside Chats</p> <p>Fireside Chat</p> <p>17:00-18:00 UTC</p> <p>Fireside Chat with President Tim Leiner</p>		

18:00-12:00 UTC

Acquisition, Reconstruction & Analysis	Engineering, Interventional, Safety	Cardiovascular	Neuro
<p>Advances in MR Fingerprinting</p> <p>18:00-20:00 UTC</p> <p>Advances in MR Fingerprinting</p> <p>Digital Poster Q&As: 19:00-20:00 UTC</p> <p>MR Fingerprinting: Sequences, Reconstruction, and Applications in the Brain</p> <p>MR Fingerprinting: Artifacts, Optimisation & Applications in the Body</p>	<p>RF Design II</p> <p>18:00-20:00 UTC</p> <p>RF Design II</p> <p>Digital Poster Q&As: 19:00-20:00 UTC</p> <p>Innovative Transmit Coils</p> <p>Innovative Receive Coils</p>	<p>MR Angiography & Vessel Wall</p> <p>18:00-20:00 UTC</p> <p>MR Angiography & Vessel Wall</p> <p>Digital Poster Q&As: 19:00-20:00 UTC</p> <p>MRA Outside the Head: It's a No-Brainer!</p> <p>Neurovascular MRA & Vessel Wall</p>	<p>Psychiatric Neuroimaging: Towards Grounding Clinical Diagnosis in Biology</p> <p>18:00-19:00 UTC</p> <p>Psychiatric Neuroimaging: Towards Grounding Clinical Diagnosis in Biology</p> <p>Digital Poster Q&As: 19:00-20:00 UTC</p> <p>Psychiatry Neuroimaging</p> <p>More Psych, Metabolic, Infectious & Rare Diseases</p>
<p>Neuro</p> <p>Diffusion in the Brain</p> <p>18:00-20:00 UTC</p> <p>Diffusion in the Brain</p> <p>Digital Poster Q&As: 19:00-20:00 UTC</p> <p>Diffusion: Across Age Spans</p> <p>New Advances in Diffusion for the Brain</p>	<p>COVID-19</p> <p>MRI in COVID-19</p> <p>Combined Educational & Scientific Session</p> <p>18:00-20:00 UTC</p> <p>SARS-CoV-2: What We Know, Lessons Learned & Where We May Be Headed: When SARS-CoV-2 Attacks</p> <p>Digital Poster Q&As: 19:00-20:00 UTC</p> <p>Role of Advanced Imaging in COVID-19</p>	<p>Tutorial</p> <p>Tutorial</p> <p>17:00-18:00 UTC</p> <p>Hands-On Analysis of Physiological MRI: Cerebral Oxygenation II</p> <p>Tutorial</p> <p>Tutorial</p> <p>19:00-20:00 UTC</p> <p>Software Demos for MRI (III)</p>	<p>Member-Initiated Symposia</p> <p>Member-Initiated Symposia</p> <p>18:00-20:00 UTC</p> <p>Frontiers & Challenges in Small Animals Resting-State Functional MRI</p>
<p>SMRT Sessions</p> <p>Body II</p> <p>18:00-20:00 UTC</p> <p>Body II</p>			

DAY 3: MONDAY, 17 MAY

20:00-22:00 UTC

Plenary Session

20:00	ISMRM Awards	Tim Leiner, M.D., Ph.D., 2020-2021 ISMRM President
CEST-MRI Challenges & Promises		
Breast MRI: Special Focus Meeting Session		
20:30	<i>CEST: Overcoming the Challenges</i>	Elena Vinogradov, Ph.D.
20:45	<i>CEST Imaging: Clinical Applications</i>	Daniel Paech, M.D.
21:00	<i>NextCEST: Leveraging Fingerprinting/ML for Accelerated CEST</i>	HyunWook Park, Ph.D.
21:15	<i>Making CEST a Quantitative & Standardized Methodology</i>	Mark Pagel, Ph.D.
21:30	Adjourn	

22:00-00:00 UTC

Virtual Exhibition

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DAY 4: TUESDAY, 18 MAY

00:00-02:00 UTC

SMRT
Pediatrics II
Pediatrics II

02:00-04:00 UTC

SMRT
SMRT International Clinical Session
Advanced Techniques Based on Scientific Data for Clinical Neuroimaging in Japan

06:00-08:00 UTC

SMRT
SMRT Masterclass with Donald McRobbie: MR Safety: From Folklore to Physics
Conduction: Tissue & Implant Heating

07:00-08:00 UTC

Tutorial
Tutorial
Software Demos for MRI (IV)

08:00-10:00 UTC

SMRT
MR Spectroscopy: Bringing IDH-Mutant Glioma MR Protocol to the Clinic II
MR Spectroscopy: Bringing IDH-Mutant Glioma MR Protocol to the Clinic II

09:00-10:00 UTC

Tutorial
Tutorial
Hands-On Analysis of Physiological MRI: DSC MRI I

09:30-10:00 UTC

Fireside Chats
Fireside Chat with Pioneer Nandita deSouza

10:00-12:00 UTC

Virtual Exhibition

10:00-11:00 UTC

Gold Corporate Symposium Siemens Healthineers
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12:00-14:00 UTC

Acquisition, Reconstruction & Analysis	Cancer, Molecular Imaging, Spectroscopy, Pre-Clinical	Contrast Mechanisms	Member-Initiated Symposium
Machine Learning for Data Acquisition & Image Reconstruction 12:00-14:00 UTC Machine Learning for Data Acquisition & Image Reconstruction Digital Poster Q&As: 13:00-14:00 UTC Machine Learning for Data Acquisition & Image Reconstruction Machine Learning: Removing Artifacts & Improving Resolution	Molecular Imaging & X-Nuclei 12:00-14:00 UTC Molecular Imaging & X-Nuclei Digital Poster Q&As: 13:00-14:00 UTC Molecular Imaging & X-Nuclei: Applications Molecular Imaging & X-Nuclei: Developments	Current Trends in MRI Contrast Mechanisms 12:00-14:00 UTC Current Trends in MRI Contrast Mechanisms Digital Poster Q&As: 13:00-14:00 UTC Contrast Mechanisms: Miscellaneous Perfusion & Permeability: Contrast & Non-Contrast	Member-Initiated Symposium 12:00-14:00 UTC Real-Time MRI of Neuromodulation in the Human Brain

Body	Neuro	Education: Cross-Organ	Member-Initiated Tutorial
Digestive, Diabetes & Pancreas 12:00-14:00 UTC Digestive, Diabetes & Pancreas Digital Posters Q&As: 13:00-14:00 UTC Diffuse Liver & Pancreatic Diseases Digestive, Diabetes & Pancreas	Aging & Dementia 12:00-14:00 UTC Aging & Dementia Digital Posters Q&As: 13:00-14:00 UTC Healthy Aging vs. Dementia Brain in Healthy Elderly and Dementia	SARS-CoV-2: What We Know, Lessons Learned & Where We May Be Headed 12:00-12:30 UTC Disparities & Misdirection in a Pandemic 12:00-13:00 UTC Recovery, Resilience & Strategic Planning	Member-Initiated Symposia 12:00-12:30 UTC A Fully Connected Network: Emerging Techniques & Applications of Flow Imaging in the Head & Body

SMRT	Body
Applications II 12:00-14:00 UTC Applications II	Hot Topics in Body MRI 13:00-14:00 UTC Novel DWI Applications Lung MRI: You Can Do It! Abbreviated Liver & Prostate MRI Protocols The Future Is Now: Artificial Intelligence for Body Imaging

DAY 4: TUESDAY, 18 MAY

14:00-16:00 UTC

Acquisition, Reconstruction & Analysis	Cancer, Molecular Imaging, Spectroscopy, Pre-Clinical	Diffusion, Perfusion	Cardiovascular
<p>Machine Learning for Image Reconstruction</p> <p>14:00-16:00 UTC</p> <p>Machine Learning for Image Reconstruction</p> <p>Digital Poster Q&As: 15:00-16:00 UTC</p> <p>Machine Learning for Image Reconstruction</p> <p>Machine Learning to Reconstruct Accelerated Scans</p>	<p>Spectroscopy: Acq/Recon/Analysis</p> <p>14:00-16:00 UTC</p> <p>Spectroscopy: Acq/Recon/Analysis</p> <p>Digital Poster Q&As: 15:00-16:00 UTC</p> <p>Spectroscopy: Acq/Recon/Analysis</p> <p>Spectroscopy: Analysis/Quantification</p>	<p>Brain Microstructure: Application & Validation Across Species</p> <p>14:00-16:00 UTC</p> <p>Brain Microstructure: Application & Validation Across Species</p> <p>Digital Poster Q&As: 15:00-16:00 UTC</p> <p>Brain Microstructure: Gray Matter, Pathology & Preclinical Validation</p> <p>Diffusion Applications: Brain & Spine</p>	<p>Velocity & Flow</p> <p>14:00-16:00 UTC</p> <p>Velocity & Flow</p> <p>Digital Poster Q&As: 15:00-16:00 UTC</p> <p>Velocity & Flow: Applications</p> <p>Velocity & Flow: Methods</p>

Body	Neuro	Physics & Engineering	Member-Initiated Symposium
<p>Liver</p> <p>14:00-16:00 UTC</p> <p>Liver</p> <p>Digital Poster Q&As: 15:00-16:00 UTC</p> <p>Advanced Liver Imaging: Masses & Methods</p> <p>Liver: Diffusion & Function</p>	<p>Amyloid-Related Imaging Abnormalities, Alzheimer's & Dementia</p> <p>Combined Educational & Scientific Session</p> <p>14:00-16:00 UTC</p> <p>Amyloid-Related Imaging Abnormalities</p> <p>Digital Poster Q&As: 15:00-16:00 UTC</p> <p>Mapping Brain Volumes & Lesions</p>	<p>Breast MRI: Special Focus Meeting Session</p> <p>MR Physics for Clinicians: Spins & Sequences</p> <p>14:00-14:30 UTC</p> <p>MR Physics for Clinicians: Spins & Sequences</p>	<p>Member-Initiated Symposium</p> <p>14:00-16:00 UTC</p> <p>How to Benchmark Your Cancer Biomarker for the Clinic</p>
<p>SMRT</p> <p>Management II</p> <p>14:00-16:00 UTC</p> <p>Management II</p>		<p>Image Acquisition</p> <p>Breast MRI: Special Focus Meeting Session</p> <p>MR Physics for Clinicians: Fast Imaging Techniques</p> <p>14:30-15:00 UTC</p> <p>MR Physics for Clinicians: Fast Imaging Techniques</p>	
		<p>Member-Initiated Symposium</p> <p>Breast MRI: Special Focus Meeting Session</p> <p>Member-Initiated Symposium</p> <p>15:00-15:30 UTC</p> <p>Diffusion-Weighted Imaging of the Breast: State of the Art & Beyond</p>	

DAY 4: TUESDAY, 18 MAY

16:00-18:00 UTC

Acquisition, Reconstruction & Analysis	Cancer, Molecular Imaging, Spectroscopy, Pre-Clinical	Pediatrics	Engineering, Interventional, Safety
Machine Learning for Quantitative Imaging 16:00-18:00 UTC Machine Learning for Quantitative Imaging Digital Poster Q&As: 17:00-18:00 UTC Machine Learning for Quantitative Imaging Modelling, Reconstruction & Processing in Low-Field MRI & PET-MRI	Spectroscopy: Neuro 16:00-18:00 UTC Spectroscopy: Neuro Digital Poster Q&As: 17:00-18:00 UTC Spectroscopy: Neuro I Spectroscopy: Neuro II	Pediatric MRI 16:00-18:00 UTC Pediatric MRI Digital Poster Q&As: 17:00-18:00 UTC Pediatrics: Neuro Topics Pediatrics: Body Topics	Safety: 16:00-18:00 UTC Safety: That Implant Is Hot! Digital Poster Q&As: 17:00-18:00 UTC MRI & Implants: The Good, The Bad & The Ugly SAR & RF Heating

Body	Neuro	Member-Initiated Symposium	Member-Initiated Symposium
Breast MRI: Special Focus Meeting Session Cancer in the Body 16:00-18:00 UTC Cancer in the Body Digital Poster Q&As: 17:00-18:00 UTC GI & Pancreas Cancers Liver & Other Body Cancers	Neurofluids & Brain Waste Clearance Imaging 16:00-18:00 UTC Neurofluids & Brain Waste Clearance Imaging Digital Poster Q&As: 17:00-18:00 UTC Neurofluids/Perivascular Spaces/White Matter Hyperintensities Neurofluids & Tissue Water	Member-Initiated Symposium 16:00-16:30 UTC Clinical MR Physics: An Alternative Career Pathway Tutorial Tutorial 17:00-18:00 UTC Software Engineering for MRI: Open-Source Software	Member-Initiated Symposium 16:00-18:00 UTC Macromolecular Proton Fraction (MPF): An Emerging Quantitative Myelin Biomarker for Preclinical & Clinical Studies

18:00-20:00 UTC

Acquisition, Reconstruction & Analysis	Member-Initiated Symposium	Diffusion, Perfusion	Engineering, Interventional, Safety
Machine Learning for Image Analysis 18:00-20:00 UTC Machine Learning for Image Analysis Digital Poster Q&As: 19:00-20:00 UTC Machine Learning for Image Analysis Machine Learning: Multimodal & Multireader Insights	Member-Initiated Symposium 18:00-20:00 UTC Magnets & Microscopes: Can Novel MRI Techniques Replace Myocardial Biopsy?	Diffusion: Encoding & Estimation 18:00-20:00 UTC Diffusion: Encoding & Estimation Digital Poster Q&As: 19:00-20:00 UTC Diffusion: Encoding, Estimation & Machine Learning Diffusion: Encoding & Estimation	Safety & Multinuclear/Preclinical RF 18:00-20:00 UTC Safety: Hitting a Nerve? Digital Poster Q&As: 19:00-20:00 UTC System & Component Safety Multinuclear & Preclinical RF Coils

Body	Neuro	Tutorial	Fireside Chats
Renal 18:00-20:00 UTC Renal Digital Posters Q&As: 19:00-20:00 UTC Renal Functional Imaging Renal Vascular & Parenchymal Pathology	Hot Topics in Preclinical Models of CNS Disease 18:00-20:00 UTC Hot Topics in Preclinical Models of CNS Disease Digital Posters Q&As: 19:00-20:00 UTC Preclinical Models of CNS Disease CNS Disease Mechanisms by Quantitative MRI: Clinical	Tutorial 18:00-19:00 UTC Hands-On Analysis of Physiological MRI: DSC MRI II Tutorial Tutorial 19:00-20:00 UTC Software Demos for MRI (IV)	Fireside Chat 19:00-19:30 UTC Fireside Chat with the 2021 Young Investigator Finalists

DAY 4: TUESDAY, 18 MAY

20:00-22:00 UTC

Plenary Session

NIBIB New Horizons Lecture

Breast MRI: Special Focus Meeting Session

20:00	<i>Precision MRI of the Breast: Reality or Utopia?</i>	Katja Pinker-Domenig, M.D., Ph.D.
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Specialized High-Performance Systems

Breast MRI: Special Focus Meeting Session

20:30	<i>Opportunities & Challenges of Specialized Systems</i>	Stuart Crozier, Ph.D.
20:50	<i>Whole-Body Systems for Interventional, Lung & Cardiac MRI</i>	Adrienne Campbell-Washburn, Ph.D.
21:10	<i>Compact Systems for Brain, Extremity & Pediatric/Neonatal MRI</i>	John Huston, M.D.
21:30	Adjourn	

22:00-00:00 UTC

Virtual Exhibition

22:00-23:00 UTC

Bronze Corporate Symposium

Bruker

22:00-23:00 UTC

Bronze Corporate Symposium

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DAY 5: WEDNESDAY, 19 MAY

00:00-00:30 UTC

Fireside Chats

Fireside Chat

Fireside Chat with Gold Medal Winners

00:00-02:00 UTC

SMRT

SMRT Masterclass with Donald McRobbie:
MR Safety: From Folklore to Physics

Attenuation: Acoustic Noise Generation & Reduction

00:30-02:00 UTC

Equity, Diversity & Inclusion

EDI Forum

ISMIRM for All: An Asia-Pacific Perspective

02:00-04:00 UTC

SMRT

Safety II

Safety II

04:00-06:00 UTC

SMRT

Neuro II

Neuro II

06:00-08:00 UTC

SMRT

SMRT Plenary, Keynote & President's Lecture

SMRT Plenary, Keynote & President's Lecture

07:00-08:00 UTC

Tutorial

Tutorial

Software Demos for MRI (V)

09:00-10:00 UTC

Tutorial

Tutorial

Hands-On Analysis of Physiological MRI: CVR I

10:00-12:00 UTC

Virtual Exhibition

11:00-12:00 UTC

Gold Corporate Symposium

GE Healthcare

12:00-14:00 UTC

Acquisition, Reconstruction & Analysis	Cardiovascular	fMRI	Diffusion, Perfusion
<p>Optimized Signal Representation for Acquisition & Reconstruction</p> <p>12:00-14:00 UTC</p> <p>Optimized Signal Representation for Acquisition & Reconstruction</p> <p>Digital Poster Q&As: 13:00-14:00 UTC</p> <p>Signal Representations for Quantitative Applications</p> <p>Signal Representations in Acquisition & Reconstruction</p>	<p>Machine Learning Applications in CV Imaging</p> <p>12:00-14:00 UTC</p> <p>Machine Learning Applications in CV Imaging</p> <p>Digital Poster Q&As: 13:00-14:00 UTC</p> <p>Machine Learning Applications in CV Imaging </p> <p>Machine Learning Applications in CV Imaging </p>	<p>fMRI Data Acquisition & Analysis</p> <p>12:00-14:00 UTC</p> <p>fMRI Data Acquisition & Analysis</p> <p>Digital Poster Q&As: 13:00-14:00 UTC</p> <p>fMRI Engineering, Acquisition & Analysis</p> <p>Task-Based Methods & Applications</p>	<p>Arterial Spin Labelling</p> <p>12:00-14:00 UTC</p> <p>Arterial Spin Labelling</p> <p>Digital Poster Q&As: 13:00-14:00 UTC</p> <p>Arterial Spin Labelling: Methods</p> <p>Arterial Spin Labelling: Applications</p>

Body	Neuro	Member-Initiated Symposium	Member-Initiated Symposium
<p>Improved Body Imaging: Biliary, Liver & Pancreas Combined Educational & Scientific Session</p> <p>12:00-14:00 UTC</p> <p>Improved Body Imaging: Biliary, Liver & Pancreas</p> <p>Digital Poster Q&As: 13:00-14:00 UTC</p> <p>Liver Function & Pancreas</p> <p>Body Imaging Quality Improvement</p>	<p>Multiple Sclerosis</p> <p>12:00-14:00 UTC</p> <p>Multiple Sclerosis</p> <p>Digital Poster Q&As: 13:00-14:00 UTC</p> <p>MS: White Matter & Other Structures</p> <p>MS: Myelin & Lesion Characterization</p>	<p>Member-Initiated Symposium</p> <p>12:00-12:30 UTC</p> <p>Hybrid MR: Risks, Roles, Rewards, Results</p> <p>Musculoskeletal</p> <p>Hot Topics in MSK MRI</p> <p>13:00-14:00 UTC</p> <p>Novel MRI Techniques Applied to Musculoskeletal Diseases</p> <p>AI-Augmented Musculoskeletal MRI</p> <p>Frontiers in Musculoskeletal MRI</p> <p>Complementary & Hybrid Musculoskeletal Imaging</p>	<p>Member-Initiated Symposium</p> <p>12:00-14:00 UTC</p> <p>Public Engagement: The Power of Storytelling</p>

DAY 5: WEDNESDAY, 19 MAY

14:00-16:00 UTC

Acquisition, Reconstruction & Analysis	Cardiovascular	fMRI	Musculoskeletal
<p>Signal Modelling for Quantitative MRI 14:00-16:00 UTC</p> <p>Signal Modelling for Quantitative MRI</p> <p>Digital Poster Q&As: 15:00-16:00 UTC</p> <p>Modelling: Diffusion, Kinetics & More</p> <p>Modelling Signals Throughout the Body</p>	<p>Real-Time Cardiac MRI <i>Combined Educational & Scientific Session</i> 14:00-16:00 UTC</p> <p>Real-Time Cardiac MRI</p> <p>Digital Poster Q&As: 15:00-16:00 UTC</p> <p>Towards Real-Time Cardiac MRI</p> <p>Cardiac Structure & Function: From Macro- to Micro-</p>	<p>fMRI of Animal Models 14:00-16:00 UTC</p> <p>fMRI of Animal Models</p> <p>Digital Poster Q&As: 15:00-16:00 UTC</p> <p>fMRI Using Animal Models: Methods</p> <p>fMRI Using Animal Models: Applications</p>	<p>Bone, Cartilage & Joint MRI 14:00-16:00 UTC</p> <p>Bone, Cartilage & Joint MRI</p> <p>Digital Poster Q&As: 15:00-16:00 UTC</p> <p>Cartilage I</p> <p>Cartilage II</p>
Body	Neuro	Neuro	Member-Initiated Symposium
<p>(Artificial) Intelligence in the Body 14:00-16:00 UTC</p> <p>(Artificial) Intelligence in the Body</p> <p>Digital Poster Q&As: 15:00-16:00 UTC</p> <p>Even More (Artificial) Intelligence in the Body</p>	<p>Parkinson & Neurodegeneration 14:00-16:00 UTC</p> <p>Parkinson & Neurodegeneration</p> <p>Digital Poster Q&As: 15:00-16:00 UTC</p> <p>Brain Stem & Cerebellar Diseases</p> <p>Parkinson's Disease & Non-PD Dementia</p>	<p>Hot Topics in MRI of the Brain 14:00-15:00 UTC</p> <p>MRF & Synthetic MR: What Is It All About & When Can I Start Using It Clinically?</p> <p>PC-MRI: Measuring Flow in the Brain</p> <p>MRI Techniques for Deep Brain Stimulation: Clinical Application & Challenges</p> <p>IVIM in the Brain</p>	<p>Member-Initiated Symposium 14:00-16:00 UTC</p> <p>The Emerging Role of MRI in Gene & Cell Therapy Development</p>
		Image Acquisition	
		<p>Hot Topics in Image Acquisition 15:00-16:00 UTC</p> <p>Motion Correction Theory & Applications</p> <p>MR Contrast Synthesis</p> <p>Accelerated MRI</p> <p>MR-Guided Therapy</p>	

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DAY 5: WEDNESDAY, 19 MAY

16:00-18:00 UTC

Acquisition, Reconstruction & Analysis	Engineering, Interventional, Safety	fMRI	Musculoskeletal
<p>Quantitative Relaxation Parameter Mapping in the Brain</p> <p>16:00-18:00 UTC</p> <p>Quantitative Relaxation Parameter Mapping in the Brain</p> <p>Digital Poster Q&As: 17:00-18:00 UTC</p> <p>Relaxometry in the Brain: High Field & Multi-Parameter Mapping</p> <p>Relaxometry in the Brain: Accuracy, Robustness & Analysis</p>	<p>Systems Engineering I</p> <p>16:00-18:00 UTC</p> <p>Systems Engineering I</p> <p>Digital Poster Q&As: 17:00-18:00 UTC</p> <p>Hot-Wired Systems: Gradients & Magnets</p> <p>New Shim Systems & Other Advanced MR Engineering</p>	<p>Functional Connectivity Across Species</p> <p>16:00-18:00 UTC</p> <p>Functional Connectivity Across Species</p> <p>Digital Poster Q&As: 17:00-18:00 UTC</p> <p>Functional Connectivity Methods</p> <p>Functional Connectivity Applications</p>	<p>Muscle MRI</p> <p>16:00-18:00 UTC</p> <p>Muscle MRI</p> <p>Digital Poster Q&As: 17:00-18:00 UTC</p> <p>Muscle MRI</p> <p>Spine</p>

Body	Neuro	Member-Initiated Symposia	Member-Initiated Symposia
<p>Lung</p> <p>16:00-18:00 UTC</p> <p>Lung</p> <p>Digital Poster Q&As: 17:00-18:00 UTC</p> <p>Lung: Disease Assessment</p> <p>Lung: Methods</p>	<p>Artificial Intelligence (Machine Learning & Deep Learning) Applications to Neuroradiology</p> <p>16:00-18:00 UTC</p> <p>Artificial Intelligence (Machine Learning & Deep Learning) Applications to Neuroradiology</p> <p>Digital Poster Q&As: 17:00-18:00 UTC</p> <p>New Frontiers of AI in Neuroimaging</p> <p>Explorations of AI in Neuroimaging</p>	<p>Member-Initiated Symposia</p> <p>16:00-16:30 UTC</p> <p>Latest Advances in MRI-Guided Radiotherapy for Body Cancers & Beyond</p> <p>Tutorial</p> <p>Tutorial</p> <p>17:00-18:00 UTC</p> <p>Software Engineering for MRI: Project Management & Version Control</p>	<p>Member-Initiated Symposia</p> <p>16:00-18:00 UTC</p> <p>Looking Beyond Axons: Imaging the Immune System in White Matter</p>

Fireside Chats
<p>16:30-17:00 UTC</p> <p>A Discussion with Your 2020 & 2021 AMPC Program Chairs</p>

18:00-20:00 UTC

Acquisition, Reconstruction & Analysis	Engineering, Interventional, Safety	fMRI	Diffusion, Perfusion
<p>Quantitative Relaxation Parameter Mapping in the Body</p> <p>18:00-20:00 UTC</p> <p>Quantitative Relaxation Parameter Mapping in the Body</p> <p>Digital Poster Q&As: 19:00-20:00 UTC</p> <p>Quantitative Relaxation Parameter Mapping in the Body</p> <p>Relaxometry in the Body: MSK & More</p>	<p>Systems Engineering II</p> <p>18:00-20:00 UTC</p> <p>Systems Engineering II</p> <p>Digital Poster Q&As: 19:00-20:00 UTC</p> <p>Nobody's Perfect: Hardware & Patient Corrections</p> <p>Toolbox: Software & Phantoms</p>	<p>High-Resolution fMRI</p> <p>18:00-20:00 UTC</p> <p>High-Resolution fMRI</p> <p>Digital Poster Q&As: 19:00-20:00 UTC</p> <p>High-Resolution fMRI</p> <p>Multimodal fMRI & Physiology</p>	<p>Microstructure: Modelling Gray & White Matter Diffusion</p> <p>18:00-20:00 UTC</p> <p>Microstructure: Modelling Gray & White Matter Diffusion</p> <p>Digital Poster Q&As: 19:00-20:00 UTC</p> <p>Diffusion: Phantoms & Simulations</p> <p>Multicomponent Models of Diffusion, Perfusion & Relaxation</p>

Neuro	Neuro	Tutorial	Member-Initiated Symposium
<p>Spinal Cord Imaging & More</p> <p>18:00-20:00 UTC</p> <p>Spinal Cord Imaging & More</p> <p>Digital Poster Q&As: 19:00-20:00 UTC</p> <p>Spine & Nervous System Imaging</p> <p>Spine Imaging/Nervous System & More</p>	<p>Emerging Applications of AI in Neuroimaging</p> <p>Combined Edu/Sci Session</p> <p>18:00-20:00 UTC</p> <p>Emerging Applications of AI in Neuroimaging</p> <p>Digital Poster Q&As: 19:00-20:00 UTC</p> <p>Emerging Applications of AI in Neuroimaging for CES I</p> <p>Emerging Applications of AI in Neuroimaging for CES II</p>	<p>Tutorial</p> <p>18:00-19:00 UTC</p> <p>Hands-On Analysis of Physiological MRI: CVR II</p> <p>Tutorial</p> <p>Tutorial</p> <p>19:00-20:00 UTC</p> <p>Software Demos for MRI (V)</p>	<p>Member-Initiated Symposium</p> <p>18:00-20:00 UTC</p> <p>Translation of Quantitative MRI Methods for Clinical Impact in OA</p>

DAY 5: WEDNESDAY, 19 MAY

20:00-22:00 UTC

Plenary Session

Presidential Lecture

20:00	<i>From the Big Bang to Homer's Last Theorem</i>	Simon Singh, Ph.D.
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Microstructure: Richness of Scales & Contrasts

20:30	<i>Probing Microstructure from Afar: Magnitude & Phase</i>	Jongho Lee, Ph.D.
20:45	<i>Probing Microstructure Locally: T1, T2 & MT</i>	Alex MacKay, D.Phil.
21:00	<i>Probing the Micrometer Scale with Diffusion</i>	Sune Jespersen, Ph.D.
21:15	<i>Clinical Translation: Challenges & Opportunities</i>	Cristina Granziera, M.D., Ph.D.
21:30	Adjourn	

22:00-00:00 UTC

Virtual Exhibition

22:30-23:30 UTC

ISMRM Business Meeting

ISMRM Business Meeting

Philips ISMRM 2021 symposium

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Monday May 17

10:00 – 11:00 UTC | 12:00 – 13:00 CEST



Agenda



Introduction

Arjen Radder

Philips, Business Leader Magnetic Resonance,
Business Cluster Precision Diagnosis



Utilizing deep learning and Compressed SENSE principles for scan acceleration

Dr. Felix Harder

Rechts der Isar Hospital,
Technical University of Munich, Germany



Applying Next Generation Compressed SENSE for demanding clinical applications

Prof. Mamoru Niitsu, MD PhD

Saitama Medical University, Japan



Quantitative MRI to assess structure, function and physiology in MS

Prof. Claudia Wheeler-Kingshott, PhD

University College London, United Kingdom

DAY 6: THURSDAY, 20 MAY

00:00-02:00 UTC

SMRT

SMRT International Clinical Session

What Is So Interesting About 7T?

02:00-04:00 UTC

SMRT

SMRT Masterclass with Donald McRobbie:
MR Safety: From Folklore to Physics

Application: Putting It All Together for Patient Safety

04:00-06:00 UTC

SMRT

MSK II

MSK II

06:00-08:00 UTC

SMRT

MR in Oncology II

MR in Oncology II

08:00-10:00 UTC

SMRT

Data & Post-Processing II

Data & Post-Processing II

10:00-12:00 UTC

Virtual Exhibition

12:00-14:00 UTC

Acquisition, Reconstruction & Analysis	Contrast Mechanisms	Cardiovascular	Diffusion, Perfusion
<p>Artifacts & Corrections</p> <p>12:00-14:00 UTC</p> <p>Artifacts & Corrections</p> <p>Digital Poster Q&As: 13:00-14:00 UTC</p> <p>Artifacts & Corrections Related to the Acquisition</p> <p>Artifacts & Corrections Related to the System & Sample</p>	<p>Latest Advances in Hyperpolarized MRI</p> <p>12:00-14:00 UTC</p> <p>Latest Advances in Hyperpolarized MRI</p> <p>Digital Poster Q&As: 13:00-14:00 UTC</p> <p>Hyperpolarization: Gas</p> <p>Hyperpolarization: Non-Gas</p>	<p>Quantitative Cardiovascular Tissue Characterization</p> <p>12:00-14:00 UTC</p> <p>Quantitative Cardiovascular Tissue Characterization</p> <p>Digital Poster Q&As: 13:00-14:00 UTC</p> <p>Cardiovascular Parameter Mapping</p> <p>Cardiovascular Tissue Characterization: Beyond Relaxometry</p>	<p>Diffusion in Cancer: Clinical Studies & Validation</p> <p>12:00-14:00 UTC</p> <p>Diffusion in Cancer: Clinical Studies & Validation</p> <p>Digital Poster Q&As: 13:00-14:00 UTC</p> <p>Microstructure: Models, Sampling & Analysis</p> <p>Diffusion Applications: Cancer</p>

Body	Neuro	Member-Initiated Symposium	Other
<p>Maternal-Fetal Imaging</p> <p>12:00-14:00 UTC</p> <p>Maternal-Fetal Imaging</p> <p>Digital Posters Q&As: 13:00-14:00 UTC</p> <p>Placenta, Pelvic Floor & Gyn Oncology</p>	<p>Imaging Metabolites: CEST, MT & MRS</p> <p>12:00-14:00 UTC</p> <p>Imaging Metabolites: CEST, MT & MRS</p> <p>Digital Posters Q&As: 13:00-14:00 UTC</p> <p>Imaging Metabolites: CEST & MT</p> <p>Imaging Metabolites in the Brain</p>	<p>Member-Initiated Symposium</p> <p>12:00-14:00 UTC</p> <p>Low-Field Magnetic Resonance Imaging with Portability/Accessibility</p>	<p>Junior Fellows Symposium</p> <p>12:00-14:00 UTC</p> <p>Junior Fellows Symposium: ISMRM Shark Tank</p>

SMRT	Fireside Chat
<p>SMRT International Clinical Session</p> <p>12:00-14:00 UTC</p> <p>Research & Development Projects' Impact on Clinical Practice</p>	<p>Fireside Chat</p> <p>13:00-13:30 UTC</p> <p>Fireside Chat with Pioneer Hadassa Degani</p>

DAY 6: THURSDAY, 20 MAY

14:00-16:00 UTC

Acquisition, Reconstruction & Analysis	Contrast Mechanisms	MR Value	Cross-Organ
<p>Data Processing & Software Tools 14:00-16:00 UTC</p> <p>Data Processing & Software Tools</p> <p>Digital Poster Q&As: 15:00-16:00 UTC</p> <p>Data Processing for Quality & Efficiency</p> <p>Software Tools for Development, Data Processing & Analysis</p>	<p>Emerging Quantitative Contrasts Combined Educational & Scientific Session 14:00-16:00 UTC</p> <p>Emerging Quantitative Contrasts: Quantitative Susceptibility Mapping (QSM) Electrical Tissue Property Mapping Magnetic Resonance Elastography (MRE) QSM, ETMP & MRE</p> <p>Digital Poster Q&As: 15:00-16:00 UTC</p> <p>Electrical Tissue Properties Mapping</p> <p>Hyperpolarization: Gas & Non-Gas</p>	<p>Making MRI More Accessible: Speed, Cost & New Developments 14:00-16:00 UTC</p> <p>Making MRI More Accessible: Speed, Cost & New Developments</p> <p>Digital Poster Q&As: 15:00-16:00 UTC</p> <p>Making MRI More Accessible</p>	<p>Fat & Metabolism Combined Educational & Scientific Session 14:00-16:00 UTC</p> <p>Fat & Metabolism</p> <p>Digital Poster Q&As: 15:00-16:00 UTC</p> <p>Fat & Metabolism I</p> <p>Fat & Metabolism II</p>
Body	Neuro	Tutorial	SMRT
<p>Gynecologic & Prostate Cancers 14:00-16:00 UTC</p> <p>Gynecologic & Prostate Cancers</p> <p>Digital Poster Q&As: 15:00-16:00 UTC</p> <p>Female Pelvis, Placenta & Fetal</p> <p>Pelvic Cancer</p>	<p>Cutting-Edge MR & the Brain Tumor Microenvironment 14:00-16:00 UTC</p> <p>Cutting-Edge MR & the Brain Tumor Microenvironment</p> <p>Digital Poster Q&As: 15:00-16:00 UTC</p> <p>Advanced Brain Tumor Imaging</p> <p>Head & Neck & Other Brain Tumors</p>	<p>Tutorial</p> <p>Machine Learning in Cardiovascular MRI (II)</p>	<p>COVID: MR Updates II 14:00-16:00 UTC</p> <p>COVID: MR Updates II</p>

16:00-18:00 UTC

Acquisition, Reconstruction & Analysis	Contrast Mechanisms	Physics & Engineering	Musculoskeletal
<p>New Strategies in RF Pulse Design 16:00-18:00 UTC</p> <p>New Strategies in RF Pulse Design</p> <p>Digital Poster Q&As: 17:00-18:00 UTC</p> <p>RF Pulses</p>	<p>Improving Susceptibility Mapping: Greater Speed, Information, and Accuracy 16:00-18:00 UTC</p> <p>Improving Susceptibility Mapping: Greater Speed, Information & Accuracy</p> <p>Digital Poster Q&As: 17:00-18:00 UTC</p> <p>Susceptibility: Models & Mapping</p> <p>QSM Clinical Applications</p>	<p>Interventional & Low-Field MRI Combined Educational & Scientific Session 16:00-18:00 UTC</p> <p>Interventional & Low-Field MRI</p> <p>Digital Poster Q&As: 17:00-18:00 UTC</p> <p>MR-Guided Interventions: Devices & Applications</p> <p>Engineering & Applying Low-Field MRI</p>	<p>Artificial Intelligence Applied to MSK MRI 16:00-18:00 UTC</p> <p>Artificial Intelligence Applied to MSK MRI</p> <p>Digital Poster Q&As: 17:00-18:00 UTC</p> <p>Artificial Intelligence</p> <p>Bone Tendon Inflammation</p>
Body	Neuro	Image Acquisition	
<p>Prostate 16:00-18:00 UTC</p> <p>Prostate</p> <p>Digital Poster Q&As: 17:00-18:00 UTC</p> <p>Prostate: Methods</p> <p>Prostate: Deep Learning</p>	<p>MRI in Stroke: Vessels, Flow & Tissue Structure 16:00-18:00 UTC</p> <p>MRI in Stroke: Vessels, Flow & Tissue Structure</p> <p>Digital Poster Q&As: 17:00-18:00 UTC</p> <p>Perfusion, Diffusion & Other Variables in Stroke Imaging</p> <p>Vessel Walls, Flow & Angiography in Stroke Imaging</p>	<p>MR Artifacts Game Show 16:00-17:00 UTC</p> <p>MR Artifacts Game Show</p> <p>Tutorial</p> <p>Tutorial 17:00-18:00 UTC</p> <p>Software Engineering for MRI: Python Programming & Scientific Computing</p>	

DAY 6: THURSDAY, 20 MAY

18:00-20:00 UTC

Acquisition, Reconstruction & Analysis	Musculoskeletal	Engineering, Interventional, Safety	Diffusion, Perfusion
<p>Optimized Sampling & Sequence Design</p> <p>18:00-20:00 UTC</p> <p>Optimized Sampling & Sequence Design</p> <p>Digital Poster Q&As: 19:00-20:00 UTC</p> <p>Pulse Sequence II</p> <p>Pulse Sequence I</p>	<p>Quantitative MSK MRI</p> <p>18:00-20:00 UTC</p> <p>Quantitative MSK MRI</p> <p>Digital Poster Q&As: 19:00-20:00 UTC</p> <p>Quantitative MRI I</p> <p>Quantitative MRI II</p>	<p>Interventional, Multimodal & Auxiliary Engineering</p> <p>18:00-20:00 UTC</p> <p>Interventional, Multimodal & Auxiliary Engineering</p> <p>Digital Poster Q&As: 19:00-20:00 UTC</p> <p>MR-Guided Interventions: Methods</p> <p>Multimodal Imaging & Auxiliary Devices</p>	<p>Diffusion Tractography</p> <p>Combined Educational & Scientific Sessions</p> <p>18:00-20:00 UTC</p> <p>Diffusion Tractography</p> <p>Digital Poster Q&As: 19:00-20:00 UTC</p> <p>Diffusion Tractography: Methods</p> <p>Diffusion Tractography: Applications</p>

Member-Initiated Symposium	Neuro	Tutorial
<p>Member-Initiated Symposium</p> <p>18:00-20:00 UTC</p> <p>Reproducible MRI All Over the World</p>	<p>MRI in Stroke: Oxygen, Metabolism & Tissue Function</p> <p>18:00-20:00 UTC</p> <p>MRI in Stroke: Oxygen, Metabolism & Tissue Function</p> <p>Digital Poster Q&As: 19:00-20:00 UTC</p> <p>Oxygen, Reactivity & Tissue Function in Stroke Imaging</p> <p>Flow, Diffusion & Preclinical Modelling in Stroke Imaging</p>	<p>Tutorial</p> <p>18:00-19:00 UTC</p> <p>Cardiovascular MR: From Theory to Practice (II)</p> <p>Other</p> <p>Award for Innovation in MR Education</p> <p>19:00-20:00 UTC</p> <p>Award for Innovation in MR Education</p>

20:00-22:00 UTC

Plenary Session		
Lauterbur Lecture		
20:00	<i>Adventures in Contrast</i>	John Gore, Ph.D.
20:45	Closing Remarks & YIA Awards	Fernando Calamante, Ph.D., 2021-2022 ISMRM President
21:00	Adjourn	

22:00-00:00 UTC

Virtual Exhibition

22:00-00:00 UTC

Closing Party

See you next year in London!

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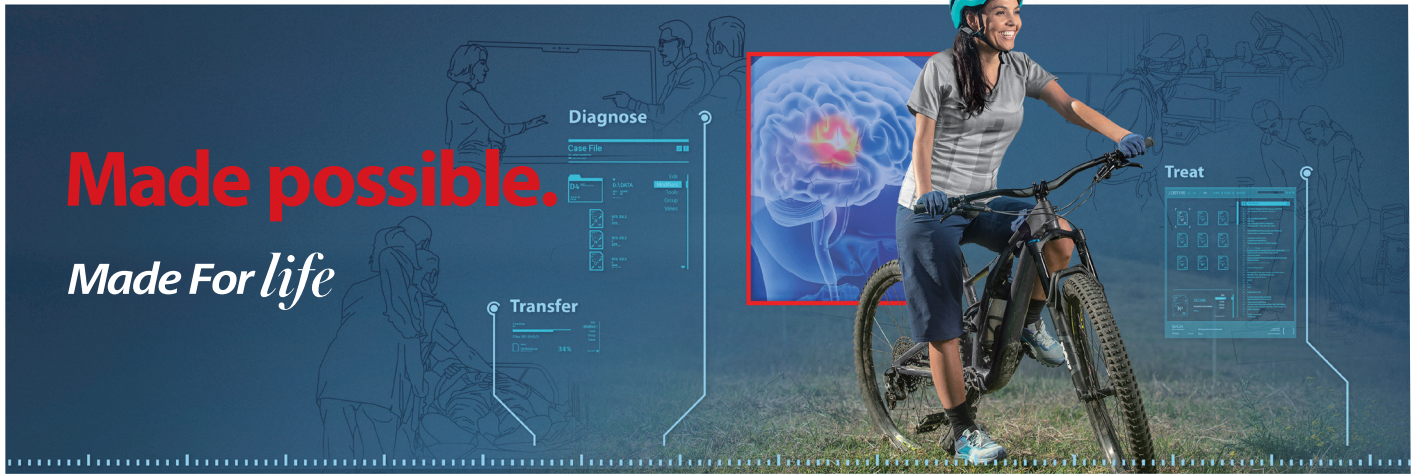
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Toshiaki Taoka, MD, PhD

Department of Innovative Biomedical Visualization (iBMV), Graduate School of Medicine, Nagoya University

Creating Value with Intelligent MR & AI

Ravi Shrestha, PhD

Senior Director, Global Healthcare IT, Healthcare IT Division, Canon Medical Systems Corporation

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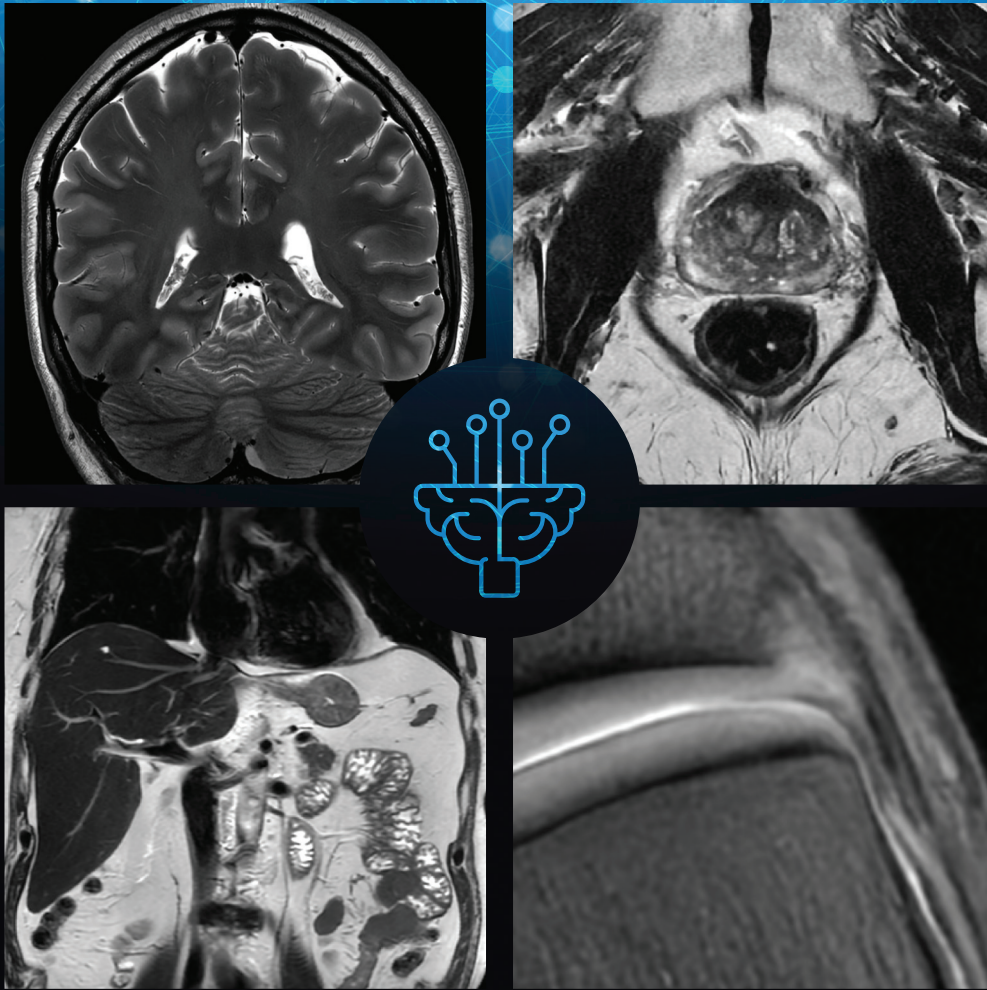
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[gehealthcare.com/mr](https://www.gehealthcare.com/mr)



EXHIBITOR INFORMATION

HyQ Research Solutions, LLC

2151 Harvey Mitchell Pkwy S. STE. 208/209 • College Station, TX 77840 USA
Email: info@hyqrs.com
www.hyqrs.com

HyQ Research Solutions, LLC is dedicated to innovating Magnetic Resonance Imaging using advanced materials. We provide the MR community with custom-tailored high-permittivity products for RF devices.

We are designing and manufacturing ceramics products like ceramic composites and monolithic ceramic materials. We can provide the full spectrum of services including numerical RF simulations, material design and characterization; to manufacturing of large, free-form,

solid ceramic RF coil formers. Everything with the focus to make MRI safer, faster and better. Reach out to us today to discuss how high K materials can improve your products.

For more information visit hyqrs.com

International Electric Company (IECO)

Sahaajankatu 48, FI-00880 • Helsinki, Finland
Telephone: +35 89 7594470 • Email: info@ieco.fi
www.ieco.fi

International Electric Co. (IECO), established in 1974, designs and manufactures precision power electronics, MRI gradient amplifiers, bipolar/unipolar magnet power supplies, and precision temperature controllers for MRI and other applications.

IECO introduced its first gradient amplifier in 1994. This revolutionary PWM amplifier enabled excellent image quality in open MRI systems. Simultaneously IECO also launched the first D-class magnet power supply delivering new

efficiency levels with 0,1ppm stability. IECO's expertise has also been utilized in the development of the industry's first High Temperature Superconductive (HTS) MRI magnets.

IECO gradient amplifiers and bipolar magnet power supplies have modular design so they can be flexibly matched to a wide range of coils. Compact amplifier units can be connected in series or in parallel in Master/Slave operation to gain output voltages up to 1100V and output currents over 2000A. Amplifiers are utilized

in resistive, superconductive and permanent magnet MRI systems, both in human and in research scanning systems.

IECO bipolar power supplies are the best choice when high precision and speed are of importance. They can be implemented in single or multichannel configurations and are ideal for e.g. pulsed magnet applications.

IECO has ISO 9001 and ISO 13485 certified quality system and is headquartered in Helsinki, Finland.

ISMRRM | SMRT

One Concord Center, 2300 Clayton Road, Suite 620 • Concord, CA 94520 USA
Telephone: +1 510 841 1899 • Email: info@ismrm.org
www.ismrm.org

The International Society for Magnetic Resonance in Medicine (ISMRRM) is the foremost international, interdisciplinary community promoting discovery, innovation and clinical translation, as well as providing education, in the field of magnetic resonance. ISMRRM membership is comprised of 9,000+ professionals from over 60 countries, including clinicians, physicists, engineers, biochem-

ists and technologists/radiographers from academia, private practice, regulatory and governmental agencies and industry. ISMRRM organizes the largest annual meeting dedicated to magnetic resonance, other major educational and scientific workshops, as well as publishes two journals – MRM for basic science and JMRI for clinical science. The **Society for MR Radiographers & Technologists (SMRT)**, a

section of the ISMRRM, provides an international forum for education, information and research in magnetic resonance for radiographers and technologists throughout the world. The SMRT was established by technologists, clinicians and scientists of the ISMRRM as a forum for radiographers and technologists to share their expertise and educational resources, with a common goal of improving healthcare for people worldwide.

London & Partners

169 Union Street • London SE1 0LL UK
Email: ssingleton@londonandpartners.com • www.londonandpartners.com

London & Partners is the business growth and destination agency for London.

Our work focuses on supporting international and domestic businesses in high-growth sectors to scale through our trade, growth and innova-

tion programmes, as well as attracting visitors and events and developing London as a world-class destination.

London's official convention bureau operates within London & Partners, helping event organ-

isers and the associations sectors unlock the city to create memorable events and congresses that deliver lasting legacy.

We look forward to welcome ISMRRM and its delegates to London in 2022!

Magnetica Ltd

4/55 Links Ave North • Eagle Farm, Queensland 4009 Australia
Telephone: +61 7 3188 5445 • Email: duncan.stovell@magnetica.com
www.magnetica.com

Magnetica™ is the newest MRI System Original Equipment Manufacturer (OEM) in clinical and research markets globally, following a merger with Scientific Magnetics (UK) and Tecmag (US) in early 2021. We are enabling a world where accurate and compact MRI systems unlock opportunities for high-field clinical diagnostic imaging services closer to the patient point-of-care.

Magnetica designs and develops 1.5T and 3T MRI systems for dedicated applications such as musculoskeletal / extremity and neurological / head imaging. We develop and supply MRI systems and components that unlock new market applications, enhance imaging capability, increase workflow efficiency, and provide greater patient comfort.

We design and supply MRI and NMR

sub-systems to meet bespoke customer requirements, operating across a range of field strengths. Our specialities are in superconducting magnets, gradient coils, RF coils and spectrometers. Our in-house design and manufacturing capabilities, underpinned by our ISO 13485 certified Quality Management System, ensure we deliver optimal customer outcomes.

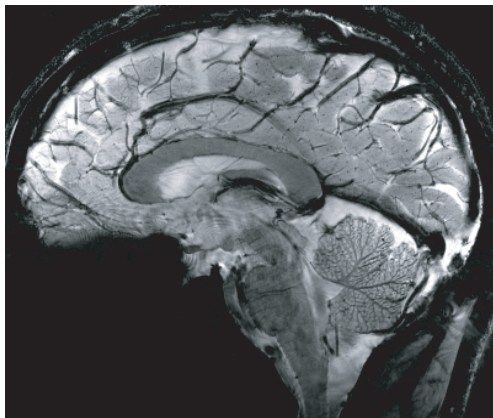
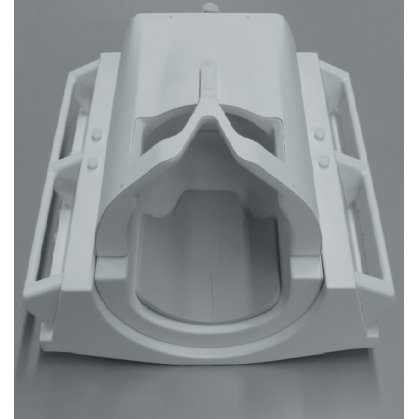
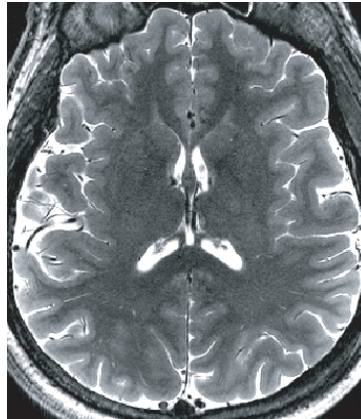


Nova Medical, Inc.

*Featuring our latest product line for
High Field Neuroimaging*

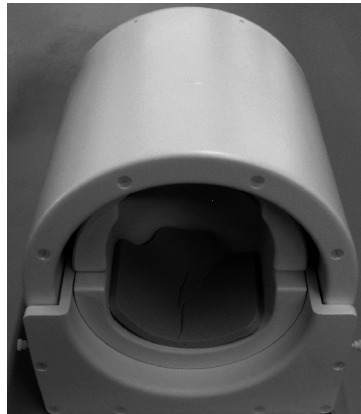
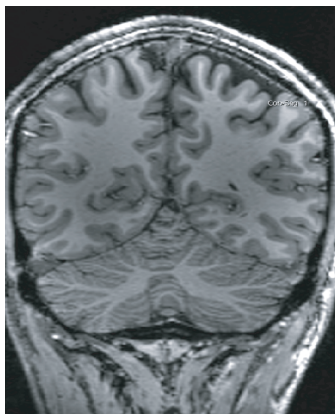
3T 32CH Head Coil

- CE & FDA 510k Approved
- Outstanding sensitivity
- Optimized for highly accelerated imaging in any plane
- Open front for visual stimuli presentation
- Ideal for fMRI, DTI, spectroscopy and hi-res anatomic imaging



7T 1Tx32Rx Head Coil

- CE & FDA 510k Approved
- High Efficiency Local TX
- Superb cortical and central brain SNR
- Multi-plane acceleration
- Mirror for rear-view projection



7T 8TX32RX Head Coil

- Parallel Transmit with eight fully independent TX channels
- CP Efficiency similar to Nova 1TX
- High performance 32RX for best SNR and parallel imaging capability
- B1 Field correction optimizes 7T image contrast and sensitivity
- Available on all platforms

EXHIBITOR INFORMATION

Mediso, Ltd.

3 Laborc Street • Budapest 1037 Hungary
Telephone: + 36 1 399 3032 • Email: sales@mediso.com • www.mediso.com

Mediso works in the field of nuclear medicine since 1990 with a profile of development, manufacturing, selling and servicing molecular imaging multi-modality devices. The company offers complete solutions from hardware design to evaluation and quantification software for clinical patient care and preclinical research.

Mediso has a leader position in the preclinical nuclear imaging market with 250+ commissioned preclinical cameras around the world. Beyond the market leading nanoScan PET/CT and SPECT/CT, Mediso launched the world's first integrated PET/MRI and SPECT/MRI systems. Further on 3T and 7T cryogen-free

magnets and PET insert have been added to the product line, resulting in the largest install base of integrated PET/MRI systems.

Products are sold directly or through a network of distributors with over 1500 imaging systems for clinical and preclinical imaging operating in 98 countries around the globe.

Medi-Tech-Park

Buschgrundstr. 23 • Gelsenkirchen 45894 Germany
Telephone: +49 20914977300 • Email: congress@mrcomp.com • www.mtp.mrcomp.com

The focus and key competence fields are testing services for MR safety and MR compatibility, R&D design support for MR products, research and education services as well as distribution of MR Safe & Conditional products.

Metrolab Technology SA

CH. DU Pont Du Centenaire 110 • Plan-Les-Duates 1228 Switzerland
Telephone: +41 22 884 3311 • Email: contacts@metrolab.com
www.metrolab.com

Metrolab Technology SA is the global market leader for precision magnetometers, used to measure high-intensity magnetic fields to a very high degree of precision.

Over the past 35 years, we have won the trust of MRI manufacturers and physics laboratories across the world, such as General Electric, Philips and Siemens Magnet Technology, as well as all major physics laboratories such as the European centre CERN, Fermilab in the USA, and KEK in Japan.

Our products include:

- Three-axis Hall Magnetometers: ultra-compact and easy-to-use instruments to measure and map all three components of a field
- Precision Digital Integrators: high precision fluxmeters to measure or map complicated fields
- NMR Precision Magnetometers: the gold standard for magnetometers
- NMR Magnetic Field Cameras: the accepted method to map whole-body MRI magnets

• Calibration magnets: compact permanent magnets featuring a large opening, high field uniformity, and temperature compensation.

Metrolab was founded in 1985 in Geneva, Switzerland. We invest approximately 20% of our gross sales in R&D, double the rate of other mature high-tech industries. We develop and maintain our expertise through an international network of scientific consultants and academic collaborations. More important than the product, our top priority is to help you effectively measure magnetic fields.

Momentum Robotics Limited

HKSTPC Western District Hub, Suite Nos 3-8, 29/F • Pacific Plaza, No 410 Des Voeux Road West, Hong Kong Island Hong Kong
Email: justinho@momentusrobotics.com • www.momentumrobotics.com

Momentum Robotics is a Hong Kong-based robotics company that develops high-performance MR-safe hydraulic motors for use in magnetic resonance imaging (MRI)-guided robotic systems. We offer a range of MR-safe motors that provide high power and unlimited range actuation that do not inhibit MR-imaging quality. We also provide custom solutions that are tailor-made to client specification.

MR Shim

Burkhardt+Weber Str. 59 • Reutlingen, BW Germany 72760
Telephone: +49 0 159 0101 9282 • Email: info@mrshim.de
www.mrshim.de

MR Shim GmbH is a medical device manufacturing company focused on magnetic field homogeneity for MRI applications. Our products are made with the principle that medical devices should:

- Be intuitive and easy-to-use,
- Be robust and safe,
- And bring value to the user.

During many years of research in MRI, the founders saw that the potential of high field

MRI could not be fully realised with poor magnetic field homogeneity. From this experience, the company MR Shim was founded.

With our end-to-end B0 shimming solutions, customers can achieve artifact-free MR imaging and spectroscopy. Our products are compatible with all field strengths, all MRI vendors, both animal and human applications, and for different body applications (e.g. neuro, abdominal, etc.).

We improve magnetic field stability using

arrays of small, local shim coils. Our digital shim amplifiers can be used for real-time updating and field correction. We are constantly improving our products with the latest state-of-the-art technologies.

Our products can currently be used for investigational purposes, and we are additionally in the process of acquiring regulatory approval for CE certification and will thereafter apply for FDA approval. In doing so, our products will be available for use in clinical environments.

Hitachi Healthcare: ISMRM Bronze Corporate Sponsor

Patient Comfort Without Compromise

OVAL
ECHELON™

- Unique oval shaped bore, gradients and transmitter
- Sensitive multi-channel RF coils
- Highest 1.5T uniformity
- Workflow Integrated Technology (WIT) benefits



See researchers' investigations into device behavior in MRI

[Click here to watch the symposium](#)



RF Heating of Deep Brain Stimulation Implants in Vertical MRI Scanners: An untapped opportunity?

Laleh Golestani Rad, PhD

Assistant Professor of Radiology
Assistant Professor of Biomedical Engineering
Northwestern University

Kyoko Fujimoto, PhD

Office of Science and Engineering Laboratories (OSEL)
Center for Devices and Radiological Health (CDRH)
U.S. Food and Drug Administration (FDA)

RF Induced Heating of Hip and Knee Implants: 1.5T Cylindrical vs 1.2T Planar MRI Systems.



EXHIBITOR INFORMATION



MR Solutions, Ltd

Ashbourne House • Guildford, Surrey GU3 1LR England
Telephone: +0 1 483 906305 • Email: katie.tre-vett@mrsolutions.com
www.mrsolutions.com

MR SOLUTIONS GROUP develops and manufactures innovative imaging solutions for the research industry. The company offers a large range of products for MR, CT, PET and SPECT. All scanners are interchangeable between each other for multi-modality imaging.

The company is the worldwide leader in high-field cryogen-free MR based on its proprietary dry magnet technology. The MRS*DRYMAG product line delivers MR up to 9.4T and a bore size up to 42 cm. Advanced coils and software tools for pulse sequence programming are

also available.

The magnet technology has exclusive features such as rotating the system to 90° and the ability to ramp the field of the magnet up and down within minutes. Helium lines and shielded rooms are not required which keeps the installation costs extremely low.

PET/MR imaging is possible up to 9.4T simultaneously. PET and SPECT scanners are dissociable within a few minutes from the MR and can be plugged straight onto the CT. This avoids the need for numerous scanners and

large rooms. Four models of PET/CT's and CT's are available: a Benchtop, two high resolution models and a very large bore for 12 kg animals.

MR SOLUTIONS can refurbish and enhance all components from any MR system. MR Solutions also manufactures compatible gradients.

MR Solutions holds the prestigious Queen's awards 2019, 2017 & 2016, the innovation award from the Institute of Physics and is the winner in the global R&D 100 awards.

MR Solutions has offices and support staff all across the world.

Neos Biotec

Sancho el Fuerte, 29 • Pamplona 31007 Spain
Telephone: +34 607 431 450 • Email: info@neosbiotec.com
www.neosbiotec.com

Neos Biotec is the MRI coil supplier for your research.

With more than 10 years of solid presence in the market, Neos Biotec is proud to provide customized RF coil designs to suit the most demanding preclinical imaging and spectroscopy applications.

Neos Biotec focuses on excellence, not only in the performance and quality of their products, but also in quick and reliable delivery times and in customer support throughout the entire MR

process (from experiment design to after-sales troubleshooting and repair).

In addition to our portfolio of standard off-the-shelf coils, Neos Biotec's strongest point is the development of unique RF coilsets for challenging imaging needs. We kindly invite you to visit our virtual booth to show you the details of our latest coil developments:

- Mouse and rat brain open coils, with optimized SNR and workflow, compatible with electrophysiology and optogenetics implants.

- Modular, expandable, whole-body volumetric arrays for mice.

- RF coils made from proton-free materials for ultra-short echo time (UTE) or zero echo time (ZTE) pulse sequences.

- Waterproof, low-coupling RF coils designed to work with high intensity focused ultrasound (HIFU) systems.

We will also be very happy to discuss about your existing or future coil needs.

NIRx

15 Cherry Lane Glen Head • New York, NY 11545 USA
Telephone: +1 612 605 6033 • Email: consulting@nirx.net • www.nirx.net

NIRx has established itself as a leading provider of research solutions for near-infrared spectroscopy (NIRS). At NIRx, we design and manufacture innovative NIRS devices and software. Our team of scientific consultants focuses on providing you and your team with training and outstanding support so you can focus on your research. Our fNIRS solutions are invented, designed, and manufactured in Germany, supported by an international team of scientists and distributors worldwide.



Nova Medical, Inc.

150 West Street, Suite 201 • Wilmington MA 01887 USA
Telephone: +1 978 988 5553
www.novamedical.com

Nova Medical, Inc. (Wilmington, MA, USA), a leader in high field RF coil engineering, provides high performance coils for both medium and high field MR systems. Our standard products include multi-channel whole brain arrays for 3T and 7T, volume transmit solutions for 7T, and our eight channel transmit, thirty-two channel receive system for brain imaging at 7T. Please visit our booth and see our latest offerings.

ODU-USA Inc.

300 Camarillo Ranch Road, Suite A • Camarillo, CA 93012 USA
Telephone: +1 805 484 0540 • Email: stephen.zierhut@odu-usa.com
www.odu-usa.com

The ODU GROUP is one of the world's leading suppliers of connector systems. ODU Connector Solutions ensure a reliable transmission of power, signals, data & media for a variety of demanding applications including MRI applications. The ODU Advanced Customer Benefits include: standard products readily available, one-to-one technical support, rapid product development & cable assembly integrated solutions. www.odu-usa.com or www.odu.de

PHILIPS

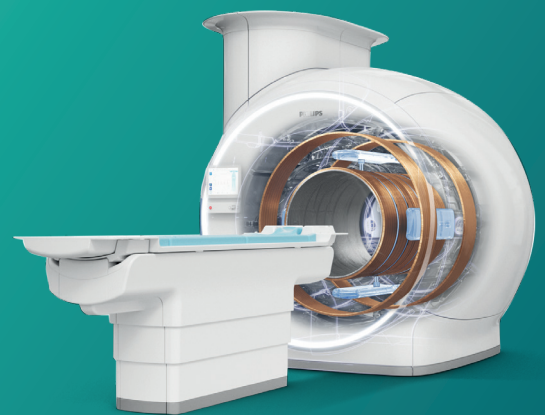
Ingenia Ambition 1.5T



The new reality in MR

In today's world, you may feel more pressure and uncertainty affecting your MR services. By freeing up your MR operations from potential helium complications, Philips Ingenia Ambition 1.5T can help you unlock your capacity to provide outstanding services to referring physicians and patients, reliably and productively. Perform your exams up to 50% faster¹ with Compressed SENSE and achieve a fast overall exam-time by a simplified patient handling at the bore with the touchless guided patient setup. This can lead to a better patient and staff experience. Just think what your new reality in MR could be.

innovation  you



Discover helium-free MR operations and other innovations at www.philips.com/ISMRM

1. Compared to Philips scans without Compressed SENSE.

EXHIBITOR INFORMATION

ISMRM GOLD
CORPORATE
MEMBER

Olea Medical

93 Avenue des Sorbiers • La Ciotat, 13600 France
Telephone: + 33 4 4271 2420
www.olea-medical.com

Olea Medical®, a provider of advanced MR and CT imaging post-processing, designs and markets a suite of innovative medical imaging applications, Olea Sphere®, significantly improving diagnostic process and follow-up assessment.

The company has established a strong credibility, through the domestication of cutting-edge technology, and partnerships with leading institutions worldwide.

With proprietary Bayesian algorithms and optimization methods applied to medical

imaging, today

Olea Medical® is the recognized leader in standardized, vendor-neutral, advanced MR quantitative and qualitative image post-processing.

Covering both morphologic and functional imaging, Olea Medical® post-processing solutions bring complex mathematics into clinical practice for easy access to accurate and robust biomarkers allowing enhanced diagnostic confidence and response-to-treatment assessment.

Olea Medical®'s applications are compliant with the DICOM standard and Windows or Linux operating systems. Olea Sphere® runs on any standard off-the-shelf workstation or it can be used through thin deployment. It maintains the traceability of patient data, through an automatic logout mode, a total connectivity and compatibility with LDAP and Microsoft Active Directory.

ISMRM GOLD
CORPORATE
MEMBER



Philips Healthcare

Amstelplein 2 Breitner Center • Amsterdam, 1070 MX The Netherlands
Telephone: + 31 20 59 77777
www.philips.com

Philips is a leading health technology company focused on improving people's health and enabling better outcomes across the health continuum – from healthy living and preven-

tion, to diagnosis, treatment and home care, diagnostic imaging, image-guided therapy, patient monitoring and health informatics, as well as in consumer health and home care.

Philips leverages advanced technology and deep clinical and consumer insights to deliver integrated solutions.

Polarean Inc.

2500 Meridian Pkwy, Ste175 • Durham, NC 27713 USA
Telephone: +1 919 206 7901 • Email: lsutton@polarean.com
www.polarean.com

Polarean is a lung imaging company, with an investigational diagnostic technology using hyperpolarized xenon-129 gas to enhance MRI. Our technology offers a new, non-invasive means of imaging pulmonary physiology and

function to assess early diagnosis, disease progression and therapeutic response.

Hyperpolarized xenon is used with MRI to enable 3-dimensional lung imaging in a single

10-second breath-hold procedure. Functional imaging without radiation exposure enables longitudinal monitoring of patients with pulmonary-vascular, obstructive, or fibrotic lung disease.

Prodrive Technologies

Science Park Eindhoven 5501 • EM, Son 5692 The Netherlands
Telephone: + 31 402676200 • Email: marco.rietveld@prodrive-technologies.com
www.prodrive-technologies.com

Creating meaningful technologies that make the world work.

Prodrive Technologies specializes in creating meaningful and turnkey healthcare solutions with an exceptional price-performance ratio, from concept to post-sales support and everywhere in between, lowering the total cost of ownership.

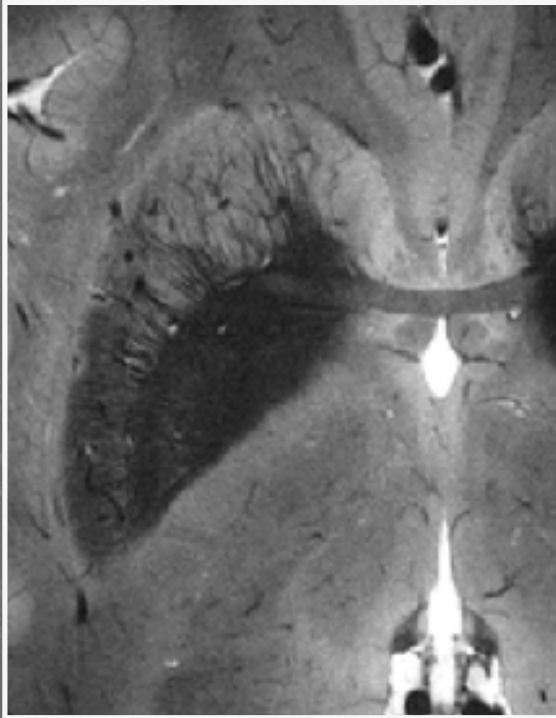
We can do this because of our worldwide vertically-integrated operations, product creation, delivery and support. We have built in ways

of optimizing, integrating and robotizing all aspects in an extremely efficient way; producing everything we need in-house. These are just some of the reasons why we've been able to build a competitive edge over all other providers of technical solutions, anywhere in the world.

The experience we have gained in the medical market over the past 20 years, combined with constructive input from users, customers and suppliers, serve as the foundation to create turnkey solutions that really matter.

Due to this approach we are recognized as a top tier supplier of high quality medical equipment to OEMs around the globe

We deliver solutions within a multitude of imaging modalities. For MRI in particular, Prodrive Technologies is a one-stop shop for several power components/systems required for MRI machines, lead by our NG-series product line of amplifiers; Shim, RF and Gradient.

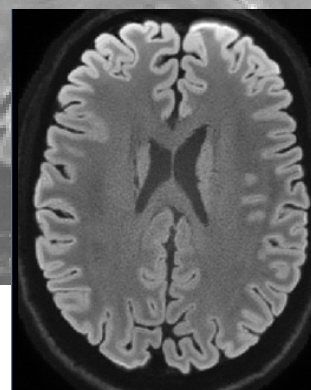
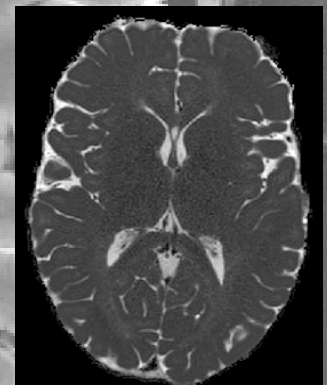
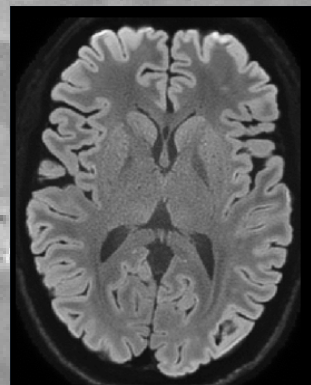


Fast and quantitative MRI methods are commonly limited by inaccurate or unstable image encoding. These limitations can be elegantly avoided by using the actual encoding for image reconstruction. The **NeuroCam** provides an integrated solution for acquiring the image encoding. Together with the **skope-i** image reconstruction software, it enables the benefits of cutting-edge field monitoring and push-button image reconstruction.

Diffusion MRI is commonly limited by image artifacts and low SNR. In DWI, the SNR can be improved by spiral acquisition which reduces echo time. Normally this leads to strong image artefacts, which can be avoided by using field monitoring to track actual k-space trajectories. Shown at *right* is an example of these types of results - high resolution single shot diffusion with high SNR.

Mean DWI

Mean Diffusivity



Courtesy of Klaas Prüssmann and group, IBT ETH Zurich and University of Zurich

right: $b = 1000$ spiral diffusion acquired at 0.8mm in plane nominal resolution, $TE = 44ms$

Courtesy: of Yoojin Lee, IBT ETH Zurich and University of Zurich DOI: 10.1002/mrm.23554 (adapted image)



NeuroCam 3T

- ▶ Plug-and-Play brain coil array for 3T systems with integrated field monitoring
- ▶ Excellent whole-brain SNR and parallel imaging performance
- ▶ Improve diffusion MRI data quality by enabling rapid spiral imaging

EXHIBITOR INFORMATION

PulseTeq Ltd

64-66 High Street • Chobham, Surrey, GU24 8AA, UK
Telephone: +44 1276 856849 • Email: sales@pulseteq.com
www.pulseteq.com

PulseTeq is a leading suppliers of specialist RF coils for research on whole body and preclinical systems.

We would like to invite you to visit our virtual booth at ISMRM 2021 to review our products and, should your plans require new RF coils, we look forward to having the opportunity to discuss the optimum designs for your applications.

In particular we'd like to present our coils for hyperpolarised MRI, sodium and fluorine imaging and phosphorous spectroscopy, first

on whole body systems highlighting the following:

- Multinuclear localised body coils for applications in the chest or abdomen. These include transmit/receive arrays and multi-element receive arrays with optional transmit capability.

- Dual tuned coils for head, liver, heart and extremities.

For preclinical systems our products are also focused on multinuclear applications particularly:

- Dual tuned quadrature volume birdcage coils
- Surface coils with variable tune and match for optimised results on the animals head or body

These are available for all MR nuclei including ³¹P, ¹³C, ¹²⁹Xe, ²³Na, ¹⁹F, and ¹⁷O.

We look forward to meeting with you on our virtual booth at ISMRM2021.

Pulseteq Sales Team.

Random Walk Imaging

Naturvetarvagen 14 • Lund 223 62 Sweden
Telephone: +46 70 752 2031 • Email: info@rwi.se
www.dVIEWR.com

Random Walk Imaging AB is developing a novel proprietary approach to diffusion MRI. RWI is commercializing dVIEWR powered by MICE Toolkit™ as a novel software solution

for clinical researchers and radiologists to better visualize and analyze diffusion MRI data. The company's software solutions introduce a level of specificity to diffusion MRI that is

unprecedented and that has the potential to non-invasively differentiate pathologies affected by changes in tissue microstructure.

RAPID Biomedical GmbH

Kettelerstrasse 3-11 • Rimpar D-97222 Germany
Telephone: +49 93 65 88 26 0 • Email: info@rapidbiomed.de
www.rapidbiomed.de

RAPID Biomedical is proud of being the first company to have brought customized RF coils, many of which are individually designed, to the need of the scientific MR community. Through our high-level RF expertise and collaboration with the MR system manufacturers we offer full compatibility for all of our coil solutions whether standard or customized.

Over the last 20 years, RAPID has delivered over 1200 different coil designs to more than

30 countries. We have thorough experience in designing and manufacturing human and animal coils from low field (0.2T) MR scanners to UHF (21T) NMR systems with a range of 14 different nuclei (and counting). All coils are handmade in Rimpar, Germany.

Our current R&D work concentrates on coil packages for hyperpolarized nuclei, human 7T coils, dual tuned coils and multi array coils for parallel MRI both for human and for animal

studies.

Our sister company RAPID MR International (www.rapidmri.com) is situated in Columbus, Ohio to assist the needs of the North and South American communities.

We cordially invite you to visit our booth to discuss your next project with RAPID coil engineers and examine our coil solutions and MR results first hand.

Ready Teddy

1019 Sentinel Ave • Los Angeles, CA 90063 USA
Telephone: +1 323 362 2544 • Email: max@lumeum.com
www.readyteddy.io

MRIs are intimidating and scary, particularly for pediatrics. Fear, anxiety, and patient motion are often barriers to collecting quality MRI data. Ready Teddy is a data collecting MRI simulation to prepare children for their upcoming scans. The child is familiarized with a digital

radiology suite, is habituated to the sights and sounds of scanner, and trained to stay still within the threshold of a quality scan. Real time motion quality control techniques are applied to an individual's motion thus informing the radiographer on the ability to stay still

during a simulated MRI. With a focus on quality design, implementation could not be easier for research or clinical protocols. Furthermore, the child friendly content resonates with kids to educate and prepare them for their upcoming scan.

Ahead of the field.

IN MAGNET TECHNOLOGY



MAGNET DIVISION
www.tesla.co.uk

Tesla Magnet Division

Design, manufacture and servicing
of superconducting magnets



GRADIENT DIVISION
www.tesla.co.uk

Tesla Gradient Division

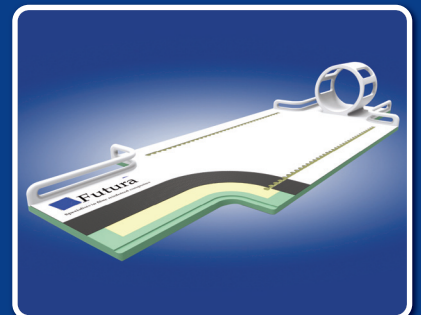
Design, manufacture and servicing
of gradient coils



www.futuracomposites.nl

Futura Composites B. V.

Design, manufacture and testing
of composite MRI components



www.eversontesla.com

Everson Tesla Incorporated

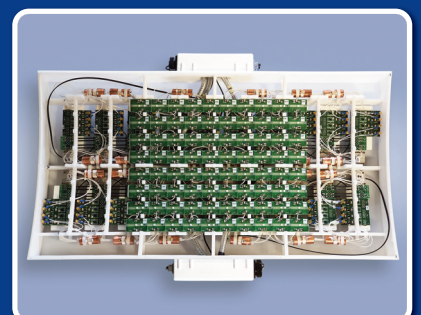
Manufacture and servicing of
superconducting magnets



www.tesladc.nl

Tesla Dynamic Coils

Design and manufacture of RF coils,
interfacing and MRI software



EXHIBITOR INFORMATION



Siemens Healthineers

Karlheinz-Kaske Str.5 • Erlangen D-91052 Germany
Telephone: + 49 9131 84 0 • Email: contact.healthcare@siemens.com
www.healthcare.siemens.com/magnetic-resonance-imaging

At Siemens Healthineers, our purpose is to enable healthcare providers to increase value by empowering them on their journey towards expanding precision medicine, transforming care delivery, and improving patient experience, all enabled by digitalizing healthcare.

An estimated five million patients globally

everyday benefit from our innovative technologies and services in the areas of diagnostic and therapeutic imaging, laboratory diagnostics and molecular medicine, as well as digital health and enterprise services.

Magnetic Resonance, a Business Line at Siemens Healthineers, offers innovative MRI

technologies with exceptional image quality, efficiency, and speed, while providing patient friendliness and investment protection. Equipped with these technologies and a very strong global collaboration network, we enable you to lead in MRI.

Skope

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Telephone: + 41 043 500 80 60 • Email: contact@skope.ch
www.skope.swiss

Skope provides solutions which enable high integrity data for robust, fast and accurate MR imaging applied to MRI methods development, novel MR system development, MRI in neuroscience and research-oriented neuroradiology. Producing consistent, sensitive and reproducible MRI data with our solutions enables you to build a solid foundation to advance your fMRI and diffusion imaging as well as MR methods development - Your Partner in Scientific Imaging.

SpinTech, Inc.

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St. Jude Children's Research Hospital

Department of Diagnostic Imaging • 262 Danny Thomas Place • Memphis, TN 38105 USA
Telephone: +1 901 652 4756 • Email: leslie.jones@stjude.org
www.stjude.org

The St. Jude Children's Research Hospital Department of Diagnostic Imaging seeks faculty-level biomedical imaging scientists interested in pursuing a career performing independent and/or collaborative research within a stimulating atmosphere at a progressive and unique institution with excellent salary and benefits. The Department of Diagnostic Imaging is well-established, enjoys positive and productive collaborative relationships, and has earned the recognition of its national and international peers. The ideal candidate will be a PhD with documented experience in

biomedical imaging research, and are anticipated to distinguish themselves through scientific impact, quality of innovation, national and international recognition, and extramural grant funding.

Our departmental focus is innovative diagnostic imaging and clinical research in pediatric brain tumors, solid tumors, sickle cell disease, and cancer therapy-related secondary pathologies in an inspiring academic environment. Our efforts are supported by excellent clinical equipment, a Molecular Imaging CORE facility with a cyclotron for production of novel radio-

nuclides, state-of-the-art imaging software, and a post-processing facility staffed with a talented group of PhD imaging scientists, software engineers, and physicists. Further support is provided by a well-equipped, on-site animal imaging facility.

The department currently has 17 faculty positions: 11 radiologists, 1 nuclear medicine physician, and 5 PhDs working in translational imaging research.

MAGNETOM Free.Max
**Breaking
 barriers**

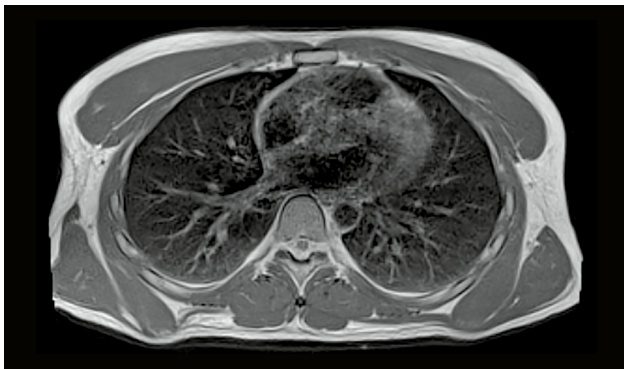
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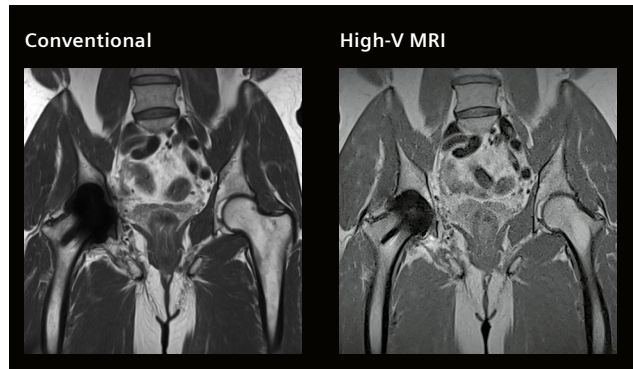
Explore new clinical opportunities with High-V MRI

MAGNETOM Free.Max¹ introduces High-V MRI – a new paradigm in diagnostic imaging. High-V MRI takes the power of digitalization and deliberately applies it to a new field strength of 0.55T with inherent clinical benefits.

The unique physical characteristics of our cutting-edge High-V MRI provide a superior performance for new applications including pulmonary MRI and improved imaging of metal implants without compromising diagnostic quality in the daily routine.



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DryCool technology – freedom beyond helium

MAGNETOM Free.Max is further equipped with DryCool technology – a sealed-for-life magnet design that operates with only 0.7 liters of liquid helium. This removes the barrier of helium dependency, and the costly and complex quench pipe installation.



Only 0.7 l of liquid helium

10628 0421 · ¹The product is pending 510(k) clearance, and is not yet commercially available in the United States. Its future availability cannot be guaranteed.

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EXHIBITOR INFORMATION

Subtle Medical

883 Santa Cruz Ave., Suite 205 • Menlo Park, CA 94025 USA
Telephone: +1 501 766 2662 • Email: anna@subtlemedical.com
www.subtlemedical.com

Subtle Medical is a healthcare technology company with a suite of deep learning-powered software solutions that increase the quality and efficiency of medical imaging. SubtleMR™ applies two methods of image enhancement—denoising and increasing image sharpness—to improve the image quality of regular and accelerated MRI protocols. SubtlePET™ denoises PET images that were conducted in 1/4th of the original scan duration. Both vendor-neutral products are FDA-cleared and CE-marked

and are in clinical use in multiple centers in the US and abroad. SubtleGAD™ (still in the investigational phase) enables a 90% dosage reduction of Gadolinium (GBCA's) in contrast-enhanced MRI exams, providing a safer option for patients.

Subtle Medical was co-founded by a Neuroradiologist and Professor at Stanford University to accelerate the world's access to faster, safer and smarter medical imaging. It was named CB Insights Top AI 100 and

Digital Health 150 company in 2020 and is an Nvidia Inception Award Winner. Current clinical partners include UCSF, Hoag Hospital, Mount Sinai, Sickkids, Radnet, DASA, Tiantan Hospital, and Middlesex Hospital, among others. Subtle is currently in collaboration with top-tier medical device vendors, including Siemens Healthineers, Philips (China), and several pharmaceutical partners. For more information, please visit subtlemedical.com or email sales@subtlemedical.com.

Synaptive Medical

555 Richmond Street West, Suite 800 • Toronto, Ontario M5V 3B1 Canada
Telephone: +1 844 462 7246 • Email: product.requests@synaptivemedical.com
www.synaptivemedical.com

Synaptive Medical is a Toronto-based, global medical device and technology company that solves surgical, imaging, and data challenges to improve the quality of human lives. Synaptive's integrated suite of products – bridging MRI, surgical planning, navigation, and robotic visualization – delivers novel information with automated efficiency across all stages of clinical intervention.

The Phantom Laboratory

PO Box 511 • Salem, NY 12865 USA
Telephone: +1 518 692 1190 • Email: stalter@phantomlab.com
www.phantomlab.com

The Phantom Laboratory manufactures dependable, high-precision phantoms and innovative custom solutions for medical imaging and radiation therapy.

Our newest MR offerings include the Magphan® RT and the Magphan EMR162. Both phantoms measure QA parameters including geometric distortion, uniformity, slice thickness, resolution, SNR, and laser alignment. The torso sized Magphan RT is designed to evaluate image quality and image distortion in MRI scanners used for torso imaging. This large

modular phantom is ideal for Radiotherapy planning and MR guided surgery applications. The Magphan EMR162 measures image quality and distortion in a 18cm spherical housing ideal for use in head coils.

Both these phantoms come with 2 years of Smári Cloud-based, automated analyses. The Smári system offers a suite of features that range from options on report formatting, database storage of results, trend analysis and an API that allows users to extend the system with custom analyses.

The Smári service is also available with other Magphan Quantitative Image Phantoms, including the EMR151 used in the ADNI study since 2006.

We also manufacture phantoms for CT, SPECT, Digital Breast Tomosynthesis, radiosurgery, specialized phantoms for OEM applications and custom phantoms.

The Phantom Laboratory is FDA registered and ISO 13485:2003 certified.

TraclInnovations

Borupvang 3 • Ballerup, Copenhagen 2750 Denmark
Telephone: +45 93881165 • Email: il@traclinnovations.com
www.traclinnovations.com

TraclInnovations is a Danish company established in 2015 focusing on innovative solutions for image based diagnosis and treatment. TraclInnovations has developed the Tracoline system, which is a MRI Markerless Motion Tracker and Monitor System that unnoticed records patient's head movements during brain scans. The system is successfully demonstrated for MRI motion correction, retrospective as well as prospective.

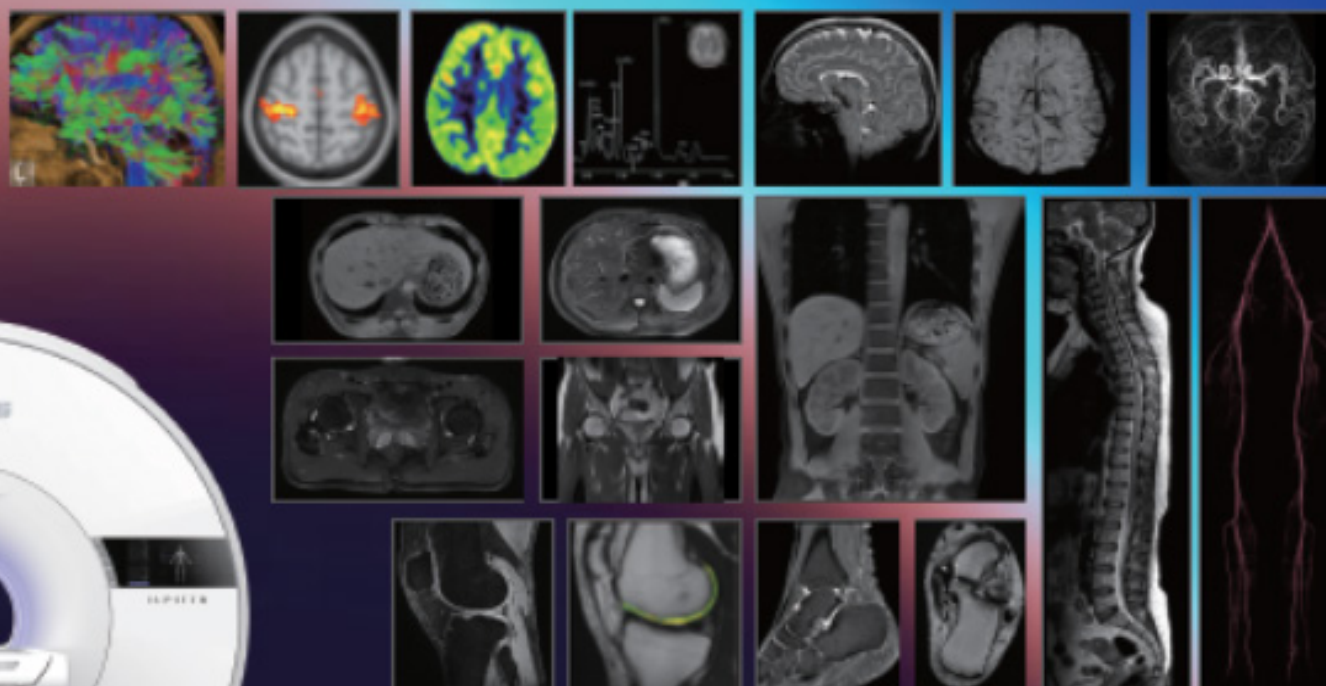
uMR Jupiter

*Introducing the World's First
Whole-body 5.0 Tesla MR*

An ultra-high-field MRI designed for clinical, whole-body imaging

Infinite possibilities for ultra-high-field MRI research based on ultra-fine resolution

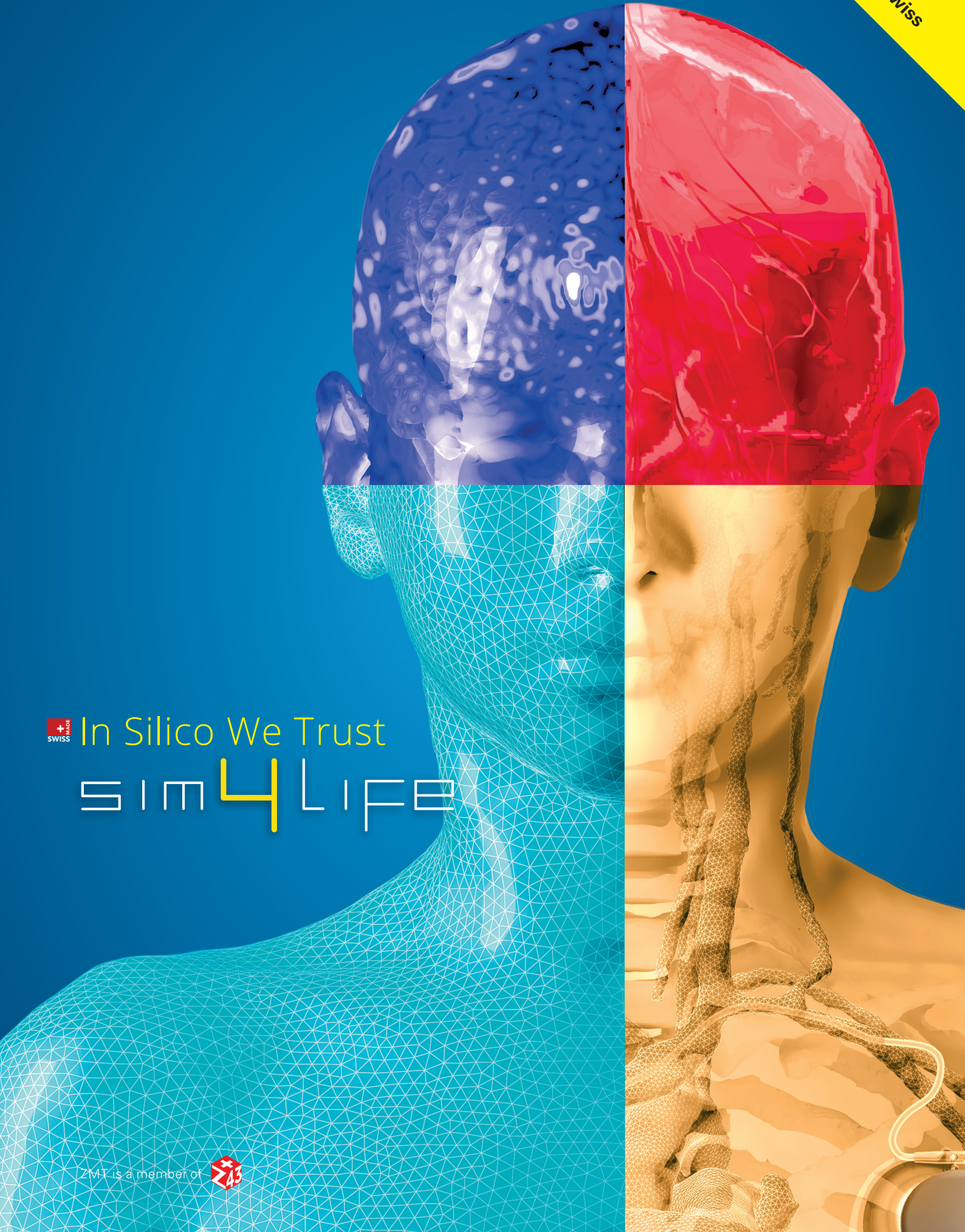
Expanding access to ultra-high-field MRI, with lower siting and operational requirements



Some features are still under development and the product is not commercially available yet.

About UIH

Shanghai United Imaging Healthcare Co. Ltd. ("UIH") is a member of the United Imaging Healthcare Technology Group Co., Ltd., which is dedicated to providing, developing and producing high-performance advanced medical imaging, radiotherapy equipment, life science instruments and offers intelligent digital solutions to customers worldwide. UIH was founded in 2011 and headquartered in Shanghai, and has subsidiaries and R&D centers across China, the United States, Malaysia, United Arab Emirates, Poland and other parts of the world.



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ISMIRM YOUNG INVESTIGATOR AWARDS FINALISTS

W.S. MOORE AWARD



Caroline Colbert, B.S.

Estimation of Fractional Myocardial Blood Volume & Water Exchange Using Ferumoxytol-Enhanced MRI



Dengrong Jiang, Ph.D.

Brain Oxygen Extraction Is Differentially Altered by Alzheimer's & Vascular Diseases



James MacKay, Ph.D.

Three-Dimensional Surface-Based Analysis of Cartilage MRI Data in Knee Osteoarthritis: Validation & Initial Clinical Application

I.I. RABI AWARD



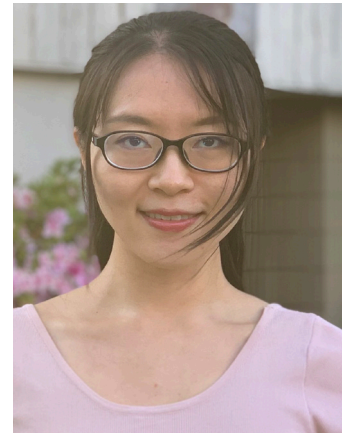
Beata Bachrata, M.Sc.

Simultaneous Multiple Resonance Frequency Imaging (SMURF): Fat-Water Imaging Using Multi-Band Principles



Keshav Datta, Ph.D.

MRI of [2-13C]Lactate Without J-Coupling Artifacts



Nan Wang, Ph.D.

Five-Dimensional Quantitative Low-Dose Multitasking Dynamic Contrast-Enhanced MRI (LD-MT-DCE): Preliminary Study on Breast Cancer

SMRT PRESIDENT'S AWARD

Title	Author
Non-Gated & Non-Enhanced MR Angiography of the Hand Using Enhanced Acceleration Selective Arterial Spin Labeling (eAccASL)	Misaki Saiko

SMRT AWARD RECIPIENTS

RESEARCH FOCUS AWARDS

E-POSTERS		
	Title	Author
1 st Place	Optimizing Dark Blood Late Gadolinium Enhancement in Cardiac Magnetic Resonance Imaging	Hannah Bergman
2 nd Place	Optimized 3D Ultrashort TE Protocol for Lung Imaging	Chikara Noda
3 rd Place	Osteoporotic Vertebral Fracture Analysis with Intravoxel Incoherent Motion: A Preliminary Study	Hiroyuki Takashima

ORAL		
	Title	Author
1 st Place	Effects of Image Quality Deterioration & Data Shortage on Automatic White Matter Bundle Segmentation by Diffusion Magnetic Resonance Imaging	Yuichi Suzuki
2 nd Place	Deep Inspiration Breath-Hold Radiotherapy Does Not Induce MRI Detectable LV Functional & Structural Changes in Patients with Left-Sided Breast Cancer :A Six Months Follow-up	Xin Dong
3 rd Place	Optimization of Variable TI 4D Ultrashort TE MR Angiography: A Numerical Simulation & Phantom Study	Toshiya Akatsu

CLINICAL FOCUS AWARDS

E-POSTERS		
	Title	Author
1 st Place	Depicting Capsular Injury & Disc Tears of the Sternoclavicular Joint with the Use of Direct MRI Arthrography	Helen Harvey
2 nd Place	Optimization of Radial k-Space Sampling Techniques for a Comprehensive Motion-Free Cervical Spine MRI Protocol	Brian Johnson
3 rd Place	A Single Breath-Hold Acquisition of Three-Dimensional T1 Mapping Using Look Locker Sequence for Assessing Crohn Disease: A Phantom Study	Daisuke Morimoto-Ishikawa

ORAL		
	Title	Author
1 st Place	A Finding of Female Adnexal Tumour of Probable Wolffian Origin (FATWO) on Magnetic Resonance Imaging & Histology: A Rare Neoplasm: Case Report	Petronella Samuels
2 nd Place	Investigation of New Assessment Method for the Liver Magnetic Resonance Imaging	Yasuo Takatsu
3 rd Place	The Effect of Enlarging Shim Volume on B0 Homogeneity of MRS Voxel on 7T	Huijun Liao

SMRT CRUES-KRESSEL AWARD



**Martin J. Graves, Ph.D. CSci MIET
MRCR(Hon) FHEA FIPEM FISMRM
FBIR**

Martin Graves is a consultant clinical scientist at Cambridge University Hospitals (CUH) and affiliated lecturer at the University of Cambridge Clinical School. He has over thirty-five years' experience in both clinical and research aspects of MRI. He received his Bachelor of Science in medical physics and Master of Science in medical electronics from the University of London and his doctorate in interactive MRI from the University of Cambridge. He is a senior fellow of the International Society for Magnetic Resonance in Medicine (ISMRM), the UK Institute of Physics and Engineering in Medicine (IPEM), and the Higher Education Academy (HEA). His awards include Honorary Membership of the UK Royal College of Radiologists (RCR), the 2018 IPEM Academic Gold Medal, and fellowship of the British Institute of Radiology (BIR). Earlier this year, he was appointed to the American Board of MR Safety (ABMRS). His research interests are in MRI methods development, particularly pulse sequence programming, for a range of application in oncology, body, and cardiovascular imaging. He has co-authored over 220 peer-reviewed publications as well as several textbooks including MRI: From Picture to Proton (CUP 2003, 2007 and 2016), Physics MCQs for the Part 1 FRCR (CUP, 2011), The Physics and Mathematics of MRI (Morgan & Claypool Publishers, 2016), and Fast Quantitative MRI (Morgan & Claypool Publishers, 2020). He is passionate about MR education and has received ISMRM outstanding teacher awards in 2006 and 2011. He recently delivered the first SMRT Masterclass on the "Essentials of MR Physics" and particularly enjoyed the audience participation sessions. He is very honoured every time he is invited to speak at a local, national, or international MR technologist/radiographer event and is hugely appreciative of being nominated for the Crues-Kressel award.

HONORARY MEMBERSHIP AWARD



**Wendy Strugnell, B.Appl.Sc.(MIT)
FSMRT**

Wendy Strugnell received her Bachelor of Science in medical imaging technology from Queensland University of Technology and worked at the Princess Alexandra (PA) Hospital in Brisbane, Australia, and the Hammersmith, Guy's, and St. Thomas' Hospitals in London, England. Wendy was the MR Section Senior Radiographer at PA Hospital from 1995 until moving to the Prince Charles Hospital (TPCH) Brisbane in 2001, where she co-established the Richard Slaughter Centre of Excellence in Cardiovascular MRI, Australia's largest cardiac MRI facility.

In 2020, Wendy was appointed the Cardiac MRI Clinical Services and Research Manager for Queensland X-Ray, managing a multi-centre, state-wide cardiac MRI service.

Wendy has an extensive research record, which has largely focused on the development of new cardiac MRI technologies for clinical applications. She was a member and Deputy Chair of the TPCH Research Council from 2009 to 2020, Head of Research of the TPCH Medical Imaging Research Program, and is the past Chair of the Industry Advisory Committee for the Australian Research Council Centre for Innovation in Biomedical Imaging Technology (CIBIT) based at the University of Queensland. Additionally, she is an Adjunct Research Fellow of the Menzies Health Institute QLD and Griffith University and is an Adjunct Research Fellow with the University of Queensland, TPCH Northside Clinical Unit. She is also a Research Alumni of the Common Good (The Prince Charles Hospital Foundation).

Wendy has been actively involved in the SMRT for over 20 years serving as a Board member, president, secretary, and executive liaison for membership. She is also a past president of the SMRT ANZ Chapter and established the Annual SMRT ANZ Meetings. In 2012, she was made a fellow of the SMRT. And from 2019-2020, she was the SMRT representative for the ISMRM Cardiac MR Study Group.

Wendy has received the Prince Charles Hospital Award for Excellence in Clinical Research and the Crues-Kressel Award for outstanding contributions to the education of MR radiographers.

SMRT FELLOW OF THE SOCIETY AWARD



Joseph S. Joslin, B.Sc., R.T.(MR)(R)

In 1993, Joe co-founded a woodworking company, Advanced Wood Technologies. Through his time there, he learned many valuable lessons about business and customer service that still serve him well today.

In 2000, he entered the radiography program at Grand Rapids Community College, where he graduated with an associate in applied science in radiologic sciences in 2003.

In 2004, he was offered his first job in MRI and has worked in MRI ever since. In 2007, he developed a patient information website about MRI as there were few resources that addressed MRI from a patient's perspective. The website helped fill this void with positive, helpful information. The site grew from a few dozen views per month to over 20,000 per year.

During the last 17 years, his growth in the MRI field has taken him through the clinical roles of staff technologist, lead technologist, and senior imaging specialist (SIS). In the SIS job, he oversaw all body, breast, cardiac, and MSK protocols at 11 hospitals and 5 outpatient imaging centers encompassing 21 different MRI's within the health system. He also performed image quality assessments, developed new business lines, and held membership in committees such as quality, MRI safety, radiology research, and policy, among others.

In 2017, he was elected to the SMRT Policy Board. Since that time, he has had membership in many SMRT committees, workgroups, and taskforces. He has also been the SMRT liaison to the Associated Sciences Consortium of the RSNA, The ASRT MRI Curriculum Review, and the ISMRM Web Editorial Board.

In 2018, he completed his bachelor's degree in biomedical sciences through the University of Wisconsin – Milwaukee.

In 2019, he accepted a role as a MR product sales executive for Siemens Healthineers. In this job, he oversees sales of MRI products and services in the Great Lakes region of the US.

He is currently living in Michigan in the United States with his wife and twin daughters.

Joe is deeply honored to have been nominated for Fellow of the SMRT.

SMRT DISTINGUISHED SERVICE AWARD



Titti Owman, R.N.(R)(CT)(MR)FSMRT

Titti Owman registered as a radiological technologist/nurse in December 1979, and in January 1980, she started to work at the Department of Radiology in Lund. In 1981, she became involved in a clinical trial of the first non-iodine contrast agent and has since been involved in many different research projects. Titti is now serving on the Lund University's clinical MRI research committee. In 1983, she went on to become involved in the very first NMR imaging attempts in Scandinavia at the Department of Radiation Physics at Lund University.

Currently Titti is a research coordinator/lecturer at the Center for Imaging and Physiology at Lund University Hospital in Sweden. Since 1986, when the first clinical MRI scanner was installed in Lund, she has been working in clinical practice, research-related work, as well as MRI safety. Titti is responsible for MRI safety education and routines to all staff in the medical imaging center as well as other clinics and hospitals. She is very much involved in organizing and planning various MRI research projects, mainly in the field of neuroradiology, and she is actively taking part in several of them.

From 1988-1989, she worked for the Fonar Corporation in New York as an application specialist travelling in Europe and USA. From 1991-1993, she worked as assistant manager and helped to start up one of Sweden's first private MRI clinics where she did administrative work as well as clinical practice. Titti is also a founding member and is still active in the Lund School of MRI. She is responsible for organizing courses and lecturing for many different professional groups in the hospital and at the university. She has held the position of course director for MRI education for technologists at the university since 1995. Additionally, she has been engaged by the Swedish Society of Neuroradiology to plan and organize 10 courses in neuroradiology and spinal imaging in Cyprus, Tenerife, and Mallorca since 2002. In 2002, she was involved in planning, organizing and starting up the first 3T MRI scanner in Scandinavia. In the spring of 2008, she was speaker and co-organizer of the SMRT's first meeting in Scandinavia, held in Aarhus, Denmark. She has been co-author on scientific papers and invited speaker on many occasions. In 2003, 2004, 2009, and 2016, she was an invited lecturer at the European Congress of Radiology in Vienna, Austria. During the fall of 2013, she was involved in starting an advanced course for MR radiographers, the first of its kind in Sweden. She is also an active member of the Swedish National board for Contrast Agents, MR Section.

Between 2009 and 2012, she served as a member of the SMRT Policy Board and chairman for the Global Relations Committee. At present, she is a member of several other SMRT committees. She served as expert reviewer for the SMRT Home Studies in 2010 and 2014 and was an active member of the local organising committee for the yearly ISMRM meeting in Stockholm in 2010. She was also active in the process of creating the ISMRM/SMRT Nordic Chapter that was founded in 2012. In 2015, she received the SMRT Fellow of Section Award. Titti served also as the SMRT President 2017-2018.

In an effort to be able to keep up with what's going on in the fast world of MRI, she is a frequent visitor to MRI meetings and other national and international MR sites.

OUTSTANDING SERVICE TO A DIVISION/CHAPTER AWARD



Adam Scotson

My name is Adam Scotson, and I am an MRI team lead for NHS Highland, based in Raigmore Hospital, Inverness, Scotland. The geographical location means that the department scans a wide variety of cases from paediatrics, cardiac, and general anaesthetic cases, to cancer tracking and trauma. My current role as team leader involves the management of a team of 22 MRI radiographers and assistants over two scanners. My personal interests within MRI include MRI safety and paediatric scanning, where I am involved in the development of tools to reduce the anxiety and fears felt by young patients and their families when coming for a scan. I have been a member of the SMRT for a number of years, starting by assisting with the running of the SMRT Scottish meeting and leading to my time on the Policy Board. I have been fortunate to have had many roles over this time, including membership of the finance and APC Committees, both as vice-chair and chair of the Membership committee and executive member on the Executive Committee. This has allowed me to help promote the goals of the SMRT of providing education to the MRI community. I currently represent the SMRT on the ISMRM Education Committee.

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SMRT

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