# Weekend Educational Programs (Pages 21-23)

<table>
<thead>
<tr>
<th>Saturday, 18 April</th>
<th>Sunday, 19 April</th>
<th>Overview</th>
<th>Monday, 20 April</th>
</tr>
</thead>
<tbody>
<tr>
<td>MR Engineering - Part 1</td>
<td>MR Engineering - Part 2</td>
<td>Sunrise Educational Courses Tuesday-Friday (Find full course descriptions on pages 11-12)</td>
<td>Plenary Sessions (Find full session descriptions on page 10)</td>
</tr>
<tr>
<td>MR Physics for Physicians</td>
<td>Probing Cancer with MR II: From Animal Models to Clinical Assessment</td>
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<tr>
<td>Body MRI by the Experts</td>
<td>Cancer MR Spectroscopy: Clinical &amp; Research Applications</td>
<td></td>
<td>• Welcome &amp; Awards</td>
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<tr>
<td>Cancer Imaging I: Tumor Biology &amp; Experimental Models</td>
<td>Imaging of the Lower Extremity: From Basics to Advanced Techniques</td>
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<td>08:20</td>
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<tr>
<td>Cellular &amp; Molecular Imaging</td>
<td>Advanced Neuroimaging</td>
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<td>• Mansfield Lecture: Brain Energy &amp; Brain Work</td>
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<tr>
<td>Quantitative Imaging &amp; Data Analysis</td>
<td>Imaging Strategies</td>
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<td>• Advances in Musculoskeletal MRI</td>
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<tr>
<td>Advances in Quantitative MRI of Perfusion</td>
<td>Clinical MRI: From Physical Principles to Practical Protocols</td>
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<tr>
<td>Crossing Fibers in Diffusion MRI</td>
<td>Study Group Programs</td>
<td></td>
<td>Monday, 20 April</td>
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<tr>
<td>Diffusion Tensor MRI for the Clinician &amp; the Neuroscientist: From Experimental Design to Data Analysis</td>
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<td>07:30</td>
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**17:45 - 19:15**
Opening Reception

See page 21 for the SMRT 18th Annual Meeting Program Details
### April 2009

Please see pages 6-16, or visit our website: http://www.ismrn.org

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**Monday through Friday, 18-24 April 2009**

<table>
<thead>
<tr>
<th>Tuesday, 21 April</th>
<th>Wednesday, 22 April</th>
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**07:00-08:00 Tuesday through Friday:**
- Image Reconstruction
- Safety Update
- Quantitative Neuroanatomic & Functional Image Assessment
- Mobile Lipids in Disease
- Magnetic Resonance in Tissue Engineering
- Clinical Science for Physicists & Engineers
- Cardiovascular: Disease or Problem-Based Teaching & Practical Protocols
- MRI & MRS of the Mouse Brain: Techniques & Applications
- Unsolved Problems in MSK MRI: What Do We Know and What Don't We Know?
- Hot Topics in Body MRI

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<tr>
<th>08:15</th>
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<tbody>
<tr>
<td>• Plenary: Molecular MR: MR Probe Development from Bench to Patient Table</td>
<td>• Plenary: What Have We Learned from NSF?</td>
<td>• YIA &amp; Poster Awards</td>
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<tr>
<td>09:00</td>
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<tr>
<td>• Advances in MR Angiography</td>
<td>• Scientific Sessions</td>
<td>• Lauterbur Lecture: MRI: A Charmed Past &amp; an Exciting Future</td>
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<tr>
<td>09:00</td>
<td>10:00</td>
<td>08:30</td>
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<tr>
<td>• Sounds &amp; Visions: Return of Aloha</td>
<td>• Scientific Sessions</td>
<td>• Plenary: MR Scanners in 2025</td>
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<tr>
<td>10:00</td>
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<tr>
<td>• Scientific Sessions</td>
<td>• Imaging the Fetus &amp; Newborns</td>
<td>• Scientific Sessions</td>
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<tr>
<td>10:30</td>
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<tr>
<td>• Atherosclerosis Imaging</td>
<td>• Sports Imaging: Elbow</td>
<td>• The Rise and Fall of the Brain Part II: The Aging Brain</td>
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<td>10:30</td>
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<tr>
<td>• Extracranial Diffusion-Weighted Imaging</td>
<td>• Hands-On Workshop #1</td>
<td>• Case-Based Teaching V: Manifestations of Systematic Disease on the Cardiovascular System</td>
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<tr>
<td>11:30</td>
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<tr>
<td>• Scientific Sessions</td>
<td>• Case-Based Teaching III: Lower Extremity</td>
<td>• Hands-On Workshop #1 (repeat)</td>
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<td>12:30</td>
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<tr>
<td>Gold Corporate Symposia</td>
<td>Gold Corporate Symposia</td>
<td>Silver Corporate Symposia</td>
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<td>13:00</td>
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<tr>
<td>• Scientific Sessions</td>
<td>• Poster Sessions</td>
<td>• Grant Writing in a Competitive Era</td>
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<tr>
<td>13:00</td>
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<tr>
<td>• Fat Imaging &amp; Quantification</td>
<td>• Use of Intravenous Contrast in MRI</td>
<td>• Imaging Biomarkers in Practice</td>
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<td>13:00</td>
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<tr>
<td>• Image Analysis</td>
<td>• Introduction to Imaging Biomarkers</td>
<td>• Hands-On Workshop #2 (repeat)</td>
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<td>13:00</td>
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<tr>
<td>• Case-Based Teaching II: Abdominal Pain</td>
<td>• Hands-On Workshop #2</td>
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<td>16:00</td>
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<td>• Scientific Sessions</td>
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<tr>
<td>• MR Physics &amp; Techniques for Clinicians</td>
<td>• MR Physics &amp; Techniques for Clinicians</td>
<td>• MR Physics &amp; Techniques for Clinicians</td>
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<td>16:00</td>
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<tr>
<td>• Case-Based Teaching IV: fMRI &amp; DTI in Clinical Practice</td>
<td>• Case-Based Teaching V: Physics &amp; Engineering: Guess the Artifact</td>
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<tr>
<td>18:30</td>
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<tr>
<td>Bronze Corporate Symposia</td>
<td>Study Group Programs</td>
<td>Farewell Party</td>
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Mark your calendars for the Joint Annual Meeting ISMRM-ESMRMB May 2010!
As those of you who have visited will know, Hawai‘i is a spectacular venue for a scientific meeting. The convention center is a perfect fit for our conference; it has generous sized meeting rooms, it is built to enjoy the ocean breezes that cool Honolulu, and it has delightful spacious open communal spaces and atria. All of this is within easy walking distance of the beaches, city and hotels. Our main problem will be keeping people inside the centre and working rather than enjoying the many, many attractions on offer around the islands.

The Annual Meeting Program Committee has been working hard since January of this year putting the Hawai‘i meeting together. I am delighted to announce that Professor Robert Shulman and Professor Al Macovski, have accepted the invitation to be our Mansfield and Lauterbur lecturers for 2009. Both of these impressive scientists have the most distinguished careers that have encompassed a wide body of work. Professor Shulman is the Sterling Professor Emeritus of Molecular Biophysics and Biochemistry at Yale University and has been instrumental in developing the use of MR spectroscopy in vivo for the investigation of metabolic pathways in animals and humans. He has measured the flow of substrates in muscle and brain, examined the storage pathways of glucose in skeletal muscle and the role of its regulation in diabetes, and examined energy production and usage in neurotransmission. He has recently co-edited Metabolomics by In Vivo NMR. Professor Macovski is the Canon Emeritus Professor of Electrical Engineering and Radiology at Stanford University. His career has spanned working on television to medical imaging. Apart from some fundamental work in real-time ultrasound and dual-energy CT, he has pioneered blood vessel imaging with MRI. Amongst their many accolades and awards, both our speakers have been recipients of the Gold Medal of the ISMRM and are members of the National Academy of Science. We are honoured to have them speak at our meeting.

The plenary sessions this year will cover diverse subjects bringing together the engineering, physics and clinical communities of our society. The topics include the role of MR in stroke, MR scanners in 2025, MR probe development in molecular imaging, the lessons learnt from NSF and a session on injury. The topics have been chosen to have them speak at our meeting.

I am delighted to announce a new initiative aimed at linking the ISMRM with our local community. We intend to give local high school students interested in science the opportunity to see “Science at Work.” Groups of students will visit the meeting and observe poster presentations, visit the exhibits and join a scientific session. Thomas Ernst of the University of Hawaii has kindly agreed to lead this initiative.

Of course we then have the science, and the “Call for Papers” has already opened up, indeed, we have already had our first submissions. This year the committee has identified three key areas in which we would like to encourage submissions. These special sessions will be on MRI studies on functional biomechanics and exercise physiology, time resolved MR angiography, and in-vivo MR with DNP-polarized compounds. The request for these abstracts is incorporated into the online submission process and has the same time line as conventional abstracts.

The successful integration of traditional and multi-media e-posters initiated in Toronto will be continued in Hawaii. The size of the files that can be loaded has been increased to 40MB in response to requests from the Toronto meeting, and we hope that this will be adequate to support all presentations.

Sounds and Visions of MR 2009-The Return of Aloha is returning to the meeting. See page 17 for submission details; so, all of you MR musicians and artists...start preparing your material!

Hawai‘i is a lovely city, and there are many fabulous things to do on Oahu and the surrounding islands. The convention hotels are all within walking distance of the conference centre, and we have ensured that there is internet access in all of these. They will all give easy access to the town, the beaches, and the convention centre.

Further afield there are visits to the erupting volcano on the big island of Hawai‘i, swimming with dolphins and turtles, walking the Na Pali coast, playing golf, surfing, or just relaxing on the beach with some sweet pineapple. This fantastic location is an excuse for a holiday—bring your friends and family and have fun!!

April 2009 will soon be upon us and the committee and I look forward to welcoming you to ISMRM, Hawai‘i 2009.
The Meeting

Date | 18-24 April 2009
---|---
Location | Hawai‘i Convention Center, Honolulu, Hawai‘i, USA
Meeting Program Details | The meeting program will be available online through the ISMRM Web site: http://www.ismrm.org
Contact information | E: info@ismrm.org
| T: +1 510 841 1899
Credit Designation | The ISMRM designates this meeting for up to 55.5 AMA PRA Category 1 Credits™. Physicians should only claim credit commensurate with the extent of their participation in the activity

Technical Exhibition

Location of Technical Exhibition | Exhibit Hall I - Hawai‘i Convention Center
Dates and Open Hours | 17:45-19:15 Sunday, 19 April (Opening Reception)
| 09:30-16:30 Monday, 20 April
| 09:30-16:30 Tuesday - Wednesday, 21 - 22 April
| 09:00-16:00 Thursday, 23 April
Admission | By meeting badge only
Restrictions | Children under 16 are not allowed on the exhibit floor

New Entrant Stipend Award:

Apply Online: http://www.ismrm.org/09/new_entrant.htm

Purpose
The ISMRM invites applications for stipends that encourage new entrants to research in areas of interest to the ISMRM. Each awardee will receive US$400 toward the costs of attending the ISMRM 17th Scientific Meeting & Exhibition in Honolulu, Hawai‘i, USA, in April 2009.

Who Should Apply?
- Students, trainees, or researchers who are new to the field and might not be funded under the main educational stipend program;
- Persons who are already actively involved or about to be actively involved in some aspect of research related to the ISMRM.

Restrictions:
- Applicants cannot have received an Educational Stipend, New Entrant, or E. K. Zavoisky stipend previously;
- Applicants cannot be first or presenting authors on abstracts submitted to the ISMRM program and do not need to submit an abstract to the meeting;
- Applicants are required to attend at least 4 days of the ISMRM meeting, including at least one day of the weekend educational courses.

Application Requirements
(all documents listed below should be sent in electronic format):
- A letter from the applicant which should include a brief statement of their interest in attending the Scientific Meeting and explain how this will relate to their own work;
- A letter of support from the Department Chair stating that the student either will be given the time off to attend and be supported for the remaining cost of the meeting, or will use vacation time and personal funds as needed;
- A curriculum vitae of the applicant;
- Completed online New Entrant Stipend Application Form to be submitted with the application;
- Stipend awards are dispersed to ISMRM members only.

New This Year:
2009 ISMRM membership is required before application for a New Entrant stipend. If you are not a member, you will need to complete the membership application process on or before 5 December 2008 in order to apply for a New Entrant Stipend. If you are already a member, you will need to pay your 2009 membership dues on or before 5 December 2008.

Application Chair:
James G. Pipe, Ph.D., Chair
International Society for Magnetic Resonance in Medicine
Subcommittee on Student Stipends
2030 Addison Street, Suite 700
Berkeley, CA 94704 USA
**MR Engineering: Part I**  
Brian K. Rutt, Ph.D., Mark A. Griswold, Ph.D., Greig C. Scott, Ph.D.

This two-day course will explore the engineering issues of hardware components and system design of modern MRI scanners. Lectures are provided in the general topics of magnets, gradients and shims, RF coils and electronics, and system design, and we will cover basic hardware components of an MRI scanner and how they interact; basic methods for magnet, gradient and shim design; basic types of RF coils, and their design principles; RF electronics that interface with coils; and trade-offs in designing customized NMR/MRI instrumentation. On Saturday, specific topics include: MRI system overview, magnet design and modeling, magnet construction, shim design and principles, dynamic shimming, gradient coil design and limitations, gradient systems, amplifiers and eddy current compensation, RF electromagnetic modeling, RF engineering principles, experimental animal and micro RF coils, and RF receive-coil arrays.

**MR Physics for Physicists**  
Organizers: Michael H. Buonocore, M.D., Ph.D., Michael Markl, Ph.D., and Lawrence L. Wald, M.D., Ph.D.

This one-day course will explore the physical methods and mathematical models that underlie nearly all research and development in MRI and MR spectroscopy. Lectures will cover the general topics of spin physics, signal detection, generation of contrast, and imaging physics. Specific topics will include quantum mechanical and semi-classical equations for describing spin dynamics, the density matrix formalism, and its applications in MRS, physical mechanisms of hyper polarization, radiofrequency field equations and reciprocity laws for signal detection, sources of noise and limits to SNR, tissue microstructure and molecular factors that govern image contrast, physical mechanism of exogenous and endogenous contrast agents, methods and models to describe magnetization exchange, physics and mathematics for susceptibility weighted imaging, mathematical description of dynamic equilibrium in fast sequences, calculation of effective relaxation times in fast sequences, applications of advanced electromagnetic theory in calculation, use of magnetization phase in applications, methods for quantitative parameter mapping, and mathematical formalisms for RF pulse design.

**Body MRI by the Experts**  
Organizers: Georg Bongartz, M.D., Elmar M. Merkle, M.D., and Clare Tempany, M.D.

This one-day organ-based course will cover the most common indications in abdominal and pelvic MRI as well as the status quo in terms of hardware and software usage and new cutting edge technologies for the body MR clinician. Designed for intermediate level clinical radiologists, technologist and physicists, this course will focus on the current role of MR in the workup of patients with abdominal and pelvic conditions, the application of new body MR techniques in practice to shift patients with abdominal and pelvic conditions from the CT suite to the MR suite, and the use of multiparametric MRI for improved diagnosis.

**Cancer Imaging I: Tumor Biology and Experimental Models**  
Organizers: Carles Arús, Ph.D., and Markus Rudin, Ph.D.

This one-day course is designed to introduce attendees to aspects of carcinogenesis and cancer physiology that are addressable by imaging. Our scientist-teachers will cover tumor biology, imaging strategies to probe tumor ‘hallmarks’ eg: proliferation, metabolism, apoptosis, angiogenesis, etc; and use of imaging tools to demonstrate therapy efficacy. The overall goal of the course is to familiarize attendees with state-of-the-art tumor imaging using MRI techniques.

**Cellular & Molecular Imaging**  
Organizer: Patrick Winter, Ph.D.

The first part of this one-day course will focus on technological aspects of cellular and molecular imaging, covering the underlying physical principals and design criteria for three primary classes of MRI contrast agents (paramagnetic, super-paramagnetic and activatable agents). The second part will focus on biological labeling techniques, including in vivo targeting of MRI contrast agents to biomarkers, labeling strategies for tracking cellular migration and homing, and cell tracking using methods that produce positive image contrast. The third part will outline diverse applications of cellular and molecular imaging techniques, demonstrating specific contrast agent designs to meet the unique needs of each: ultra-high field imaging, nanotechnology and detection of angiogenesis. The final portion covers the use of molecular and cellular MRI for detecting and monitoring the response to therapy. In particular, three broad applications will be presented, including two of the most prevalent and debilitating diseases (cancer and cardiovascular disease) and the newly emerging field of gene therapy. Apart from the technological aspects, most of the lectures in the course will highlight recent applications of cellular and molecular imaging in biomedical research.
### Cardiovascular MRI: Current Applications, Clinical Needs & Technical Developments
**Organizers:** Subha V. Raman, M.D., Orlando P. Simonetti, Ph.D., and Han Wen, Ph.D.

**SKILL LEVEL:** Intermediate

This one-day course will provide an overview of the role of CMR within the spectrum of imaging techniques available for diagnosis and evaluation of cardiovascular disease. State-of-the-art cardiac and vascular imaging techniques will be described in detail by MRI physicists, and physician experts will identify and demonstrate current clinical applications. Specific topics will include MR angiography, cardiac function, flow, perfusion imaging, tissue characterization and an overview of coming technologies. This course will provide basic background and an overview of the technology and applications that will be covered in the weekday categorical courses on cardiovascular MRI. Time will be allotted for personal discussion with the teachers.

### Quantitative Imaging & Data Analysis
**Organizers:** Vince D. Calhoun, Ph.D., and Alan Connelly, Ph.D.

**SKILL LEVEL:** Intermediate

This half-day course will provide a detailed overview of the methodological issues that are important when undertaking quantitative analyses. It will cover intermediate level topics in quantitative MRI, and presenters will be physicists and image processing scientists with extensive technical experience. The theory underlying many current approaches to quantification will be discussed, and potential problems and artifacts will be highlighted and explained.

### Advances in Quantitative MRI of Perfusion
**Organizers:** Afonso C. Silva, Ph.D., and Matthias J.P. van Osch, Ph.D.

**SKILL LEVEL:** Advanced

Cerebral blood flow is of critical importance for the survival of brain tissue because it supports the brain's energy, metabolism and function. Blood flow measurements are an important way to assess brain tissue viability under normal and pathologic states. This advanced half-day course will cover novel techniques and applications for measuring and interpreting cerebral perfusion maps under normal physiology and disease. The two sessions will cover measurements of perfusion by bolus tracking and arterial spin labeling.

### Crossing Fibers in Diffusion MRI
**Organizers:** Fernando Calamante, Ph.D., and Derek K Jones, Ph.D.

**SKILL LEVEL:** Advanced

Despite its widespread popularity and relative ease of interpretation and implementation, diffusion tensor imaging has some limitations – particularly in image voxels containing more than one dominant fiber orientation. The overall goal of this half-day course is to enable someone with basic familiarity with diffusion imaging to become familiar with the limitations of DTI and approaches to improve to resolve crossing fibers and thus characterize tissue microstructure more completely. The speakers are mostly basic scientists who are developing new methods to identify and resolve crossing fibers, and will cover basic neuroanatomy, theory of diffusion, data acquisition, choice of analysis method, validation and the application of such approaches, before considering limitations and areas for future research. There will be formal presentations, as well as opportunities for attendees to speak with the presenters and seek clarification on any point they wish.

### Diffusion Tensor MRI for the Clinician & the Neuroscientist: From Experimental Design to Data Analysis
**Organizer:** Carlo Pierpaoli, M.D., Ph.D.

**SKILL LEVEL:** Intermediate

This half-day course is designed for scientists and clinicians starting to work in the field of diffusion tensor MRI who would like to have a roadmap for setting up their studies and interpreting their results. The first half of the course will cover the fundamentals of diffusion imaging acquisition, experimental design, data analysis and clinical applications, with a lot of practical tips from experts in the field. The second part of the course will be dedicated to providing a comparative review of existing software packages for DT-MRI processing and analysis, and will include short presentations by their authors. A panel discussion will close the course. Participants should expect to improve their ability to design and carry out DT-MRI clinical studies and better describe potential artifacts and confounds.
This one-day course focuses on cancer and MRS. It is designed for physicians (radiologists and oncologists) and for research scientists who wish to be updated on current state-of-the-art MRS techniques and clinical applications. The first part of the course will describe how MRS is used to evaluate cancers that occur in various body systems, and will also cover current efforts using MRS for cancer therapy planning and outcome assessment. The focus will be on clinical studies in human patients. This part of the course will introduce the basic technological underpinnings of MRS and discuss the biochemistry and metabolic features associated with signals that are detected with MRS. The second part will describe how MRS is used for the study of cancer-related animal models and tumor samples, and is intended to prepare participants for new cancer-related MRS applications that may emerge in the next few years.

MR Engineering: Part II
Brian K. Rutt, Ph.D., Mark A. Griswold, Ph.D., Greig C. Scott, Ph.D.

This two-day course will explore the engineering issues of hardware components and system design of modern MRI scanners. Lectures are provided in the general topics of magnets, gradients and shims, RF coils and electronics, and system design, and we will cover basic hardware components of an MRI scanner and how they interact; basic methods for magnet, gradient and shim design; basic types of RF coils, and their design principles; RF electronics that interface with coils; and trade-offs in designing customized NMR/MRI instrumentation.

On Sunday specific topics include: RF front ends, Introduction to preamplifiers, Introduction to RF power amplifiers, RF volume coils, RF transmit-coil arrays, Multi-tuned coils, RF characterization on the bench, System Design Tradeoffs, and Roll-your-own scanners.

Probing Cancer with MR II: From Animal Models to Clinical Assessment
Organizers: Martin O. Leach, Ph.D., and Anwar R. Padhani, MRCP, FRCR

This one-day course focuses on clinical imaging biomarker development with a view to meet current challenges in clinical diagnosis and management and drug development. Didactic lectures will cover the key biological hallmarks of cancers which are assessable by MRI/MRS techniques that are ready for clinical translation (hypoxia, proliferation, altered metabolism and angiogenesis). For each biomarker, the biological basis, quantification methods, validation and clinical use will be described by pairs of experts (scientist with physician) involved in biomarker development. Emphasis will be placed on biomarker qualification processes including the integration of multi-parametric information using statistical methods and bioinformatics. The approaches demonstrated will be relevant to other biomarkers and for diagnosis, the assessment of tumor aggressiveness, therapy response and resistance and will be relevant to the development of novel anti-cancer therapeutics.

Cancer MR Spectroscopy: Clinical and Research Applications
Organizers: N.R. Jagannathan, Ph.D., and Daniel B. Vigneron, Ph.D.

Imaging of the Lower Extremity: From Basics to Advanced Techniques
Organizers: Christine Chung, M.D., Juerg Hodler, M.D., M.B.A., and Hollis G. Potter, M.D.
### Weekend Educational Courses

<table>
<thead>
<tr>
<th>Date</th>
<th>Skill Level</th>
<th>Course Name</th>
<th>Organizers</th>
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<tr>
<td><strong>Sunday</strong></td>
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<td><strong>Advanced Neuroimaging</strong></td>
<td>P. Ellen Grant, M.D., and Pia C. Maly Sundgren M.D., Ph.D.</td>
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<tr>
<td>19 April</td>
<td>Intermediate</td>
<td>This one-day course will provide a comprehensive overview of advanced brain MRI techniques including perfusion (both DSC and ASL), diffusion (including tractography), combined advanced techniques in specific disease processes, MEG, high field MRI, high field MR spectroscopy and PET-MR. The overall goals of this course are to evaluate the potential role, advantages and disadvantages of bolus perfusion and arterial spin labeling; describe the potential role of DTI and tractography in clinical practice, explain the role of advanced MR techniques individually and in combination in clinical practice; and describe upcoming imaging technology that may impact clinical practice.</td>
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<tr>
<td><strong>Sunday</strong></td>
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<td><strong>fMRI Advanced Issues &amp; Processing Software</strong></td>
<td>Peter A. Bandettini, Ph.D., and Ziad Saad, Ph.D.</td>
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<tr>
<td>19 April</td>
<td>Advanced</td>
<td>This one-day course will provide an in-depth and advanced overview of the latest functional MRI processing methods and available software, an in-depth look at the most current concepts in fMRI, as well as the latest assessment of what are the limits in temporal resolution, spatial resolution, and interpretability. The intended audience is advanced fMRI users and developers - including physicists, statisticians, mathematicians, and clinicians - who are very comfortable working in highly technical domains that involve processing or pulse programming, but who desire an overview of what's available to help them advance in the field of fMRI methodology.</td>
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<tr>
<td><strong>Sunday</strong></td>
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<td><strong>Imaging Strategies</strong></td>
<td>Walter Block, Ph.D., Jean H. Brittain, Ph.D., and Brian A. Hargreaves, Ph.D.</td>
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<tr>
<td>19 April</td>
<td>Intermediate</td>
<td>This one-day course will cover methods important for people who want to design or understand imaging pulse sequences and reconstruction methods. It is meant to be a companion course to “MR Physics for Physicists”, which will be held the previous day. This course is composed of four sessions: General Pulse Sequence Strategies, Pulse Sequence Tools, and Tools for Rapid Imaging I &amp; II. It will encompass data collection strategies and their uses, design of pulse sequences to achieve the desired contrast, addressing patient and physiologic motion, methods for rapid spectroscopic imaging, methods of acceleration, and the basic principles of parallel transmit methods.</td>
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<tr>
<td><strong>Sunday</strong></td>
<td>Basic</td>
<td><strong>Clinical MRI: From Physical Principles to Practical Protocols</strong></td>
<td>Andrew J. Kiruluta, Ph.D., and Joshua S. Shimony, M.D., Ph.D.</td>
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<td>19 April</td>
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<td>This one-day program will begin with a basic overview of MR physics. Then, over the course of the day, M.D.s will use physiological principles and case examples to illustrate the impact of protocol choices in real world settings. Physics speakers will build on these examples by explaining the underlying principles of MR physics that explain the protocol choices. The presentation will be an integrated series of lectures, to illustrate protocol choices and trouble shooting tips.</td>
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Scientific Sessions

The formal Scientific Sessions will include:

- Oral Sessions
- Traditional Poster Presentations
- Multi-Media Electronic Poster Presentations

The content of these sessions will reflect the entire spectrum of submitted papers. This is where participants will present their most recent results. The Society aims to maintain the scientific quality and fair selection of the contributed presentations, based on an anonymous review process involving at least four peers. The composition and themes of the scientific sessions will reflect the number of submissions in a specific category and the most appropriate encompassing topic.

Oral Sessions

In oral sessions, each author will make a nine-minute presentation, followed by three minutes for discussion.

Traditional Poster Sessions

A poster session is an informal presentation of the poster with the opportunity for scientific interchange between the authors and other meeting participants.

Multimedia Electronic Poster Presentations

Electronic posters will be uploaded to the ISMRM prior to the meeting and will be available for viewing throughout the week on computer kiosks in the poster hall.

Plenary Sessions

Preceding the scientific sessions each day, the plenary sessions will cover a broad range of interesting and topical themes.

<table>
<thead>
<tr>
<th>Day</th>
<th>Topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monday</td>
<td>Stroke: A Forward Looking Retrospective on the Role of MR</td>
</tr>
<tr>
<td>Tuesday</td>
<td>Molecular MRI: MR Probe Development from Bench to Patient Table</td>
</tr>
<tr>
<td>Wednesday</td>
<td>What Have We Learned From NSF?</td>
</tr>
<tr>
<td>Thursday</td>
<td>MR Scanners in 2025</td>
</tr>
<tr>
<td>Friday</td>
<td>Prostate Cancer: What Every Man of 60 Needs to Know—Biology to Therapy</td>
</tr>
</tbody>
</table>

Mansfield and Lauterbur Lectures

2009 Mansfield Lecture: Monday, 20 April
Professor Robert G. Shulman, Ph.D.
Yale University, New Haven, Connecticut, USA

“Brain Energy & Brain Work”

Professor Robert G Shulman is the Sterling Professor (Emeritus) of Molecular Biophysics and Biochemistry at Yale University where he is presently Senior Research Scientist in Diagnostic Radiology. His main contribution to in vivo magnetic resonance has been the development of Magnetic Resonance Spectroscopy (MRS). With many collaborators he has shown how high resolution NMR in vivo (MRS) can measure the flow of \( ^{13} \text{C} \) enriched substrates such as glucose through pathways in humans particularly when guided by rodent studies. They have shown the flow of glucose to glycogen in the human skeletal muscle to be the major storage pathway for glucose and its down regulation to be the origin of NIDDM. In the brain the flow from glucose to glutamate measured the rate of energy production while the flow from glutamate to glutamine and GABA measured these ubiquitous neurotransmitter fluxes. The high baseline energy usage for the work of neurotransmission shown by these experiments contradicts psychologically based computer-like views of brain function and is allowing mental processes to be explored with the surety of physical science. He has received the Gold Medal of the International Society for Magnetic Resonance in Medicine and is a member of the National Academy of Sciences and of the Institute of Medicine.

2009 Lauterbur Lecture: Thursday, 23 April
Professor Albert Macovski, Ph.D.
Stanford University, Stanford, California, USA

“MRI: A Charmed Past and An Exciting Future”

Professor Al Macovski is the Canon Emeritus Professor of Electrical Engineering & Radiology at Stanford University. His career has concentrated on various aspects of imaging. In the 1950’s he worked on color television at RCA Laboratories. He received numerous awards for this work including the International Zworykin Award. In the 1960’s he began his work on medical imaging making fundamental contributions to ultrasound including real-time imaging using arrays. In x-ray imaging and computerized tomography he introduced dual-energy imaging for separating bone and soft tissue and non-linear distortion correction. In MRI he pioneered blood vessel imaging and made contributions to high-speed imaging. He is a member of two branches of the National Academy of Science, The National Academy of Engineering and the Institute of Medicine. He is a Fellow of ISMRM, the Institute of Electrical and Electronic Engineering, The Optical Society of America, and The American Institute of Biomedical Engineering. In 1998 he received the Gold Medal from the International Society of Magnetic Resonance in Medicine, Dr. Macovski has over 160 issued U.S. Patents, most of which have foreign counterparts. In 1988 he was honored as Inventor of the Year by the Patent Attorney Association of Northern California.
### Image Reconstruction
**Organizers:** Peter Börnert, Ph.D., Klaas Pruessmann, Ph.D., and Jeffrey Tsao, Ph.D.

**SKILL LEVEL:** Intermediate

This four-hour course is designed for attendees with an interest in the workings and capabilities of contemporary MR image reconstruction and is dedicated to recent advances and directions in this field. Its eight lectures are grouped around the general themes of extended encoding models, sparse sampling and prior knowledge. Specifically, they will address the principles and practice of fast non-Cartesian reconstruction, 

B₀ inhomogeneity correction, parallel imaging, sparse sampling, water-fat imaging and motion correction.

### Safety Update
**Organizer:** Penny A. Gowland, Ph.D.

**SKILL LEVEL:** Basic-Intermediate

This four-hour course will cover the science of MR safety and its application to safety management. Topics to be covered include SAR, interactions of tissues with low frequency magnetic fields, safe gradient coil design, implants and ASTM labeling standards, the new ISO/IEC standard for active implants, accidents, and the risks of acoustic noise.

### Quantitative Neuro-Anatomic & Functional Image Assessment
**Organizers:** Peter A. Bandettini, Ph.D., and Carlo Pierpaoli, M.D., Ph.D.

**SKILL LEVEL:** Advanced

This four-hour course will be presented by Ph.D. scientists covering the fundamental issues involved with extracting quantitative information from neuro-anatomic and functional MRI data. Topics to be covered include quantitative assessment of white matter, group anatomical comparisons, calibration of activation-related and resting state fMRI, and the use of resting-state fMRI data for calibration of activation-related signal. The overall goals of this course are to instruct the MR physicist, neuroscience researcher and clinician on the state of the art in methods for extracting and comparing quantitative anatomic and functional information from DTI data, standard anatomical data and functional time series data.

### Mobile Lipids in Disease
**Organizers:** Carles Arús, Ph.D., and Edward J. Delikatny, Ph.D.

**SKILL LEVEL:** Advanced

This four-hour course will consist of two to three lectures each morning followed by a discussion. Most speakers will be from the NMR field with expertise in detection and interpretation of the NMR visible mobile lipid (ML) region of the ¹H NMR spectrum in humans and in cell and animal models of human disease. Additional speakers will address the field of lipid metabolism and lipid droplet dynamics. Topics will range from the biochemical and subcellular origin of ML, the dynamics of ML inside cells, their NMR measurable biophysical parameters, in model systems, cells, biopsies and in vivo, and finally the correlation between their MRS observable changes in vivo and disease detection and diagnosis (cancer, diabetes, liver disease).

### Magnetic Resonance in Tissue Engineering
**Organizer:** Richard G.S. Spencer, M.D., Ph.D.

**SKILL LEVEL:** Intermediate

This four-hour course will offer speakers who are basic scientists engaged in tissue engineering studies, primarily using MR imaging and spectroscopy approaches, with a goal to identify potential research opportunities in tissue engineering in which MR may play an important role and to encourage such further efforts. Topics to be covered are an overview of the field of tissue engineering, opportunities in tissue engineering related to the capabilities of MR, and current specific applications of MR imaging and spectroscopy to the design and evaluation of engineered tissue constructs. This includes studies of tissue matrix, angiogenesis, and metabolism. Specific organs to be discussed include cartilage, bone, liver, pancreas, bladder, and others.
| Tuesday – Friday, 21-24 April | **Clinical Science for Physicists & Engineers**  
Organizers: Vivian S. Lee, M.D., Ph.D., Tim Leiner, M.D., Ph.D., and Bachir Taouli, M.D. | **SKILL LEVEL:** Basic |
---|---|
This four-hour course will focus on basic anatomy, physiology, pathophysiology, epidemiology and clinical information on various organ systems and diseases that are deemed relevant for physicists and engineers. These will include the central nervous system, kidneys, liver, cardiovascular and musculoskeletal systems and selected diseases in each system. All lecturers are clinicians with strong clinical knowledge of the topic. Talks will also focus on unmet technical and engineering needs that need to be overcome in the future in order to facilitate better understanding of physiology and diseases.|

| Tuesday – Friday, 21-24 April | **Cardiovascular Imaging: Disease or Problem Based Teaching, Practical Protocols**  
Organizers: Victor A. Ferrari, M.D., and Stefan G. Ruehm, M.D. | **SKILL LEVEL:** Basic |
---|---|
This four-hour course will review current cutting-edge topics in cardiovascular MRI that are frequently used to assess patients with cardiovascular diseases. The major emphases of the course will include coronary MRA, right heart failure, ischemic heart disease and 7T cardiovascular MRI. Course instructors are MD’s, PhD’s (or both), and are recognized experts in their respective fields. Content will include selection of pulse sequences for optimal disease detection, practical and time-optimized imaging protocols and a thorough review of the potential pitfalls of imaging these patients and disorders. Comparisons and contrasts to other imaging modalities will be presented where appropriate, to provide attendees with an understanding of the strengths and limitations of current MRI methods. The overall goals are to increase the attendee’s knowledge base in these areas, and to inform future clinical imaging decision-making.|

| Tuesday – Friday, 21-24 April | **MRI and MRS of the Mouse Brain: Techniques & Applications**  
Organizers: Jeffry R. Alger, Ph.D., and Afonso C. Silva, Ph.D. | **SKILL LEVEL:** Intermediate |
---|---|
This four-hour course will teach how to perform the following types of mouse brain MRI studies: anatomical (T1- and T2-weighted) imaging, diffusion tensor imaging, functional imaging and magnetic resonance spectroscopy. Each technical introduction will be followed by a survey of significant biomedical findings that have been obtained with the particular type of MRI.|

| Tuesday – Friday, 21-24 April | **Unsolved Problems In Musculoskeletal MR: What Do We Know and What Don’t We Know?**  
Organizers: Christine Chung, M.D., Juerg Hodler, M.D., M.B.A., Timothy J. Mosher, M.D., and Hollis G. Potter, M.D. | **SKILL LEVEL:** Advanced |
---|---|
This four-hour course will discuss four clinically important MSK abnormalities: low back pain, rotator cuff abnormalities, wrist instability and internal derangements of the knee, with two speakers per topic. The first speaker will discuss MR abnormalities without or with limited clinical relevance, such as disk protrusion, increased signal within the supraspinatus tendon, minor perforations of the central part of the interosseous ligaments and increased signal limited to the substance of the menisci. The second speaker will discuss unsolved problems and unmet needs, which may include diagnosis of lumbar spine instability, limited diagnostic performance in diagnosing extrinsic ligaments of the wrist, determination of pennation angles of rotator cuff muscles and differentiation of the different structures of the posterolateral triangle of the knee.|

| Tuesday – Friday, 21-24 April | **Hot Topics in Body MRI**  
Organizer: Talissa Altes, M.D. | **SKILL LEVEL:** Intermediate |
---|---|
This four-hour course will focus on newer techniques and applications in body MRI. The Tuesday session will provide an overview of pulmonary MRI including new techniques for proton based pulmonary MRI and a review of hyperpolarized gas MRI. The Wednesday session on pelvic MRI will provide an expert’s opinion on how to best image rectal cancer and how to perform and interpret non-neuro fetal MRI. On Thursday, methods for performing MRI guided vascular and non-vascular interventions will be discussed. In the final session on Friday, the issues related to whole body MRI for cancer assessment and lymph node detection will be presented.
This course will demonstrate relevant soft tissue abnormalities using a case-based approach. Typical examples will be used for demonstration of adequate imaging protocols, followed by cases useful for the discussion of indications for MR imaging. The course will concentrate on neoplasms and their mimickers as well as trauma. Participants will learn to plan optimal imaging protocols for the all relevant soft tissue abnormalities, describe the indications for MRI of specific soft tissue abnormalities and identify four soft tissue abnormalities which radiologists should not miss.

This two-hour session will cover the topic of abdominal pain in various patient populations ranging from trauma patients to the chronically ill. Most of these patients are currently worked up with CT with the substantial burden of radiation exposure. The status quo as well as new cutting-edge technologies for the body MR clinician will be presented to explore both the current and future role of MR in the workup of this patient population.

This course will cover cases that outline principles of MR imaging of the lower extremity joints.

In this two-hour interactive course, the first speaker will provide a broad overview on how to use fMRI and DTI for clinical assessments of single cases. The second speaker will focus on the limitations of using this approach to make clinical decisions. Emphasis will be on how to perform studies in the clinical environment, pointing out aspects such as technical procedures, experimental protocols and patient cooperation. Quality assurance procedure will be described.

This two-hour course is designed for radiology residents and faculty and other interested clinicians. The course will cover the etiology, differential diagnosis, diagnostic work-up, treatment options, and criteria for interpretation of non-atherosclerotic vascular disease. Participants will learn to list the main differential diagnoses of non-atherosclerotic vascular disease, recognize unique disease patterns for inflammatory and non-inflammatory vessel diseases, interpret MRA and MRI exams of these diseases in a standardized manner, demonstrate the relevant findings to the referring clinicians and design optimized MR imaging protocols for comprehensive morphologic and functional assessment.

In our “Guess That Artifact!” game show, contestants will compete in the evaluation of MR artifacts from the mundane to the esoteric. Emphasis will be placed on the physical origin and methods for mitigating the artifact. Winners will receive valuable prizes! Each round will be followed by a brief (five-minute) explanation by one of the hosts. There will be no lovely assistant.
This course will review practical technical considerations related to musculoskeletal MRI, with an update on state-of-the-art clinical sequences. It will highlight the findings of shoulder instability on MRI and cover the implementation of 3D imaging of joints.

Monday, 20 April  

**Breast MRI**  
Organizer: Clare Tempany, M.D.

This breast session is a two-hour program, with 4 internationally renowned expert speakers. The topics to be covered are MR and pathological characterization of breast cancer, breast MRI update on new techniques - 3T vs. 1.5T, assessment of treatment response and MR-guided breast FUS. The goal is to provide an update on breast MR techniques, how to optimize protocols, assess the advantages of 1.5 and 3.0T approaches and assess the role of imaging in treatment response and MR-guided focused ultrasound surgery for breast cancer.

Monday, 20 April

**Rise & Fall of the Brain, Part I: The Developing Brain**  
Organizers: P. Ellen Grant, M.D., and John Port, M.D., Ph.D.

In this two-hour course, the first of each pair of speakers will provide a broad overview of normal brain development and current MRI techniques (how I do it), while the second speaker will focus on the MR appearance of various developmental brain abnormalities that can occur. The first pair of speakers will explore fetal brain development (18-40 weeks GA), discussing abnormalities as well as the technical limitations and detectability issues involved with fetal MRI. The second pair of speakers will explore normal brain development in postnatal infants and abnormalities in brain myelination.

Monday, 20 April  

**Tools and Tips for Mouse Imaging & Spectroscopy**  
Organizer: Carles Arús, Ph.D., and Klaas Nicolay, Ph.D.

This two-hour course deals with the practicalities of MR imaging and spectroscopy of mice. A significant fraction of the biomedical MR research that is done worldwide involves studies on small animal models (predominantly mice). Working with such small animals often requires very specific solutions in terms of MR hardware (RF and gradient coils), shimming procedures, physiological monitoring approaches, etc. Topics to be covered are anesthesia and physiological monitoring procedures, wild-type and genetically modified animal models, high-resolution whole-body imaging, ultra-small voxel spectroscopy, the use of whole-body MRI scanners for studies on mice and the design of dedicated mouse RF coils.

Monday, 20 April

**SMRT–ISMRA Forum: How to Perform a Multi–Site Neuro–Imaging Study**  
Organizers: Gary H. Glover, Ph.D., Bryon A. Mueller, Ph.D., Caron Murray, M.R.T.(R), (MR), and Douglas C. Noll, Ph.D.

This joint SMRT-ISMRM program is aimed at technologists/radiographers, as well as clinicians and scientists. It will cover the design and implementation of multi-center MR neuro-imaging studies. The importance of scanner QA, parameter selection and vendor compatibility will be discussed, as will the lessons learned from multi-center structural, diffusion tensor, functional and perfusion studies.

Tuesday, 21 April  

**Extracranial Diffusion-Weighted Imaging**  
Organizer: Bernard E. Van Beers, M.D., Ph.D.

This two-hour course will be given by M.D.’s, and will cover new, cutting-edge clinical applications of DW-MRI in the body, including the assessment of diffuse liver and kidney diseases, the evaluation of tumorous abdominal lesions, and the monitoring of the response to targeted treatment, current techniques and optimization of DW-MRI in the body, including whole-body DW-MRI, the value and limitations of qualitative and quantitative DW-MRI of the body in comparison with other imaging methods and the needs for future development of DW-MRI.
### Atherosclerosis Imaging

**Organizers:** Debiao Li, Ph.D., and Orlando P. Simonetti, Ph.D.  
**Skill Level:** Intermediate

This two-hour course will consist of talks by physicians and basic scientists, followed by a panel discussion. The principal topics to be covered will be plaque biology, current applications/clinical trials of MR atherosclerosis imaging, non-contrast MR techniques for atherosclerosis imaging and targeted contrast techniques for atherosclerosis imaging. The goal is to provide a comprehensive overview of plaque biology and state-of-the-art MRI techniques for atherosclerosis imaging of the entire body. Attendees will come away with a systematic understanding of the relationships between atherosclerosis and cardiovascular disease and between imaging characteristics and plaque components. Attendees will also learn the appropriate MRI protocols for atherosclerosis imaging, including conventional methods and targeted contrast-enhanced techniques under testing in animal models.

### Advances in MR Angiography

**Organizers:** Garry E. Gold, M.D., Elmar M. Merkle, M.D.  
**Skill Level:** Intermediate

This two-hour course will review practical technical considerations related to MRA, with an update on state-of-the-art body work. It will highlight a comparison of contrast-enhanced and unenhanced body MRA.

### Fat Imaging and Quantification

**Organizer:** Mark Schweitzer, M.D.  
**Skill Level:** Intermediate

This two-hour course designed for physicists, basic scientists and clinicians will review the imaging of fat in its various manifestations. The topics to be covered are different types of fat suppression, post-processing segmentation of fat and physiologic and pathophysiologic aspects of fat in the abdomen and musculoskeletal system.

### Image Analysis

**Organizers:** Douglas C. Noll, Ph.D., Henry Rusinek, Ph.D., and Simon K. Warfield, Ph.D.  
**Skill Level:** Basic-Intermediate

This two-hour course designed for M.D.s and Ph.D.s will present introductory material on tools and practical aspects of image processing of MR data. In particular, it will cover image processing algorithms and tools for image segmentation, structure analysis, registration, image formats and dynamic contrast enhanced (DCE) imaging.

### Imaging of the Fetus & Newborn

**Organizers:** Petra S. Hüppi, Ph.D., and Pek Lan Khong, M.D.  
**Skill Level:** Intermediate

This two-hour course for physicians, radiologists and scientists aims to highlight the techniques, challenges and clinical applications of MR imaging in the fetus and newborn. The course will be presented in lectures by clinicians and scientists, each followed by discussion. The audience will be able to appreciate the novel developments in techniques, especially with respect to motion, and the contribution of MRI in various pathologies in the fetus and newborn, including the interpretation of timing of injury in perinatal asphyxia by MRI and MRS, the diagnosis of biliary and ductal anomalies by MRCP, the clinical implications and management of ventriculomegaly in the fetus and newborn and the implementation and applications of DWI in the fetal brain.

### Sports Imaging: Elbow

**Organizers:** Juerg Hodler, M.D., and Timothy J. Mosher, M.D.  
**Skill Level:** Intermediate

The speakers in this two-hour course will be clinical experts in elbow MRI, and the principal topics they will cover are technical aspects and normal anatomy in elbow MRI, MRI findings of elbow injury, and patterns of elbow instability. The overall goals of the course are to improve MRI diagnosis of elbow internal derangement, and to enable attendees to recognize the important technical challenges in high quality elbow MRI.
Monday – Thursday • 20 – 23 April 2009

**The Use of Intravenous Contrast in MRI**

Organizers: Marco Essig, M.D., Ph.D., and Pia C. Maly Sundgren, M.D., Ph.D.

SKILL LEVEL: Intermediate

The first hour of this two-hour course will cover MR contrast media, and will include suggestions on which dosages to use depending on the clinical question and where the new contrast agents can be useful; the use of contrast media dosages at high field, especially current contrast media; which dosages to give and differences in the use of contrast media when working with high field; and an overview of present NSF knowledge, clinical applications and appropriate guidelines for use of contrast media. The second hour will include use of contrast media in pregnant women and infants; alternative sequences when contrast media cannot be used; whether there is a real need for contrast media in most clinical questions in infants, with special attention to neuroimaging; and what are the alternatives when contrast cannot be used for different reasons.

**Imaging Biomarkers, Part 1 and Part 2**

Organizers: H. Cecil Charles, Ph.D., and Jeffrey L. Evelhoch, Ph.D.

SKILL LEVEL: Basic

This course will introduce biomarker principles, how imaging is used as a biomarker in general and how imaging biomarkers are used in several specific diseases. It is comprised of two two-hour sessions with four presentations (followed by short question and answer periods) by scientists and physicians actively involved in the use of MR biomarkers in each session. The first session will provide a broad introduction to biomarkers (both imaging and non-imaging), how they are used, how they are qualified to be fit for their intended use and what is needed to implement MR biomarkers in a multi-center clinical trial. The second session will present examples of how imaging biomarkers (including, but not limited to MR) are used in multiple sclerosis, oncology, cardiovascular diseases and neurodegenerative diseases.

**Rise & Fall of the Brain, Part 2: Aging Brain**

Organizers: Pia C. Maly Sundgren, M.D., Ph.D., and Mark A. van Buchem, M.D., Ph.D.

SKILL LEVEL: Intermediate

This two-hour course will begin with a focus on the variations of normal aging that can occur. We will explore the normal aging process, the underlying physiology of normal aging and what can be seen in imaging of the elderly brain. We will provide a look at the underlying pathophysiology to pathological aging, and especially focus on abnormal aging, including Alzheimer’s disease and other forms of dementia. Also covered will be imaging techniques to use in a demented and sometimes uncooperative patient, and findings at imaging that can help to separate different forms of dementia based on the imaging pattern. The course will continue with different pathologies such as small vessel disease and psychiatric diseases in the elderly patient. Speakers will discuss underlying pathophysiology to small vessel disease and imaging findings, different psychiatric diseases that can occur in the elderly population, imaging techniques/ modalities and imaging findings.

**Grant Writing: Prospects, Pearls & Pitfalls**

Organizers: Richard L. Ehman, M.D., and Mark A. van Buchem, M.D., Ph.D.

SKILL LEVEL: Intermediate

This course will start with short updates on some of the most promising grant funding opportunities for MRI researchers. Speakers will describe strategies for writing successful grant applications, avoiding the most common pitfalls, moving forward after an unsuccessful application, and appreciating the perspective of referees. The session will conclude with a moderated panel discussion to elicit helpful “pearls” from the experienced speakers, and to respond to audience questions.

**MR Physics & Techniques for Clinicians**

Organizers: Marcus Alley, Ph.D., and Frank R. Korosec, Ph.D.

SKILL LEVEL: Basic

This eight-hour course will be a basic but comprehensive review of MRI physics and techniques. The presentations will be non-mathematical and will be suitable for clinicians and physicists new to the field. The course will cover the basic principles of MR physics (signal generation, encoding, and relaxation), pulse sequence timing diagrams, spin-echo imaging, gradient-echo imaging, and fast spin-echo imaging, and a variety of more advanced techniques including ultra-fast imaging, parallel imaging, high-field imaging, perfusion imaging, diffusion imaging, and functional MR imaging.

Visit our website for more information: http://www.ismrm.org/09
The ISMRM is excited to present this inaugural CME course intended for radiologists and other medical professionals who are interested in increasing their clinical knowledge for interpretation of MR imaging of the musculoskeletal system, body, and breast. This course will run concurrently with the annual ISMRM meeting sessions and will incorporate some of the didactic and poster material from that meeting along with exclusive additional lectures for registrants.

Educational Objectives:
Upon completion of the course, registrants should be able to:
1. Use optimized protocols for imaging the musculoskeletal system, body, and breast;
2. Describe anatomy, normal variants and pitfalls in MRI of the body and musculoskeletal system;
3. Diagnose pathology on MRIs of the musculoskeletal system, body and breast;
4. Utilize recent updates in the field of MRI; and
5. Describe current MRI approaches for a large variety of abnormalities and pathological conditions in the musculoskeletal system, body and breast.

<table>
<thead>
<tr>
<th>Saturday, 18th April</th>
<th>Sunday, 19 April</th>
<th>Monday, 20 April</th>
<th>Tuesday, 21 April</th>
<th>Wednesday, 22 April</th>
</tr>
</thead>
<tbody>
<tr>
<td>Body MRI by the Experts</td>
<td>Imaging of the Lower Extremity: From Basics to Advanced Techniques</td>
<td>• Advances in Musculoskeletal MRI</td>
<td>Hot Topics in Body MRI OR</td>
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<td>• Case-Based Teaching I: Soft Tissue Imaging</td>
<td>• Advances in MR Angiography</td>
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<td>• Case-Based Teaching II: Abdominal Pain</td>
<td>• Case-Based Teaching III: Lower Extremity</td>
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<td>Optional:</td>
<td>• Case-Based Teaching IV: MRI &amp; DTI in Clinical Practice</td>
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Deadline: 23 January 2009

Let your MR system talk, sing, scream, dance, play games or whatever; compose a live performance to accompany your MR audiovisual impressions! Don’t miss this chance to get creative with your MR scanner! All directions of music and performances involving MR are welcome. No limits!

For those of you who are still thinking about how to use your MR scanner for doing anything but acquiring routine patient images/spectra, the 17th Scientific Meeting & Exhibition in Honolulu will revive the success of Glasgow, Hawaii, and Seattle and feature the 4th audiovisual/live performance session “Sounds & Visions of MR 2009: The Return of Aloha.” Every sound or visual effect generated by an MR scanner and its related hardware is welcome. Beyond pure sounds and visions of MR, consider putting together a live performance to enhance your impact factor. Sample sequences, generate a beat – be creative and put everything together in an audiovisual presentation. Consider creating an association with Hawaiian culture.

Deadline for the submission of sample audiovisual files on CD-ROM will be 23 January 2009.

For further information please contact:
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E-mail: mark.ladd@uni-duisburg-essen.de
Membership in the ISMRM is your best investment for professional growth

For more information or to join over 5,700 of your peers in the international MR community, visit: http://www.ismrm.org

- Stay current with clinical and scientific developments: Print and/or electronic access to one or both of the official Society journals (JMRI or MRM), as well as access to over 2,500 scientific oral presentations from annual meetings and scientific workshops;
- Network with today’s MR leaders: ISMRM events, conferences, as well as study group and chapter meetings, provide you with unsurpassed opportunities to meet leading MR professionals, and the online membership directory provides another key networking resource!
- Engage yourself: Volunteer for abstract review, committee, study group and/or chapter membership and leadership.
- Learn and enhance your career: Educational opportunities include ISMRM scientific workshops, courses, annual meetings, e-learning – all at reduced rates for members.
- Receive discounted rates on resources through the ISMRM Web site, including the Bookstore and the Career Center.

Choose from three ISMRM membership categories: Full, Student, or Associate

<table>
<thead>
<tr>
<th>Category</th>
<th>Qualifications</th>
<th>Submission Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Full Membership</td>
<td>An individual who is involved in magnetic resonance in medicine, biology, or other related topics, in research, education, manufacture, or practice.</td>
<td>The applicant must be sponsored by one Full Member of the Society, and submit one copy of his/her curriculum vitae with, where possible, a list of peer-reviewed publications in the field of MR. Do not include abstracts or book chapters.</td>
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<tr>
<td>Student Membership</td>
<td>An individual enrolled full-time in an academic program that actively engages in the application of magnetic resonance in medicine and biology.</td>
<td>The applicant must be sponsored by one Full Member of the Society, and submit one copy of his/her abbreviated curriculum vitae and a brief statement on letterhead signed by a department head/advisor which describes the training program, type of degree, field of study, and expected date of completion by the applicant. Eligibility for student membership must be confirmed annually.</td>
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<tr>
<td>Associate Membership</td>
<td>An individual residing in a financially restricted country, who has limited personal income. The individual seeking membership must be involved in magnetic resonance or its applications through publication, education, manufacture, or practice. The maximum annual income allowed for Associate Membership is the equivalent of US$10,000.</td>
<td>The applicant must be sponsored by one Full Member of the Society, submit one copy of his/her abbreviated curriculum vitae and a letter from the applicant, the employer, or a governmental authority verifying that the normal membership dues would constitute an excessive financial hardship. The currently defined list of countries whose nationals may qualify for Associate Membership is Bulgaria, China, India, Lithuania, Macedonia, Moldova, Romania, Slovak Republic, and Thailand. Other countries will be considered by the Board of Trustees on a case-by-case basis.</td>
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“Our diverse international fellowship of clinicians, engineers, physicists, biochemists and technologists share a passion for advancing magnetic resonance in medicine. By becoming a member of the ISMRM, you will enjoy incomparable opportunities for intellectual exchange and lifelong friendships. As President and long-time member of the Society, I invite you to join us.”

–Vivian S. Lee, M.D., Ph.D., M.B.A.
ISM RM President, 2008-2009

Calendar
ISM RM membership runs on a calendar year basis and is effective 1 January through 31 December. Membership applications may be submitted year-round.
Applications submitted between:
- 1 January and 30 September are effective for the current calendar year. Approved applicants will receive all publications mailed since 1 January, and will be invoiced in October for the following year’s dues.
- 1 October and 31 December are effective for the following calendar year. Benefits will begin on 1 January.

Dues payment method
(Please note: wire transfers are not accepted.) Checks are accepted. Checks must be payable "to" (not “through”) a U.S. bank in US Dollars and must be imprinted with the computer encoding and routing information authorized by the American Banking Association. Non-US checks made payable in US Dollars to a US bank, as above, are the only acceptable non-US checks.
The following credit cards are accepted: VISA, MasterCard, and American Express.
Please send application and all materials to ISMRM:
P.O. Box 45690 • San Francisco, CA • 94145-0690, USA • Phone: +1 510 841 1899 • Fax: +1 510 841 2340 • E-mail: info@ismrm.org • Web site: http://www.ismrm.org

Name: ____________________________

How did you become aware of ISMRM membership?  ☐ Colleague ☐ Journal Ad ☐ Annual Meeting/Workshop ☐ Mailing ☐ Other: ____________________________

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<th>Honorific</th>
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<th>Primary field of endeavor:</th>
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<th>Professional affiliations (check as many as apply)</th>
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<td>☐ Biochemistry</td>
<td>☐ Cardiology</td>
<td>☐ AAN ☐ AAPM ☐ ACR</td>
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<td>☐ Biophysics</td>
<td>☐ Internal Medicine</td>
<td>☐ ASNR ☐ IEEE ☐ ESMRMB</td>
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<td>☐ Molecular Imaging</td>
<td>☐ ISMRM ☐ NASCI ☐ RSNA</td>
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<td>☐ Drug Development</td>
<td>☐ Neurology</td>
<td>☐ SCMR ☐ SMI ☐ SNM</td>
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<td>☐ Radiologist</td>
<td>☐ Engineering</td>
<td>☐ Oncology</td>
<td>ISMRM makes its member list available to a few, carefully screened companies. If you DO NOT wish to be included, check here: ☐</td>
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Member ID:
CV Received: ☐ Yes ☐ No
Income Received: ☐ Yes ☐ No
SVL Received ______
Sponsor ID:

Institution Contact Information

Street Address: ____________________________
City & State/Province: ____________________________
Country & Postal Code: ____________________________
Telephone: ____________________________
Fax: ____________________________
Email: ____________________________

Home Contact Information

Street Address: ____________________________
City & State/Province: ____________________________
Country & Postal Code: ____________________________
Telephone: ____________________________
Fax: ____________________________
Email: ____________________________

CONTACT INFORMATION

STUDY GROUPS

☐ Cardiac MR ☐ MR in Drug Research
☐ Current Issues in Brain Function ☐ MR of Cancer
☐ Diffusion & Perfusion MR ☐ MR Safety
☐ Dynamic NMR Spectroscopy ☐ Molecular & Cellular Imaging
☐ High Field Systems & Applications ☐ Musculoskeletal Imaging
☐ Hyperpolarized Noble Gas MR ☐ Psychiatric MRS & MRI
☐ Interventional MR ☐ White Matter Diseases
☐ MR Engineering ☐ Susceptibility Weighted Imaging
☐ MR Flow & Motion Quantitation

STUDY GROUPS (For Office Use Only) Date Received: __ / __

Member ID:
CV Received: ☐ Yes ☐ No
Income Received: ☐ Yes ☐ No S VL Received ______

Professional affiliations

☐ AAN ☐ AAPM ☐ ACR
☐ ASNR ☐ IEEE ☐ ESMRMB
☐ ISMRM ☐ NASCI ☐ RSNA
☐ SCMR ☐ SMI ☐ SNM

Other: _______

(Required) (Required) 3- or 4-digit Security Code

Calculate your membership fees here. All fees must be in US Dollars

2009 Membership Dues:

Full Member with one journal* (☐ JMRI or ☐ MRM) US $270
Full Member with both journals* US $375
Student Member without journal US $30
Student Member with one journal* (☐ JMRI or ☐ MRM ) US $135
Student Member with both journals* US $240
Associate Member (Choose one electronic-only journal: ☐ JMRI or ☐ MRM) US $30

* I prefer to receive my journal(s): ☐ In print form & electronic form ☐ In electronic form only

2009 Membership Dues: US $ ______

Thank you for your application. Please review and note:

ALL APPLICANTS MUST SUBMIT:
☐ Membership Dues
☐ Completed application
☐ One (1) copy of current CV
☐ Application with sponsor signature

STUDENT APPLICANTS MUST ALSO SUBMIT:
☐ Letter of student verification

ASSOCIATE MEMBER APPLICANTS MUST ALSO SUBMIT:
☐ Income Verification form (Please request from ISMRM)

Study Group Dues: (No charge for Students or Associates)

Number of study groups _____ x US $20.00 = ________

2009 Membership Dues: ______

Total amount enclosed US $ ______

☐ I do not know a Full Member of the Society

Card holder’s Name: ____________________________
Credit Card #: ____________________________
Expiration Date: ____________________________
Cardholder Signature: ____________________________
Billing Street Address: ____________________________
Billing Zip/Postal Code: ____________________________
Applicant Signature: ____________________________ Date: ____________________________
Sponsor Signature: ____________________________
Sponsor Name (please print): ____________________________

Member ID:
CV Received: ☐ Yes ☐ No
Income Received: ☐ Yes ☐ No S VL Received ______
Sponsor ID: ____________________________
On 1 January 1994, the Society of Magnetic Resonance in Medicine and the Society of Magnetic Resonance Imaging merged to form the Society of Magnetic Resonance (now named the International Society for Magnetic Resonance in Medicine). The first annual meeting of the merged Society was held in Dallas, Texas, in March 1994. The most recent annual meeting was held in Toronto, Ontario Canada, 3-9 May 2008.

The International Society for Magnetic Resonance in Medicine is an international, nonprofit, scientific association whose purpose is to promote communication, research, development, and applications in the field of magnetic resonance in medicine and biology and other related topics and to develop and provide channels and facilities for continuing education in the field. Its multidisciplinary membership of over 5,000 consists of clinicians, physicists, engineers, biochemists, and technologists.

In addition to its large scientific meeting, the Society organizes workshops and publishes two journals, Magnetic Resonance in Medicine and the Journal of Magnetic Resonance Imaging, and a newsletter, MR Pulse. It also sponsors study groups on specific areas of scientific interest and chapters based on geographical location.

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MARK YOUR CALENDAR for the Joint Annual Meeting ISMRM-ESMRMB
SMRT 17th Annual Meeting
Honolulu, Hawai‘i, USA, Hawai‘i Convention Center

The Program and Education Committees would like to invite technologists from around the world to attend the 18th Annual Meeting of the Section for Magnetic Resonance Technologist. Our meeting will be held 18th -19th of April 2009 in conjunction with the 17th Scientific Meeting & Exhibition of the International Society for Magnetic Resonance in Medicine at the Hawai‘i Convention Center, Honolulu, Hawai‘i, USA.

The goal of the SMRT is to provide quality educational opportunities for the MR technologist/radiographer and to establish and maintain a high level of professionalism in the field. Two of the most regarded and effective components of the meeting continue to be the proffered papers and poster presentation. We widely encourage technologists from around the world to submit abstracts for oral or poster presentation. The poster exhibition and walking tour will be a key event on Friday evening prior to the weekend program. This is a great opportunity to meet other registrants and see the outstanding standard your colleagues are producing both in scientific and clinical environments. The meeting program allows for seven oral presentations. These presentations will be made by the authors of the top scoring abstracts. Abstracts with either a clinical or research focus will be accepted until 7 January 2009. Online abstract instructions and submissions will be available on the SMRT website: http://www.ismrm.org/smrt.

This program offers a diverse range of forums including MR technology updates, safety, 3T, abdominal, pediatric, neuro, and emerging technologies such as molecular, ultrashort TE (UTE), and lung imaging. The SMRT Business Meeting will be held before lunch on Saturday. The Business Meeting is an open session to learn what the SMRT is doing to further its mission and goals. This is an important part of the meeting where you as a member get to voice your questions and opinions to the SMRT Policy Board. Sunday afternoon awards will be presented to our members who have helped fulfill the SMRT’s commitment to excellence in MR education. Awards will also be presented to the authors of the most outstanding papers and posters in the clinical and research focus area.

Please be sure to attend the SMRT and ISMRM Joint Forum presentation which will be held at 14:00, Monday, 20 April 2009. Your registration for the SMRT Annual Meeting allows you to attend this forum. This year the forum topic is titled “How to Perform a Multi-site Neuro-Imaging Study,” Caron Murray, MRT(R)(AC)(CT)(MR) and Douglas C. Noll, Ph.D. will moderate the joint forum. Expert speakers will include Gary Glover, Ph.D., Matt Bernstein, Ph.D., Carlo Pierpaoli, M.D., Ph.D., Xavier Golay, Ph.D., and Maureen Ainslie, M.S., R.T., (R)(MR). The joint forum, by design, is a grand collaboration of energy and talent between the ISMRM and the SMRT which continuously promotes the highest quality of education in the MR world.

The SMRT was established to provide superior educational opportunities for technologist/radiographers as well as a forum for members to collaborate with and learn from each other. The 2009 Annual Meeting is dedicated to providing these numerous important tools. On behalf of the 2009 Program and Education Committees, we are pleased to invite you to join us in Honolulu for a celebration of evolution of MR innovation.

Ben Kennedy, BAppSc (MIT) MMRT, SMRT Program Chair 2009
Sonja Robb-Belville, B.S., R.T., (R)(MR) SMRT Education Chair 2009

SMRT 18th Annual Meeting Program Schedule
“Evolution of MR Innovation”

<table>
<thead>
<tr>
<th>Time</th>
<th>Saturday, 18 April, 2009</th>
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</thead>
<tbody>
<tr>
<td>07:00</td>
<td>Registration</td>
</tr>
<tr>
<td>07:45</td>
<td>Welcome &amp; Announcements</td>
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<tr>
<td></td>
<td>Wendy Strugnell, BAppSc (MIT), SMRT Program Chair 2009</td>
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<tr>
<td></td>
<td>Moderator: Jane Francis, DCR, (R) DNM</td>
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<tr>
<td>08:00</td>
<td>MRI Physics and Technology Forum</td>
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<tr>
<td>10:00</td>
<td>Break</td>
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<tr>
<td>10:20</td>
<td>MRI Safety and Patient Management – Update 2009</td>
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<td></td>
<td>Frank Shellock, Ph.D., FACC, FACS</td>
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<tr>
<td>11:20</td>
<td>SMRT Business Meeting</td>
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<tr>
<td>12:00</td>
<td>SMRT Luncheon</td>
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<tr>
<td>12:45</td>
<td>Proffered Papers/President’s Award Paper</td>
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<tr>
<td>13:45</td>
<td>Optimizing Your 3T Imaging William Faulkner, B.S., R.T., (R)(MR) (CT)</td>
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<tr>
<td>14:45</td>
<td>Break</td>
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<tr>
<td>15:00</td>
<td>Body MRI Forum</td>
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<tr>
<td>17:00</td>
<td>Announcements/Close</td>
</tr>
</tbody>
</table>

SMRT Poster Walking Tour Reception – Friday, 17 April 2009, 6:00 pm

<table>
<thead>
<tr>
<th>Time</th>
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<tr>
<td>07:30</td>
<td>Registration</td>
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<td>07:45</td>
<td>Welcome &amp; Announcements</td>
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<td></td>
<td>Pam Vincent, MPA, R.T., (R)(CT)(MR), SMRT President 2009-2010</td>
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<tr>
<td></td>
<td>Ben Kennedy, BAppSc (MIT) MMRT, SMRT Program Chair 2009</td>
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<tr>
<td>08:00</td>
<td>Pediatric MRI Forum</td>
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<td>10:20</td>
<td>Neuro MRI Forum</td>
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<td>12:00</td>
<td>SMRT Luncheon</td>
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<tr>
<td>13:30</td>
<td>Clinical Musculoskeletal Imaging Forum</td>
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<td></td>
<td>MRI of the Ankle and Hind Foot John Skinner, M.D.</td>
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<td></td>
<td>MRI of the Hand and Wrist Kimberly Amrami, M.D.</td>
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<tr>
<td>14:30</td>
<td>SMRT Awards Presentation</td>
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<tr>
<td>14:45</td>
<td>Break</td>
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<tr>
<td>15:00</td>
<td>Emerging Technologies Forum</td>
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<td></td>
<td>Ultra Short TE Imaging</td>
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<td></td>
<td>Graeme M. Bydder, M.B., Ch.B.</td>
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<td>Updates in Molecular Imaging Michael Moseley, Ph.D.</td>
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<td>Hyperpolarized Helium Lung Imaging</td>
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<td>Cynthia C. Harper Little, R.T., (R)(MR)</td>
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<tr>
<td>17:00</td>
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SMRT OBJECTIVES
The Section for Magnetic Resonance Technologists (SMRT) is the leading organization providing an international forum for education, information, and research in magnetic resonance for MR technologists and radiographers throughout the world. The SMRT operates as a section of the International Society for Magnetic Resonance in Medicine (ISMRM) and strives to promote a high level of knowledge and professionalism in the field of MR technology and radiography.

The objectives of the SMRT are to advance the education, training, and quality of MR technologists and radiographers, and to promote world-wide communication and dissemination of information relevant to the field. The SMRT works with other professional organizations throughout the world to accomplish these objectives.

SMRT MEMBERSHIP BENEFITS
As an SMRT member you receive ...

SMRT Educational Benefits
- Reduced fees for all accredited SMRT and ISMRM Annual Meetings, Workshops and Regional Seminars;
- Quarterly accredited Educational Seminars home study articles specific for the MR technologist/radiographer;
- Earn your all of your continuing education credits electronically on the SMRT website. Complete the quarterly Educational Seminars and Electronic Home Studies post quiz and receive your CE Certificate of Completion all on-line;
- Full library of all back issues of the SMRT accredited Educational Seminars home studies are available for purchase;
- SMRT electronic newsletter – Signals – The information to keep current on SMRT news, MR safety, and upcoming events;
- SMRT Continuing Education Credit Activity Report, receive an annual record of all your CE credits earned through SMRT educational programs;
- Reduced subscription rate to the ISMRM journals: Journal of Magnetic Resonance Imaging (JMRI) and Magnetic Resonance in Medicine (MRM);
- Online SMRT and ISMRM Membership directory.

SMRT Educational Opportunities
Local Chapters
- Educational opportunities in your local area allowing you to interact and exchange information with your MR colleagues. Visit http://www.ismr.org/smrt/chapters.htm for information and location of local chapters.

MR Technologist List Server
- Hosted by the SMRT, the MRI Technologist List Server is a discussion group specifically for the day-to-day issues of MR technologists and radiographers. Participate in your online MR community. Find answers to your most pressing questions or learn from the expertise of a network of colleagues working across the globe. Join the discussion!

SMRT Web site: http://www.ismr.org/smrt
- Check the web site for upcoming regional educational seminars, change your address, or look up a member in your locale;
- Extensive list of web links of interest on MR safety, anatomy, artifacts, patient care, methodology, pathology, resources for the MR professional, and tutorials.

SMRT Home Study Educational Seminars

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<tr>
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<tr>
<td>Functional MRI: Capabilities and Limitations</td>
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<tr>
<td>Concepts in MR Physics</td>
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<tr>
<td>Considerations in Low Field MRI</td>
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<tr>
<td>Directions in Basic Cardiac Imaging</td>
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<tr>
<td>Directions in Advanced Cardiac Imaging</td>
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<tr>
<td>The Basics of Magnetic Resonance Angiography</td>
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<tr>
<td>Introduction to Spectroscopy</td>
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<td>Renal MR Imaging</td>
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<tr>
<td>A Primer on MR Pulse Sequences</td>
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<td>Artifacts Encountered in Abdominal MRI</td>
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<tr>
<td>Safety Aspects in MRI</td>
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<tr>
<td>Directions in MRI of the Liver</td>
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<tr>
<td>MR Techniques in the Evaluation of the Uterus</td>
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<tr>
<td>Fundamental Principles for MR Imaging of the Brain</td>
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<tr>
<td>Atlas of Cranial Neuroanatomy</td>
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<tr>
<td>MRI of the Ankle and Foot</td>
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<tr>
<td>MR Imaging of the Breast</td>
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<tr>
<td>Diffusion-Weighted Imaging of the Brain</td>
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<tr>
<td>Directions in MRA of the Abdominal Aorta &amp; Lower Extremities</td>
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<td>Fundamental Principles of MR Imaging of the Head, Neck, &amp; Spine</td>
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<tr>
<td>Advances in Interventional MRI</td>
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<td>Diffusion-Weighted MR Imaging of the Pediatric Brain</td>
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<td>Role of Neuroimaging in the Diagnosis of Alzheimer’s Disease</td>
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<td>Cardiovascular MRI: Update I</td>
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<td>K-Space in the Clinic</td>
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<tr>
<td>MR Imaging and Spectroscopy of the Prostate</td>
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<tr>
<td>Atlas of Knee Anatomy</td>
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<tr>
<td>Cardiovascular MRI: Update II</td>
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<tr>
<td>Update: Safety in MR Examinations</td>
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<tr>
<td>Parallel MR Imaging</td>
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<td>MRI of Breast Cancer: Update I</td>
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<td>MR Atlas of the Shoulder</td>
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<tr>
<td>Exploring Magnetic Field Strengths: Challenges &amp; Opportunities</td>
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<td>MRI of Breast Cancer: Update II</td>
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<tr>
<td>MR Imaging of Perfusion</td>
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<td>MR Imaging Artifacts: Appearance, Cause &amp; Cure</td>
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<td>Techniques in Cardiovascular MR Imaging</td>
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<td>Update: MRI of the Brain</td>
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<td>Update: Musculoskeletal MRI</td>
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Visit our website for more information: http://www.ismr.org/smrt
MEMBERSHIP CATEGORIES
Please review qualifications below, provide information as requested, and check the category that represents your membership status:

VOTING MEMBER QUALIFICATIONS
In order to qualify as a voting member you must have practiced as described in EITHER (A) or (B) below. PLEASE CHECK EITHER A OR B:

(A) VOTING MEMBER
Practiced as a Technologist/Radiographer in the field of magnetic resonance for a minimum of one year AND you are one of the following:
(Please check box)
- For USA Citizens:
  - Certified by the American Registry of Radiologic Technologists or
  - A registered Diagnostic Medical Sonographer or
  - A certified Nuclear Medicine Technologist or
  - Certified by an equivalent professional certifying organization
- For Non-USA Citizens:
  - Certified by an equivalent professional certifying organization in your country in the discipline of radiographic technology, sonography or nuclear medicine technology.

Please complete the following or submit a current resume with application:
Work Experience From: / / ________ to: / / ________
Employer: ______________________
Job Title: ______________________
Certifications: ______________________
Registration/Certification Number: ______________________
Date of Registration/Certification: / / ________
Educational Degrees: ______________________
Modality/Certifications: ______________________
Certifying Body: ______________________

(B) VOTING MEMBER
Practiced as a Technologist/Radiographer in the field of magnetic resonance for a minimum of two years AND have appropriate equivalent professional competence in radiologic practice or in work in support of biochemical, biophysical or biological programs. Provide the name and signature of your department head or administrator below.

I verify the above named applicant has at least two years’ practice in an NMR or MRI modality.
Department Head/Administrator Name and Signature

NON-VOTING MEMBER
An individual who does not meet the qualifications for voting membership.

STUDENT MEMBER (NON-VOTING)
In order to qualify as a student member you must be enrolled in a full-time academic program in an accredited educational institution AND provide a letter verifying student status from the Academic Program Director. The letter must include your name, the start and end dates of the program and verification of your enrollment.

ISMRM STUDY GROUPS
If you wish to join any of the following study groups, please check the boxes below. (View descriptions at http://www.ismrm.org/study.htm)

- Cardiac MR
- Current Issues in Brain Function
- Diffusion and Perfusion MR
- Dynamic NMR Spectroscopy
- High Field Systems & Applications
- Hyperpolarized Media MR
- Interventional MR
- MR Engineering
- MR Flow and Motion Quantitation
- MR in Drug Research
- MR in Cancer
- MR Safety
- Molecular and Cellular Imaging
- Musculoskeletal Imaging
- Psychiatric MR and MRI
- White Matter Diseases
- Susceptibility Weighted Imaging

MEMBERSHIP APPLICATION

APPLICATION

MEMBERSHIP CALENDAR
Applications submitted between 1 January and 30 September are effective for the current calendar year. Applications submitted and approved between 1 October and 31 December are effective the following calendar year.

APPLICANT INFORMATION

Family Name: ______________________
First/Given Name: ______________________

Mail Addresses (Please provide both AND check preferred mailing address)

Home Address:

Office Address:

Dates:

Address: / / __________
Town/City: ______________________
State/Province: ______________________
Zip/Postal Code: ______________________
Country: ______________________

Telephone: ______________________
Fax: ______________________

Email Address: ______________________

SMRT MEMBERSHIP DUES

- Voting or Non-Voting Membership ............................... US$ 80.00
- Voting or Non-voting Membership with one journal .... US$185.00
  Choose one journal: MRM  JMRI
- Voting or Non-voting Membership with two journals .... US$290.00
- Student (Non-voting) Membership ............................. US$ 30.00
- Student (Non-voting) Membership with one journal ..... US$135.00
  Choose one journal: MRM  JMRI
- Student (Non-voting) Membership with two journals .... US$240.00

SMRT DUES PAYMENT OPTIONS

- Check, Travelers Check, International Money Order: Please make checks payable to SMRT. Must be payable “to” (not “through”) a U.S. Bank in U.S. dollars and must be imprinted with the computer encoding and routing information authorized by the American Banking Association. Wire payments are not accepted.
- Credit Card: VISA  MasterCard  AMEX
- Card Number: ______________________
- Security Code: ______________________
- Expiration Date: ______________________

Cardholder Name: ______________________

Billing Address: ______________________

Billing Zip + 4/Postal Code: ______________________

Signature: ______________________

How did you hear about SMRT?: Seminar  Ad  Colleague  Annual Meeting  Other: ______________________

Please submit application & payment to:
SMRT Section for Magnetic Resonance Technologists
P.O. Box 45690 • San Francisco, CA 94145-0690  FAX: +1 510 841 2340
<table>
<thead>
<tr>
<th>Map Code</th>
<th>Hotel Name</th>
<th>Breakfast</th>
<th>Internet</th>
<th>Facilities and Services</th>
<th>In-Room Amenities**</th>
<th>Other Important Information</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<td>Daily Charge</td>
<td></td>
<td></td>
<td></td>
<td>Deposit Payment &amp; Cancellation Policy</td>
</tr>
<tr>
<td>1</td>
<td>Hilton Hawaiian Village -Headquarters*** 2005 Kalia Road Honolulu, HI 96815 Garden View $205-$215 Sgl/Dbl Partial Ocean View $245 Sgl/Dbl Ocean View $275 Sgl/Dbl Ocean View Ali'i Tower: $310 Sgl/Dbl</td>
<td>$28.25</td>
<td>Wireless $15.95 per day Available at Ali'i and Kalia Towers</td>
<td>$15.95 per day</td>
<td>yes yes yes yes yes yes yes yes yes yes 5 Blocks</td>
<td>Deposit: Credit card will be submitted to the Hotel on March 27; Cancellation: 7 days prior to arrival date; No-Show: 1 night room &amp; tax penalty</td>
</tr>
<tr>
<td>2</td>
<td>Ala Moana Hotel*** 410 Atkinson Drive Honolulu, HI 96814 Kona Tower $125 Sgl/Dbl Waikiki Tower $165 Sgl/Dbl Ocean View $189 Sgl/ Dbl</td>
<td>$16.95</td>
<td>Wireless $9.95 per day</td>
<td>Free high-speed</td>
<td>yes yes yes yes no yes yes yes yes 1 Block</td>
<td>Deposit: Credit card will be submitted to the Hotel on March 20; Cancellation: 7 days prior to arrival date; No-Show: 1 night room &amp; tax penalty</td>
</tr>
<tr>
<td>3</td>
<td>Aqua Equus 1696 Ala Moana Boulevard Honolulu, HI 96815 Polo City $105 Sgl/Dbl Polo City King $114 Sgl/Dbl</td>
<td>Free</td>
<td>Free Wireless</td>
<td>Free high-speed</td>
<td>no no no yes no yes yes no yes no .6 Mile</td>
<td>Deposit: Credit card will be submitted to the Hotel on March 16; Cancellation: 30 days prior to March 16; No-Show: 1 night room &amp; tax penalty</td>
</tr>
<tr>
<td>4</td>
<td>Aqua Palms &amp; Spa 1850 Ala Moana Boulevard Honolulu, HI 96815 Partial City View $115 Sgl/Dbl City View $125 Sgl/Dbl</td>
<td>Free</td>
<td>Free Wireless</td>
<td>Free high-speed</td>
<td>no no no yes no yes yes yes yes yes .4 Mile</td>
<td>Deposit: Credit card will be submitted to the Hotel on March 16; Cancellation: 30 days prior to March 16 No-Show: 1 night room &amp; tax penalty</td>
</tr>
<tr>
<td>5</td>
<td>Aqua Waikiki Marina 1700 Ala Moana Boulevard Honolulu, HI 96815 Partial City View $75 Sgl/Dbl Partial Ocean View $85 Sgl/Dbl Ocean View $95 Sgl/Dbl</td>
<td>No</td>
<td>Free Wireless</td>
<td>Free high-speed</td>
<td>no no no yes no yes yes yes yes yes .6 Mile</td>
<td>Deposit: Credit card will be submitted to the Hotel on March 16; Cancellation: 30 days prior to March 16 No-Show: 1 night room &amp; tax penalty</td>
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<td>6</td>
<td>Aqua Waikiki Wave 2299 Kuhio Avenue Honolulu, HI 96815 Superior Wave $119 Sgl/Dbl Deluxe Wave $125 Sgl/Dbl</td>
<td>No</td>
<td>Free Wireless</td>
<td>yes yes yes yes no yes yes yes yes yes 1 Mile</td>
<td>Deposit: Credit card will be submitted to the Hotel on March 16; Cancellation: 30 days prior to March 16 No-Show: 1 night room &amp; tax penalty</td>
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<td>7</td>
<td>Hawaii Prince Hotel Waikiki 100 Holomana Street Honolulu, HI 96815 $195 Sgl/Dbl</td>
<td>$20.50</td>
<td>Wireless $10.95 per day</td>
<td>$10.95 per day</td>
<td>yes yes yes yes yes yes yes yes yes yes 2.5 Blocks</td>
<td>Deposit: Credit card will be submitted to the Hotel on March 20; Cancellation: 7 days prior to arrival date; Cancellations within 72 hours will be subject to 2-night room &amp; tax penalty. No-Show: 2 night’s room &amp; tax penalty</td>
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<td>8</td>
<td>Ohana Waikiki Malia 2211 Kuhio Avenue Honolulu, HI 96815 $99 Sgl/Dbl</td>
<td>$8.99</td>
<td>Free Wireless</td>
<td>Data port only</td>
<td>yes yes no no no yes yes yes yes yes .8 Mile</td>
<td>Deposit: Credit card will be submitted to the Hotel on March 27; Cancellation: 7 days prior to arrival date No-Show: 1 night room &amp; tax penalty</td>
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<tr>
<td>9</td>
<td>Sheraton Waikiki Hotel 2255 Kalakaua Avenue Honolulu, HI 96815 City/Mountain View: $210 Sgl/Dbl</td>
<td>$23.00</td>
<td>Wireless $13.56 per day</td>
<td>$13.56 per day</td>
<td>yes yes yes yes yes yes yes yes yes yes .8 Mile</td>
<td>Deposit: Credit card will be submitted to the Hotel on March 27; Cancellation: 7 days prior to arrival date No-Show: 1 night room &amp; tax penalty</td>
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</table>

*Some facilities and services incur additional charges; check Hotel for specific information.  **Some rooms may vary.  †Advance arrangements required.  ***There are a limited number of rooms available at the lowest rates. The information contained in this form may be amended from time to time without notice.
**HOTEL REGISTRATION**

We welcome your telephone calls to the ISMRM: +1 (510) 841 1899

(Book early to ensure Best selection!)

ISMRM 17th Scientific Meeting & Exhibition
Hawaii Convention Center
Honolulu, Hawaii
18-24 April 2009

**Book early to ensure the best hotel selection!** Hotel reservations will be assigned on a first-come, first-served basis based on availability. After 11 March 2009, Annual Meeting rates may not apply.

1. First Name: ____________________________ Last Name: ____________________________

Institution/Company: ____________________________

Address: ____________________________________________

City: ____________________________ State/Province: ____________________________ Zip/Postal Code: ____________________________

Country: ____________________________ E-Mail: ____________________________

Phone: ____________________________ Fax: ____________________________

2. Hotel Preference:

1. ____________________________ 3. ____________________________

2. ____________________________ 4. ____________________________

3. Arrival Date: MM/DD/YY ______________ Departure Date: MM/DD/YY ______________

Number of Nights: ______________

Room Type:

- S = Single (1 person, 1 bed)
- D = Double (2 people, 1 bed)
- DD = Double/Double (2 beds)

Sharing Party: (Enter full name of sharing party below)

First Name: ____________________________ Last Name: ____________________________

4. If you require special accommodations or specific aids or services please contact CHM at +1.800.422.8996

**IMPORTANT INFORMATION**

Deposit Payment Policy: A deposit in US Dollars of one nights room rate plus 11.967% tax is required to hold your reservation. Payment maybe made by credit card, or by wire transfer (contact CHM for Hotel routing number). Before making your selection and booking, please review the hotel deposit and cancellation policies by visiting the ISMRM website: [http://www.ismrm.org](http://www.ismrm.org).

Reservation Changes and Cancellations: Any change in arrival or departure (a partial cancellation), or full cancellation must be made through CHM. The hotels will not accept changes directly and may result in a penalty. Please be advised if you cancel or change your reservation after the cancellation deadline set by the hotel you will be charged from one night to all nights of stay multiplied by the room rate plus 11.967% tax.

No-Shows: No refunds will be made for no-shows or early checkouts. If you dont check-in to the hotel on the first day of your reservation prior to 15:00 HST (Hawaiian Standard Time) and you do not alert the hotel in advance, the hotel will cancel your reservation and charge you a no-show.

Guarantee Policy: By providing the credit card information below, you agree to authorize the hotel to charge your credit card, in the local currency (US Dollars), in an amount from one night to all nights of your stay, as indicated, based upon the published room rate, plus 11.967% tax. Before booking, please read the hotel descriptions for the various hotel deposit and cancellation policies.

Card Type: □ Visa □ Mastercard □ American Express □ Diners Club

Credit Card No: ____________________________ Expiration Date: ____________

Cardholder Name: ____________________________ Signature: ____________________________

Cardholder authorizes the hotel to charge the required amount of deposit for this reservation and any cancellation or change fees that may be incurred. Charges will be in the local currency (US Dollars). Other credit card fees and surcharges may apply.

Convention Housing Management
1700 The Alameda, 2nd Floor
San Jose, California 95126
USA

Toll free: +1.800.422.8996 (Toll-free in the U.S. and Canada)
Tel: +1.408.918.4200 (Outside the U.S.)
Fax: +1.408.918.4250
Email: ismrm@chmrooms.com

Reserve accommodations online: [http://www.ismrm.org](http://www.ismrm.org)
Welcome to Honolulu

The Hawaiian Islands are one of the most beautiful places on earth. Encircled by white sandy beaches dotted with swaying palm trees, the islands evoke images of paradise. The weather is extremely friendly, the environment is a perfect mixture of rugged terrain and peaceful splendor, and the sights to see are beyond compare.

Often called the island of fun and sun, Oahu remains the most sought after Hawaiian destination among visitors. One of the most coveted exotic locales in the world, tourists can easily explore the entire island of Oahu by bus or by car. The North Shore of the Island finds surfers and others enjoying year-round the warm blue waters of the Pacific. The island is always bursting with activities of all kinds including island-style fairs, cultural festivals, ocean activities, concerts, and Hawaiian music and dance. The adventurous visitor can seek greater heights and astounding views from atop Diamondhead Crater, which stands just east of Oahu’s hub, Honolulu, a city of immense diversity and pride. Home of Waikiki Beach, Honolulu offers visitors all the comforts of home while maintaining an atmosphere of tropical bliss.

To satisfy the palate, Honolulu offers gourmet diners the opportunity to enjoy the best of haute cuisine in tandem with the warm hospitality of Hawai’i; in addition, delicious local food is not to be missed, traditionally prepared and served with the Island’s casual flair. Shopping is also first-class in Honolulu, with stores offering everything from luxury items to souvenirs. Of course, the spirit of Aloha beckons, as do the breathtaking beaches of the Island where visitors can be found every day of the year enjoying temperatures ranging from 15-32°C (60-90°F).

While Oahu attracts most visitors of Hawai’i, each island destination offers its own unique brand of paradise, from endlessly spilling waterfalls to coral reefs teeming with tropical fish. Inter-island transport is possible and encouraged among the visitors of Hawai’i. The new Inter-island Terminal at the Honolulu International Airport makes visiting other islands and catching connecting flights nearly effortless. Of course, one virtue shared by all of the Islands is the Hawaiian culture which resonates with echoes from Asia, Europe, and South America.

**CURRENCY**

International currency exchange services are located at banks throughout the city. The money system in the United States is based on dollars and cents. The closest bank to the Hawaii Convention Center is the First Hawaiian Bank located at 1580 Kapiloli Boulevard, +1 (808) 943-4437. Some larger hotels may also offer limited currency exchange services.

**BORDERS AND CUSTOMS**

Visitors traveling from outside the United States must have a valid passport for entry into the United States. Entry visas are required for travel from some countries. Please verify the entry documents necessary by contacting your local U.S. Consulate office, or your local travel agent. Please allow sufficient time, at least three or four months, when applying for your visa or passport.

**AIRPORT AND GROUND TRANSPORTATION**

Transportation to and from the airport: The Honolulu Airport is a 20-30 minute drive from Waikiki, depending on traffic. Costs currently range from about US$18 to US$20 by taxi. The Airport Waikiki Express Shuttle will take you to any Waikiki hotel for US$9 per person one way or US$15 round trip. This convenient, air-conditioned, daily shuttle departs Honolulu Airport every 25 minutes, on the medial strip outside of the baggage claim area.

**CLIMATE**

Honolulu refers to the urban area on the southeastern shore of the island of Oahu. While the climate is clearly in the tropics, the climate (temperature and humidity) is moderated by the mid-ocean location and some cooling achieved by the California Current that passes through the islands much of the year. The average daily low and high temperatures in are 65/88°F (18/31°C). Temperatures exceed 90°F (32°C) only rarely, with lows in the 50’s°F (15°C) occurring perhaps once or twice in a year. What to pack: sunscreen, light weight cotton clothing, sunglasses and a sun hat. Up-to-date weather information is available at: http://www.rssweather.com/climate/Hawaii/Honolulu/

**VOLTAGE**

Residents of Honolulu use 110 volt electrical systems at 60 hertz. You will need a voltage transformer/ converter for your electrical appliances if they operate on a different voltage. You can also purchase combination converters for both types. Main wall sockets and plugs for 110 volts are two parallel flat blades. If those sockets are different from the ones used in your country then you will need a socket converter.

Types of Appliances and Converter Needed: Small electronics, razors and non-heating appliances 50-watts Heating appliances (hair dryers, irons, coffee makers and other high-power electrical appliances) 1600-watts

**PUBLIC TRANSIT**

The Bus is Oahu’s primary bus line with adult fares beginning at US$2. Pick up and drop off locations at the Honolulu International Airport are located on the second level of the airport. Baggage Rules: No backpacks with metal frames allowed. All bags must be able to be placed under the feet or on the lap without protruding into the aisle way. No larger than 18”x24”x12”. For more information: http://www.thebus.org/default.asp

**LANGUAGES SPOKEN**

Honolulu, the capital of Hawai’i, is part of the US. Primarily English is spoken there, but there are other languages spoken (just like in any American city), particularly Japanese (there is a very large Japanese and Japanese-American population in Hawaii!). As of 2000 US Census 73.44% of residents ages 5 and older speak only English at home. Tagalog speakers make up 5.37%, followed by Japanese at 4.96%, Ilokano 4.05%, Chinese 1.92%, Spanish 1.66%, Korean 1.61%, and Samoan 1.01%.
STEP 1: MEETING BADGE INFORMATION
Badges and materials will be available at the preregistration desk in Honolulu. No meeting materials will be mailed.

<table>
<thead>
<tr>
<th>Honorific and gender:</th>
<th>M.D.</th>
<th>M.D. Candidate</th>
<th>Ph.D.</th>
<th>Ph.D. Candidate</th>
<th>Prof.</th>
<th>RT</th>
<th>Other:</th>
<th>Male</th>
<th>Female</th>
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<td>Family Name</td>
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STEP 2: MAILING/CONTACT INFORMATION

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<tr>
<th>Street Address</th>
<th>City</th>
<th>State/Province</th>
<th>Zip+4/Postal Code</th>
<th>Country</th>
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<tbody>
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<td>Phone</td>
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<td>Email</td>
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This address is for:  
- Work
- Home

Is this new contact information?  
- Yes  
- No

STEP 3: STUDENT VERIFICATION*
*Required for all students, post docs, and technologists who are registering as non-members

Supervisor’s Name: ___________________________  Institution Name: ___________________________
Supervisor’s Phone: ___________________________  Supervisor’s E-mail: ________________________

STEP 4: ATTENDANCE INFORMATION

I have a disability and require assistance  
Please send me an invitation letter for the purpose of obtaining a visa.

This is my first ISMRM/SMRT Annual Meeting  
- Yes  
- No

STEP 5: PROGRAM OPTIONS AND FEES
(please check one box below)

<table>
<thead>
<tr>
<th>Program Options (please check the program you are planning to attend)</th>
<th>ISMRM Member Fee</th>
<th>Non-Member Fee</th>
<th>ISMRM Student Member Fee</th>
<th>Student Non-Member Fee*</th>
<th>SMRT Member Fee</th>
<th>Non-Member Fee</th>
</tr>
</thead>
<tbody>
<tr>
<td>ISMRM Scientific Meeting &amp; Weekend Educational Programs 18-24 April</td>
<td>$770</td>
<td>$1190</td>
<td>$295</td>
<td>$490</td>
<td>$270</td>
<td>$360</td>
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<td>After 18 March</td>
<td>$880</td>
<td>$1300</td>
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<tr>
<td>ISMRM Scientific Meeting 20-24 April</td>
<td>$570</td>
<td>$930</td>
<td>$165</td>
<td>$255</td>
<td>$435</td>
<td>$615</td>
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<td>After 18 March</td>
<td>$680</td>
<td>$1040</td>
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<td>$465</td>
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<td>SMRT Annual Meeting 18-19 April</td>
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<td>$270</td>
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<td>After 18 March</td>
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<tr>
<td>SMRT Annual Meeting and ISMRM Scientific Meeting 18-24 April</td>
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<td>After 18 March</td>
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</table>

STEP 6: PAYMENT OPTIONS
(Fees are shown, and must be paid, in US dollars)

- Check enclosed (personal, bank, institution) made payable to ISMRM or International Society for Magnetic Resonance in Medicine
- Credit Card Please charge registration fees to my:  
  - VISA  
  - AMEX  
  - MasterCard

Cardholder’s Name (please print clearly)  
Billing Street Address (required)  
Postal Code  
Cardholder’s Signature

Card Number  
Expiry Date  
Payment Amount: US $

REFUNDS AND CANCELLATIONS: A refund of the registration fee, less $75.00 for administrative charges, will be made for any program when a written request is received in the ISMRM office on or before 1 April 2009.

Return form to: ISMRM, 2030 Addison St., Suite 700, Berkeley, CA 94704, USA • Fax: +1 510 841 2340
December 2008

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January 2009

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March 2009

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April 2009

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**2009 IMPORTANT DATES AND DEADLINES**

- **12 December**: Deadline for New Entrant Stipend Award applications (see page 5)
- **7 January**: Deadline for receipt of abstracts for the SMRT 18th Annual Meeting (see page 21)
- **11 March**: Deadline for housing reservations (See page 25)
- **18 March**: Deadline for advanced registration for the ISMRM 17th Scientific Meeting (see page 27)
- **3 April**: Full text version of Proceedings & Educational Syllabus available online to pre-registered attendees only
- **18–19 April**: SMRT 18th Annual Meeting
- **18–24 May**: ISMRM 16th Scientific Meeting & Exhibition

**REGISTER EARLY (by 18 March) AND SAVE!**