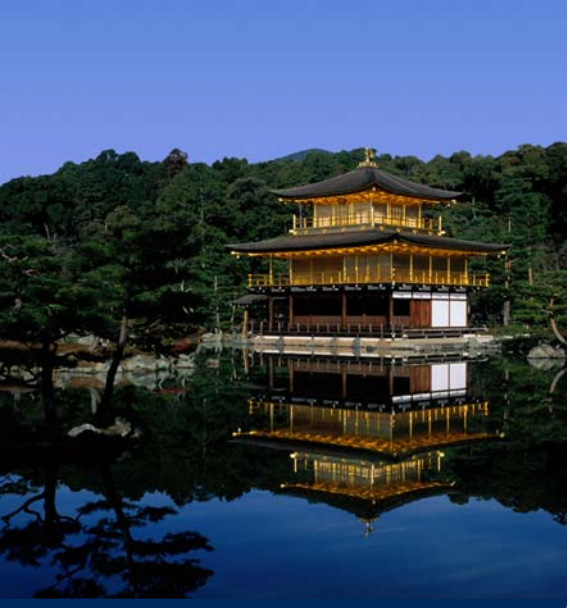


INTERNATIONAL SOCIETY FOR MAGNETIC RESONANCE IN MEDICINE

MR PULSE

VOL. 11, NUMBER 1 | MARCH 2004

INSIDE

Letter From The President

In 1996 and 1997, the newly-merged ISMRM conducted a first-ever membership survey and from these results crafted a goal-oriented Strategic Plan, which has successfully guided us over the last seven years. We now need to once again envision where we want the ISMRM to be in future years. This coming April, the Strategic Planning Subcommittee has the task of doing just that, and will draw upon the recent web-based member surveys (the two Zoomerang surveys), our CME evaluations, member comments, and Board of Trustee meetings to construct a new Strategic Plan, which will be presented to the membership toward the end of this year.

In preparation for this, the ISMRM has now gathered the results of the recent Zoomerang survey, held in November 2003, the details of which can be viewed at the following URL (http://www.zoomerang.com/reports/public_report.zgi?ID=BNN3JDQK7A5R). Similar to our first Zoomerang survey (taken in October 2002), over 800 of our members participated in the survey.

The percentage of respondents from each geographic region of the world approximately matched that of the membership of our Society (57% from North America and 43% from the rest of the world). In response to rising concerns as to the size and nature of our annual meetings, 59% of those polled favored a flexible selection of sites that was cost-neutral (60% in favor of cost neutrality). Nearly half thought that the Annual Meeting was "about right," while a combined 73% agreed that 5-9 parallel sessions were acceptable with 23% favoring fewer sessions and 26% favoring fewer posters.

In questions relating to educational activities of the Society, the Zoomerang survey revealed several interesting responses. There is a continued strong sense that the weekend courses at the Annual Meeting are indeed meeting the educational needs of both our clinical and non-clinical members, with only 4% stating that the ISMRM was not providing good clinical content. Several new endeavors were met with enthusiasm; 66% were in favor of providing the actual poster content on CD-ROM, 61% favored electronic publication of the *MR Pulse*, and invaluable comments on possible improvements to the ISMRM Website were gathered (for example, 45% favored more website links to all things MR). Look for these and other significant new "e-additions" (such as the dynamic Question-and-Answer "QNA" section and a planned electronic "bulletin board" for committees) to the website as the Central Office upgrades the web-based content and capabilities of our Society this spring. Exciting new initiatives are underway for the Kyoto 2004 Annual Meeting, which Jeff Duerk, the Scientific Program Chair, will describe in detail here in the *MR Pulse*. In the last Zoomerang

See ***President's Letter*** *page 2*

President's Letter
from page 1

survey, a strong majority of responses favored instituting a system of awards for posters at the Annual Meeting. In response to this interest, look for the new Kyoto Poster Awards to be announced, along with our first-ever Kyoto offering of electronic-only posters ("E-posters"), on-line coverage of selected Kyoto parallel sessions, expanded Wi-Fi bandwidth, and hi-definition video projectors. The SPC is also planning celebrations for the new Nobel Prize winners during the Annual Meeting, most significantly with the addition of a "Mansfield Lecture," to be presented on Thursday immediately following the announcement of the Young Investigator Award winners. This will nicely complement the "Lauterbur Lecture" and add a new feature to the Annual Meeting to acknowledge the Nobel winners.

As we approach the Kyoto meeting, look to the ISMRM Website and this issue of *MR Pulse* for more information about upcoming scientific and educational offerings, city-wide happenings in Kyoto, "how-to's" about train and subway issues, as well as "must-do's" during your visit. In the meantime, visit the Zoomerang site and see what our members had to say.

This year marks the ten-year anniversary of the merged SMRM and SMRI Societies, which have become the ISMRM; the new Nobel prizes have been the icing on the cake. As we move into our second decade as the International Society for Magnetic Resonance in Medicine, we look with anticipation to the vision from the Strategic Planning subcommittee to shape the Society's future.

— Michael E. Moseley, ISMRM President

2004 SCIENTIFIC PROGRAM COMMITTEE REPORT
Kyoto Scientific Meeting Planning Completed!

The Scientific Program Committee (SPC) has been amazingly busy planning the 12th Scientific Meeting and Exhibition of the ISMRM, which will be held in Kyoto, 15-21 May 2004. Throughout this newsletter you will find important information about airfare packages, hotel arrangements and local transportation. I encourage you to review this information and save this newsletter as a reference for your use in Kyoto. In general, you will note that hotel expenses are comparable to those in Toronto, while airfares range from US$650 from the west coast of the USA to slightly over US$1200 from a variety of other major airports (as of this moment). For other reference you might want to examine any of these sites dedicated to discovering the charms of Kyoto. I truly look forward to seeing you there.

http://raku.city.kyoto.jp/sight_apr.html
http://www.jnto.go.jp/eng/spn/kyoto/
http://web.kyoto-inet.or.jp/people/masako01/link_k-2.html

Useful Japanese Phrasebooks can be found at:

http://web.cs.mun.ca/~anime/afs/phrases.html

Here I will describe the activities of the Scientific Program Committee for the Kyoto Annual Meeting since my last report in November 2003. The 30 appointed SPC members represent a balance of PhDs and MDs from around the world with interests covering the range of topics presented annually at the ISMRM; because of the unique aspects of our first meeting in Asia, we invited the Local Organizing Committee to provide three additional members to the committee giving rise to a total of 33 for the 2004 meeting. Appointed SPC members serve for three years on a rolling basis to provide continuity and new input and ideas to the meeting and the whole planning process. This year, I took the reins from David Lomas whom we are still indebted to for his phenomenal work in organizing (and then reorganizing) our 2003 Toronto meeting. I have learned tremendously from David and benefited from his masterful organization.

Initial Planning for Kyoto

Initial planning for Kyoto dates back all the way to the Program Construction Meeting for the Toronto meeting which took place in January 2003, almost 18 months ago. Planning begins this far in advance to ensure that we can secure the speakers we want and also to ensure that we have enough time to discuss, iterate and refine the concepts for the various program elements. At the end of the Toronto Program Construction Meeting, continuing SPC members identified a variety of topics for the Lauterbur Lecture and Plenary Sessions. We identified a few unique items that necessitated modest changes in the meeting structure (e.g., layout of the Kyoto International Convention Hall– KICH), and the morning categorical and clinical categorical courses. Overall, topics for the courses and plenaries were based on a formal needs assessment process using resources like the program evaluations completed in Hawai'i, past program reviews, expert opinions, and our journal submission statistics. This first planning meeting provided an opportunity to form the framework for the Kyoto meeting, yet with sufficient lead time to ensure that the main planning sessions over the coming months would provide ample opportunity for creativity and responsiveness to emerging trends and needs.

One of the most important tools used by the SPC is an E-mail listserver that keeps all 33 of us in E-mail communication between the initial planning meeting and our second face-to-face meeting at the Annual Meeting held one year in advance of the meeting being planned. Between January 2003 and the Toronto

See ***SPC Report*** *page 3*

Annual Meeting, the SPC refined some of the ideas, programs and topics for the Kyoto meeting. Detailed planning occurred in Toronto during the 2003 meeting. This marathon 3-hour session enabled the committee to agree with the program outline in relation to the plenaries, morning and clinical categorical sessions. Delays in the Toronto meeting put us on a short timeline to complete full development for Kyoto, so the pace of activity over the summer of 2003 was quite high. Groups of SPC members took responsibility for assembling a particular session and for ensuring a comprehensive attractive program was supported with appropriate expert speakers. We also identified numerous changes to the program including introduction of electronic posters, video-capture of all talks in two conference rooms (more details below), and poster awards. In support of past decisions, we agreed to continue wireless network access for portable computers, CD-ROM-only *Proceedings*, single-column format for abstract submissions, and single-projection screens with data/LCD projection as the primary method of presentation.

This year, we hope to improve the format of the *Proceedings* CD in order to provide a better means for on-site and post-meeting review of abstracts. Specifically, we hope to organize the CD much like the daily "Program-at-a-Glance," allowing one to select first the day, then the Session of interest. The titles, authors, and synopses of each submission in the session, with links to the actual abstracts, will then be provided. We will retain the full search capabilities found useful in the past. Like last year, the SPC has worked closely with the Education Committee, the Morning Categorical Course organizers, and the Clinical Categorical Course organizers to reduce overlap of speakers and to bring in new talent where possible. While this is oftentimes impossible, we continue to strive for improvements. Throughout the planning process, the two chairs have liaised closely to ensure that the Weekend Educational Courses and Categorical Courses during the week complement each other and avoided repetition. For example, this year the SMRT/ISMRM Joint Presentation will focus on *Understanding and Managing Artifacts in MRI*, while Morning Categorical Courses will include *Functional Body MRI: From Morphology to Function, Understanding Diffusion Tensor Imaging and Functional MRI, Established and Evolving Applications of MRA, New Horizons in Musculoskeletal Imaging, Parallel Imaging 2004, Spectroscopy: The Brain and Beyond,* and a new course entitled, *Echo Management* for those interested in gaining greater appreciation of the basis for many rapid imaging techniques. The Morning Categorical Courses are some of the most popular elements of the meeting, and you will see substantial adaptation and updating of these courses.

The 2004 Scientific Program Committee program construction meeting.

The Submission and Review Process– December 2003

We continued with fully electronic submission with MIRA, the vendor we chose last year to facilitate our submission and review process. MIRA worked tirelessly over the year to ensure seamless submission in a variety of formats, and overall, the process was improved considerably. In total, the MIRA site handled a record number of abstract submissions: 3638, exceeding our most recent record for Toronto by almost 150. New sub-categories were created, others were merged together, and the new presentation format, the Electronic Poster (E-Poster), was created in order to permit presentation of multimedia data-like movies, sounds, and animations. Over 1000 submissions indicated a preference for or considered presentation in the E-poster format.

Prior to the deadline, the Central Office announced for the second year, a process by which ISMRM members could nominate themselves as potential referees for the meeting. Hundreds responded and over 110 new referees were added to the roster based on experience, past submissions to the meeting, publication in the Society journals, and most importantly our need in specific categories. Each submission was then allocated to five reviewers, who examined the abstracts (either online or following download) blinded to the author and institution. One referee in each sub-category was the member of the SPC who would be responsible for managing these abstracts at the Program Construction Meeting. Typically, referees review about 40-60 abstracts; SPC members may review as many as 215, with 120 being an average.

For those who have participated in the review process, it is clear that the timeline for the review process is tight: abstracts were made available for review on 26 November, and scoring had to be completed by 10 December. While this conflicted with RSNA and the approaching holidays, the referees performed admirably and I should like to thank all those who took part for keeping to the deadlines.

See ***SPC Report*** *page 4*

Program Construction Meeting (PCM)

The Program Construction Meeting was held in the Fairmont Hotel in San Francisco, on 23-25 January this year. Membership in the SPC requires attendance at this meeting, where every single submission is reviewed and the final decisions on acceptance and rejection made. The criteria for selection include mean referee score in relation to category and global percentile results, thematic considerations, and duplications with other submissions at the meeting (and previous years' submissions).

On Friday, I provided an "SPC Tutorial" session in which new committee members were provided an explanation for the activities and procedures that would occur the following day to complete the development of all remaining sessions and program elements. The tutorial reminded the members of the overall format for the meeting as defined by Plenary, Clinical Categorical, and SMRT/ISMRM Joint Presentation sessions. The objectives for Oral Sessions, Basic Science Focus sessions, and Clinical Science Focus components were reviewed, along with the conventional and E-poster sessions. After the tutorial, the anxious "rookies" awaited the start of the actual program design.

Saturday morning, SPC members organized into major category "teams" and initially focused on swapping those abstracts placed into the wrong category, or those that might find a better "home" in another sub-category. The major teams were given targets for the number of oral sessions, posters, E-posters, and rejections since the number of oral sessions and number of posters are fixed by the length of the meeting, size of the venue, etc. Decisions were made on "duplicate" or "LPU: least publishable unit" submissions identified by the reviewers or by the global cross-checking performed by the ISMRM Office Staff. The swapping period typically lasts one to two hours, and this year was no different. It is one of the most fun periods of the PCM since the SPC members are typically quite passionate about some of the high-quality abstracts that were mis-categorized upon submission, yet need to be in the meeting.

Effort was then directed to creating the oral sessions from the highest rated abstracts, creating the core scientific, clinical focus and basic science focus sessions. Our limit was a total of 64 oral sessions, with a total of 635 abstracts (10 per session except those with one of the five Young Investigator Award candidates). We identified 15 Basic Science (with E-poster) or Clinical Science Focus Sessions for a total of an additional 180 oral presentations. Once the oral sessions were drafted, examination turned to the remaining highest scoring abstracts to form the traditional and E-poster sessions. The remaining ~1600 traditional poster spaces and approximately 300 E-poster slots were allocated. For 2004, the acceptance rate was approximately 75%, essentially identical to that in Toronto and Honolulu. The abstracts were then themed within categories to create poster sessions. The finalized sessions were all logged by Jane Tiemann, Roberta Kravitz, and Robert Goldstein onto computers to record the decision and location of each

Jeff Duerk provides an "SPC Tutorial" session for new committee members.

submission. I then personally went through each rejection to ensure that no highly rated abstracts were inadvertently rejected. Potential inconsistencies were discussed with the SPC member to ensure that there was a valid basis for the rejection. Upon completion of the day's work, the SPC was then allowed out for the evening and as a reward for their dedication and hard work enjoyed the unique "Teatro Zinzanni" dinner theatre "experience." While this completes creation of the various sessions, the next day would be dedicated to assigning them days, times, and rooms within the program.

It is interesting to note that the entire process of creating the various sessions is done with hard copies of all submissions, using paper colors signifying the submission preference of the authors. A single set of submissions is made by the Central Office prior to the Program Construction Meeting. Throughout the trading, session creation, poster session creation and rejection processes, each and every abstract is accounted for. The PCM is not complete until the status of every abstract is known.

The SPC's task Sunday morning was to allocate the oral sessions to the overall meeting framework that had been agreed upon in Toronto. The "Program-at-a-Glance" from Toronto along with attendance numbers to each session were posted in the room to help guide room selection for Kyoto. Oral sessions designed the day before were written on colored post-it notes, a unique color for each major category (e.g., Engineering, Neuro, Cancer, etc.). The sessions were readied for placement into the daily framework. Until last year, session placement had been a near free-for-all, yet David Lomas was able to introduce a necessary level of decorum and organization that greatly facilitated effective meeting planning. This tradition was continued this year. SPC members who organized sessions within each major category were asked to place their oral sessions throughout the meeting; peer pressure and the watchful eye of competing members ensured a fair distribution. Simple examination of uniform distribution of each color across the week provides the initial cursory confirmation of an appropriate balance in topics.

Following our final review of the program, two final tasks remained. First, we performed a detailed review of the procedures used in reviewing, organizing, and creating the

*See **SPC Report** page 5*

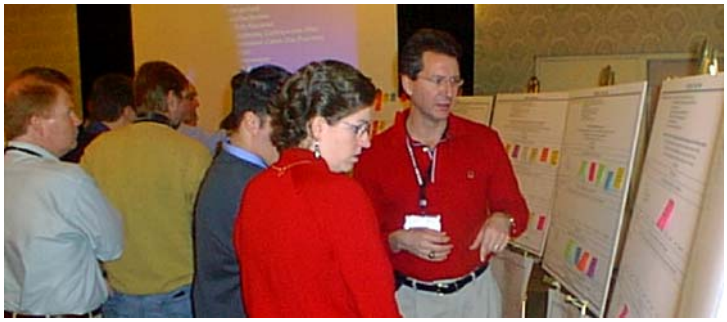
from page 4

meeting. Suggestions for improvement were logged, discussed, and planned for adoption next year. For example, next year, you might anticipate that Perfusion/Diffusion Imaging may be a separate category from Neuroimaging since this combined topic represents almost exactly 25% of the meeting, leading to significant organizational problems at the PCM; other changes will be less apparent since most related to how the PCM onsite activities occur. Finally, we came full circle. The last task of the Scientific Program Committee was turning over the committee to next year's SPC Chair, Vivian Lee, who began preparation for the 2005 Annual Meeting in Miami.

Things to Watch For in Kyoto

We have introduced a number of new items to the program for the 2004 Kyoto meeting. Things to watch are described below.

- Full text and graphics of the accepted abstracts will be available to pre-registered attendees two weeks in advance of the meeting to facilitate your pre-meeting planning. Keep this in mind as most countries have intellectual property rules linked to public disclosure;
- We will honor our Society's Past Presidents, Gold Medal Winners, and 2003 Nobel Laureates Prof. Paul Lauterbur and Sir Peter Mansfield with a variety of novel items around the meeting including the introduction of the *Inaugural Sir Peter Mansfield Lecture* Thursday morning;
- Our *Lauterbur Lecture* this year will be from Prof. Kurt Wüthrich, 2002 Nobel Prize winner in Chemistry, who will share with us his work in NMR of proteins and other macromolecules and its relevance to worldwide concerns like mad cow disease;
- The SPC has worked with the Electronic Media Committee (chaired by Greg Sorensen) to capture slides and audio from every presentation in the two Annex meeting rooms over the entire Scientific Meeting; they will be made available for registered attendees via the Internet using Macromedia Flash the following day and for up to a month after the meeting. This will provide our first experience with an electronic meeting and also provide a mechanism to view sessions you may have missed due to conflicts in the program;
- Seven excellent Morning Categorical Courses will make it worth starting the day at 07.00;
- We will be providing poster awards in five areas (Neuro-imaging, Body Imaging, Spectroscopy, Pulse Sequences/ Reconstruction, Hardware/Engineering);



Committee members carefully make final adjustments in the scientific program.

- We will provide numerous E-poster kiosks and E-poster review opportunities throughout the meeting;
- There will be continued wireless (and wired) access for E-mail and internet browsing. This will be our second year to provide wireless to our attendees. The WiFi standard, 802.11b, wireless protocol will be used. For most, this will enable 'plug-n-play' on to the network;
- The Local Organizing Committee will be providing local cultural events, like Japanese Tea Ceremonies, Flower Arranging, etc., at various times during the breaks of the meeting;
- The Thursday evening Gala Reception entertainment will be in the KICH's lovely gardens and walkways around the reflection pond;
- The Local Organizing Committee and the Japanese Tourism Board (JTB) will be providing many local tours of interest. Kyoto is an amazing city so be sure to spend some extra time before or after the meeting (or during it) visiting this historic and beautiful city.

None of the SPC's activities could be done as well, or perhaps even at all, without the tireless dedication of the ISMRM Central Office, and most notably Robert Goldstein, Roberta Kravitz, and Jane Tiemann. We are indebted as a Society to have such a dedicated group of friends and colleagues with whom to work.

I hope that your enthusiasm and excitement for the Kyoto meeting are building as much as mine are. The SPC has worked tirelessly to put together yet another premier ISMRM Annual Meeting with new features that will enhance our ability to provide the highest level of scientific and educational program possible. I look forward to seeing you there!

— Jeffrey L. Duerk,
2004 Scientific Program Committee Chair

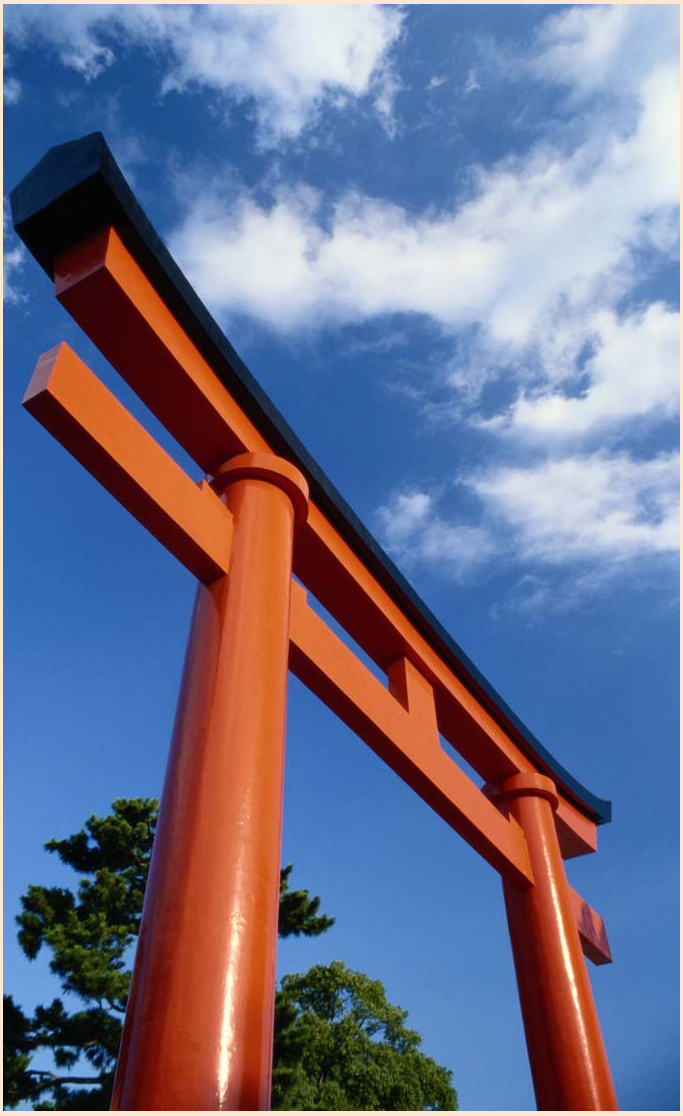
TRAVELING TO KYOTO

Visa Information

If you come from one of the over 55 countries (http://www.mofa.go.jp/j_info/visit/visa/02.html#a) with which Japan has arranged a "general visa exemption arrangement," you need only a valid passport in order to enter as a tourist (usually for up to 90 days); otherwise, you need to apply for a visa before coming to Japan. All foreign tourists in Japan are required to carry their passports with them at all times. Please contact your closest Japanese embassy or consulate (http://www.mofa.go.jp/about/emb_cons/mofaserv.html) to make sure you have all the required documents before traveling to Japan.

- For a detailed guide to Japanese visas, please go to the Japan Ministry of Foreign Affairs Official Web Site (http://www.mofa.go.jp/index.html).
- For detailed information for non-US citizens residing in the United States (foreign nationals) traveling from the United States to Japan, please go to the National Academies Web Site (http://www7.nationalacademies.org/visas/Traveling_from_US.html).

Please contact the ISMRM Central Office [info@ismrm.org, Tel: +1 510 841 1899, Fax: +1 510 841 2340] if you require a letter of invitation for purposes of securing a visa. Please note that proof of registration for the ISMRM 12th Scientific Meeting and Exhibition will be required before a letter of invitation can be issued.



Currency

The Japanese currency is the Yen. Coins come in 1 Yen, 5 Yen, 10 Yen, 50 Yen, 100 Yen and 500 Yen. Bills come in 1,000 Yen, 2,000 Yen (very rare), 5,000 Yen and 10,000 Yen. As a traveler in Japan, be aware that most Japanese ATMs do not accept foreign credit cards. Only the international ATMs found in post offices and in a few major department stores and airports accept foreign credit and debit cards. Japanese banks are usually open Monday to Friday from 09.00 to 15.00. Currency exchange services will be available at the convention center.

Voltage

The voltage throughout Japan is 100 Volt, which is different from North America (110V), Central Europe (220V), and most other regions of the world. North American made equipment will work fine in Japan without an adapter and vice versa; however, caution should be taken as some sensitive equipment may get damaged.

Climate

The temperature in Kyoto in May ranges from a high of 24 °C (76 °F) to a low of 13 °C (56 °F), with an average precipitation level of 154mm (6 in.).

Communications

Mobile phones from countries other than Japan are not likely to work in Japan; however, it is suggested you contact your mobile phone service provider to see if your service will accommodate the frequency available in Japan. Public telephones are readily available; however, international calls can only be made from certain phones. Telephone cards, which can be used to pay for calls, are sold at kiosks and vending machines. Internet access will be provided at the convention center by both E-mail kiosks and a wireless LAN (802.11b technology).

TIPS FOR SEASONED AND FIRST-TIME TRAVELERS TO JAPAN

The ISMRM 12th Scientific Meeting and Exhibition will undoubtedly not be the first event to draw many of our attendees to Japan; however, others may be navigating their way to Asia for the very first time. In an attempt to demystify the process of planning a trip to Kyoto, we have compiled helpful hints and organized them in a way we hope you will find helpful. Other useful tips and tricks will be posted on the ISMRM web site as the meeting approaches; please monitor the ISMRM meeting pages for updates (http://www.ismrm.org/04/index.htm).

How to Arrange Housing and Air Travel

If you have not already contacted the **JTB Kyoto Office**, the official travel agent for the ISMRM 12th Scientific Meeting and Exhibition, to make your travel arrangements, please do so. The JTB is available to handle all related travel arrangements, including airfare, hotel accommodations, and tours.

Housing (Deadline 15 April 2004)

In order to get the special convention rates negotiated with the Kyoto hotels for this meeting, attendees must make their hotel reservations through the official housing company, JTB. More detailed information on the various hotels, including their location in proximity to the Kyoto International Conference Hall, is provided on the ISMRM Website(http://www.ismrm.org/04/index.htm). Do not contact hotels directly in Kyoto as reservations are to be made only through the officially appointed housing company. Official Society hotels will not honor direct inquiries for hotel rooms at the special convention rates. In order to insure the special convention rates, please make your reservations no later than 15 April 2004.

To make Housing arrangements, please contact:
JTB Kyoto Office
Higashi-shiokoji-cho
Shimogyo-ku, Kyoto
600-8216 Japan
Tel: +81 75 361 7241
Fax: +81 75 341 1028
E-mail: kyoto_ei3b@kns.jtb.co.jp

Hotel Cancellation:
In the event of cancellation, written notification should be sent to JTB. The following cancellation fees will be deducted before refunding:

Hotels:
- Up to 9 days before the first night of stay: ¥1,000.
- 2 to 8 days before: 20% of daily room charge (minimum ¥1,000).
- Less than 2 days before, or no notice given: 100% of daily room charge.

Tours:
- Up to 21 days prior to departure day: ¥1,000.
- 20 – 8 days: 10% of tour fare (minimum ¥2,000).
- 7 – 1 days: 20% of tour fare (minimum ¥2,000).
- Prior to starting time, or failure to show without notice: 100% of tour fare.

Air Travel

Airline inquiries from North America should go to:
JTB USA, Inc. Los Angeles
Tel: + 1 800 582 5555
Fax: +1 310 618 1294
E-mail: tor@jtbusa.com
or
JTB USA, Inc. San Francisco
Tel: +1 800 882 3884
Fax: +1 415 986 3989
E-mail: sfo@jtbusa.com

Airline inquiries from Europe should go to:
Creative Tours Europe B.V. Amsterdam
Tel: +31 20 5709860
Fax: +31 20 6736171

Arrival in Osaka Kansai

Osaka's Kansai International Airport (KIX), Japan's second-largest international airport, is the closest international airport serving Kyoto and is located only a little over an hour away from the city depending on your choice of ground transportation. KIX has direct flights from approximately 70 different cities in over 30 different countries, making it a major gateway to the rest of the world. A flight from Europe takes approximately ten hours– nearly the same amount of time as it would take to travel to the West Coast of the United States. Airport services at the Kansai International Airport include currency exchange, ATMs, internet access, postal services, traveler's insurance services, credit card services, car rental, and business services.

From Kansai to Kyoto

There are a number of different ways to get from Osaka's Kansai International Airport to Kyoto, and all methods of transportation vary in terms of cost and convenience.

By Train: The quickest way to get to Kyoto from the Kansai International Airport is by the direct JR Haruka Limited Express (70 minutes). The cost is approximately 3,690 Yen. After you clear customs, take the escalator up one floor and follow the

*See **Travel Tips** page 8*

signs to the railway station, located only minutes from customs. Tickets can be purchased by vending machine or at the ticket counter. The JR Airport Line and JR Kyoto Line are also available, though you must transfer at the Osaka Station. The trip takes 100 minutes, but only costs approximately 1,830 Yen.

By Bus: Direct airport buses take about 100 minutes and cost approximately 2,500 Yen. Buses leave from the 1st floor, outside the International Arrival Terminal. Ticket machines are outside the building. Passengers bound for the Kyoto Station need to take the number 8 bus.

By Airport Shuttle: Sky Gate Shuttle, the door-to-door jumbo taxi service between Kyoto and Kansai Airport (KIX) operated by MK Taxi, costs approximately 3,000 Yen one-way between the airport and the individual's hotel in Kyoto. Other companies offer a similar service; however, MK allows bookings from overseas via the internet. Due to traffic conditions the taxi is slower than the train, but the personal touch makes it worth the time. Sky Gate Shuttle drivers welcome passengers with a name card as they exit the customs area. To make a reservation call +81+75+721+2237 or visit the Sky Gate Shuttle web site: http://www.mk-group.co.jp/english/shuttle2/top.htm. Reservations must be made at least two days prior to departure date.

By Taxi: Taxi stands are located outside the 1st floor of the Passenger Terminal Building. Travel time to Kyoto via taxi is approximately 120 minutes; the approximate fare is 32,000 Yen.

Arrival in Tokyo

The Tokyo International Airport (Narita) is the destination of choice for those wishing to travel to Kyoto via Tokyo. For your convenience, services available at the Narita Airport include currency exchange, ATMs, credit card service counters, railway and bus ticket counters, car and cell phone rental services, internet access, and traveler's insurance services, among others.

From Tokyo to Kyoto

From the Narita Airport, travelers have the option of getting to Kyoto via land or air.

By Air to Osaka's Kansai International Airport: Check-in counters for domestic flights are located on the 1st floor of the southern end of Terminal 2 (on the same floor as the international arrivals lobby). After checking in, proceed to the domestic terminal on the 2nd floor. If you arrive at Terminal 2: After completing Immigration and Customs procedures, pass through into the arrival lobby, turn left and move down to the domestic check-in counters at the southern end of the terminal. If you arrive at Terminal 1: After completing Immigration and Customs procedures, board the Terminal Connection Bus (free of charge) at Stand 6 outside Terminal 1 to Terminal 2. Exit from the bus at Terminal 2, turn right and make your way down to the domestic check-in counters at the southern end of the terminal.

By Train: The Narita Express (N'EX) train from Narita Airport takes 53 minutes to arrive at Tokyo station, where the famous Shinkansen ("bullet train") departs. There are N'EX stations in both the Narita Airport Terminal 1 and Terminal 2. From the Tokyo station, the Shinkansen ride to Kyoto Station is as short as 2 hours and 15 minutes and costs approximately 13,220 Yen.

Getting Around Kyoto

Kyoto is a compact and very accessible city. Almost any two points within the city can be reached within thirty minutes. Kyoto is serviced by a city bus system run by several companies, Japan Railways (JR) lines, two subways, five private train lines, and a large number of taxi companies. A one-day ticket allows for unlimited use of City and Kyoto bus lines as well as the subway line throughout the day.

Since Kyoto welcomes many foreign visitors each year, every effort has been made to make navigating public transportation as easy as possible, even for non-Japanese speakers. Buses have destinations posted in both Japanese and English, and announce points of interest in English as well. Subway stations have signs posted in Japanese, English, Chinese, and Korean, and stops are announced in Japanese and English. Residents are friendly to foreigners, and if you speak in slow, simple English, even the average pedestrian will likely be able and willing to help you if there should be a need. Hotels also have bilingual staff on call for the convenience of guests.

By Bus: A network of bus lines covers the entire city of Kyoto. Buses run every 7-20 minutes until 22.00. Entry to the bus is usually through the back door; exit via the front door (and pay at the front). In nearly all cases, inner-city bus fares are fixed (220 Yen). If you only plan to ride the bus for one day, there is also a special one-day ticket available for 500 Yen. Upon boarding buses serving outer areas, take a numbered ticket (seiri-ken) when entering the bus. The number of the ticket is indicated on an electronic board at the front of the bus, telling you how much you will have to pay. All of the above buses have change-making machines for 100 Yen and 500 Yen coins, or 1000 Yen notes (the driver will not usually be able to change larger notes). Children under 12 years of age pay half of the adult fare; children under 6 do not have to pay (limited to two children under six years of age per adult). To pay, simply put the money into the see-through plastic box next to the driver on your way out.

By Train or Subway: Two subway lines serve Kyoto: the Karasuma Line from north to south beginning at one end at the KICH and ending at Takeda; and the Tozai Line running from east to west. In addition to the subway, there are five private

*See **Travel Tips** page 9*

train companies operating in the city area (Keifuku, Eizan, Keihan, Hankyu, and Kintetsu).

- Most train and subway stations are equipped with automatic ticket dispensing machines. Tickets for short distance trips are best purchased at vending machines, while tickets and seat reservations for long distance trips can be purchased at ticket counters in train stations. To purchase your ticket at a vending machine, first find your destination and the corresponding fare on the map above the vending machine. Put your money into the machine, then press the button for your ticket price. Most machines accept coins of 10, 50, 100 and 500 Yen and bills of 1000 Yen. Many machines also accept larger bills. If you are unable to find your destination and the corresponding fare, you can purchase a ticket for the lowest possible price, and pay the difference at the destination station.

- After buying the ticket, you can proceed through the ticket gate. Automatic ticket gates can be found in busy stations: Insert the ticket into the slot, walk through the gate and pick up the ticket on the other side. If you insert an invalid ticket, the gate will close and an alarm will sound. If you have a Japan Rail Pass, you cannot use automatic gates, but must pass through a manned gate, showing your pass to the station staff. In order to access Shinkansen platforms, you need to pass through a second or separate set of ticket gates. They are usually well marked.

- Find your platform by looking for your train line and direction. Most important signs are written in Japanese and English, and increasingly also in Chinese and Korean. On many platforms, marks on the floor indicate where the doors of the arriving train will be located. Waiting passengers will line up behind those marks. Train drivers are trained to stop within centimeters. In case of long distance trains, additional marks will indicate car numbers and whether the car is an ordinary or green car, and whether it carries reserved or non-reserved, and smoking or non-smoking seats. Note that some platforms are served by trains of different train categories (e.g. local and rapid trains). Displays indicate the next arriving train's category and, at some stations, the set of upcoming stations it serves.

- Wait for passengers to exit before entering the train. Be careful not to block the door at stations, especially if the train is crowded. Put bags on the floor or onto the baggage shelves. Talking on mobile phones inside trains is forbidden, except in the entrance sections of Shinkansen and limited express trains.

- Upcoming stations and connecting lines are announced in Japanese. On Shinkansen and some other lines frequently used by foreign visitors, the announcements are also made in English. Shinkansen and other newer trains also feature displays showing the next station. The station names on platforms are written in kanji, hiragana, and romaji (Roman letters). Furthermore, station signs always show the previous and next station.

- At your destination, leave the paid fare zone through the ticket gates in the same way as you entered. However, in case of single tickets, you won't get your ticket back upon exit. If you did not pay the correct fare for your destination station, you have to pay the difference at a "Fare Adjustment" machine before leaving through the gates.

For more information on train travel in Kyoto:
Japan Railway (JR): +81-75-351-4004
Hankyu Railways: +81-75-211-1052
Keihan Railways: +81-75-561-0033
Keifuku Railway: +81-75-841-9381
Eizan Railway: +81-75-781-5121

Traffica Pre-paid Tickets: These prepaid cards can be used for all city subways and buses. They come in 1,000 Yen and 3,000 Yen value sizes, and can be used like a ticket to enter the transportation. The 3,000 Yen cards are discounted. There is no time limit on these cards.

All-Kyoto Tickets: If you plan to use Kyoto's transportation system a lot in a single day or over a two-day period, the city offers all-Kyoto tickets (one-day and two-day) that can be used on City buses, Kyoto buses and subways without limit. The ticket also entitles you to some discounts at temples, and comes with a guide map. You can purchase these tickets at the city bus and subway information center, subway stations, city bus operating stations, and at appointed hotels and inns in the city. Fares: Adult one-day ticket is 1,200 Yen; Two-day ticket is 2,000 Yen.

Other Options: For further information on city transportation options in Kyoto, please go to the Kyoto City Bus and Subway Guide at http://www.city.kyoto.jp/kotsu/english/e_guide.htmascii

We wish you safe and happy travels and look forward to welcoming you to the beautiful city of Kyoto, Japan, in May for the ISMRM 12th Scientific Meeting and Exhibition.

Be sure to monitor the ISMRM web site for these upcoming features:

- Useful Japanese words and phrases
- Must-see destinations for the Kyoto visitor

WEEKEND EDUCATIONAL PROGRAMS

SATURDAY, 15 MAY 2004

Brain Function and fMRI – Day 1 08.30 to 17.50 Main Hall	**MR Physics for Physicists – Day 1** 08.30 to 17.50 Room A	**MR Spectroscopy: Basics and Clinical Applications** 08.30 to 18.00 Room B-1	**Advanced Body MRI** 08.30 to 17.15 Room B-2	**Neuroimaging** 08.30 to 18.10 Room D	**RF Bootcamp** 08.00 to 17.50 Sakura
SMRT TECHNOLOGIST/RADIOGRAPHER PROGRAM – Day 1 07.45 to 17.00 Annex 1 and 2					

SUNDAY, 16 MAY 2004

Brain Function and fMRI – Day 2 08.10 to 14.40 Main Hall	**MR Physics for Physicists – Day 2** 07.30 to 14.30 Room A	**MR Spectroscopy: Frontier Methodology and Applications** 07.30 to 14.30 Room B-1	**Cardiac Imaging** 07.30 to 17.00 Sakura	**MR of Transgenic Mouse Models (MR Omics)** 08.00 to 16.30 Room B-2	**Musculoskeletal MRI** 07.30 to 17.00 Room D
SMRT TECHNOLOGIST/RADIOGRAPHER PROGRAM – Day 2 07.45 to 17.30 Annex 1 and 2					
12:00 to 13:30 Main Hall	**LUNCH – GOLD CORPORATE SYMPOSIUM** **Siemens Medical Solutions**				
STUDY GROUPS 15.00 to 16.30					
Joint Program: **Dynamic NMR Spectroscopy and Psychiatric MRS and MRI** Main Hall	**MR in Drug Research** Room A	**White Matter Diseases** Room B-1			
STUDY GROUPS 16.30 to 18.00					
Cardiac MR Main Hall	**MR of Cancer** Room A	**MR Engineering** Room B-1	**Interventional MR** Room B-2		
OPENING RECEPTION 17.45 to 19.15 Event Hall					

ISMRM 12TH SCIENTIFIC MEETING

MONDAY, 17 MAY 2004

07.45 **WELCOME and Medal Presentations**, ***Michael E. Moseley, President***

08.20 **2004 LAUTERBUR LECTURE:**
From Immune Suppression to Mad Cow Disease– In Vitro NMR Spectroscopy with the Molecules of Life, Kurt Wüthrich

PLENARY LECTURES: MR IMPACT IN METABOLOMICS AND PROTEOMICS

09.00: **From the Genome to the Metabolome by NMR,** *Kevin Brindle*

09.25: **The Tumour Metabolome by ^{1}H MRS: Implications for Medical Diagnosis,** *John R. Griffiths*

09.50: **MR-Based Metabonomic Approaches in Toxicology, Disease Diagnosis and Global Systems Biology**, *Jeremy K. Nicholson*

Main Hall

10.15 - 11.00 — COFFEE BREAK

11.00 - 13.00 — ORAL SESSIONS AND CLINICAL CATEGORICAL

MRA: New Techniques Main Hall	***Clinical Categorical:* Imaging in Drug Development** Room A	**Brain Plasticity and Functional Morphology (MEMRI)** Annex 1	**^{13}C (^{1}H) MRS of Cerebral Physiology and Pathology** Sakura	**Novel RF Coil Arrays and Other Innovations** Annex 2	**Physiology of Brain Activation** Room D	**Uterine and Fetal MRI** Room B-1	***Ex Vivo* and *In Vitro* Approaches to Physio-pathology and Therapeutics** Room B-2

13.00 - 14.00 — LUNCH – GOLD CORPORATE SYMPOSIUM
Main Hall — **GE Healthcare**

14.00 - 16.00 — POSTER SESSION, SYMPOSIUM, BASIC FOCUS SESSIONS, AND CLINICAL SCIENCE FOCUS SESSION

POSTER SESSION	***SMRT and ISMRM Joint Presentation:* Managing MR Artifacts and Pitfalls** Room A	***Clinical Science Focus Session:* Clinical Applications of 3T and Beyond** Annex 2	***Basic Science Focus Session:* MRS Applications: *In Vivo* Dynamic Metabolism and Metabolomics** Room B-1	***Basic Science Focus Session:* Novel Acquisition Approaches in Cancer** Room B-2

16.00 - 16.30 — COFFEE BREAK

16.30 - 18.30 — ORAL SESSIONS AND EDUCATIONAL COURSE

Diffusion: Models and Errors Main Hall	**MR Physics and Techniques for Clinicians** Room A	**Artifacts and Corrections** Annex 1	**Human Brain MRS: 3T and Beyond** Sakura	**fMRI of Primary Sensory Activation** Annex 2	**Hemodynamical Aspects and Ischemia in Animal Brain** Room D	**Image Processing and Quantitative Structural MRI of Brain** Room B-1	**Dynamic Contrast MR in Clinical Cancer: Theory and Applications** Room B-2

18.30 - 20.00 — JAPANESE LANGUAGE SUMMARY SESSIONS 概略会議(日本語で)

Basic Science Highlights, Room B-1 基礎科学のハイライト — New Clinical Developments, Room B-2 新しい臨床開発

18.30 - 20.00 — STUDY GROUPS

Diffusion and Perfusion MR Main Hall	**MR Flow and Motion Quantitation** Room A	**Molecular and Cellular Imaging** Annex 1	**High Field Systems and Applications** Annex 2	**Musculoskeletal Imaging** Sakura	**Hyperpolarized Noble Gas MR** Room D

TUESDAY, 18 MAY 2004

07.00 - 08.00 **Morning Categorical Courses:** **Functional Body MRI: From Morphology to Function,** Sakura
Understanding Diffusion Tensor Imaging and Functional MRI, Room A
Echo Management, Room D
Established and Evolving Applications of MRA, Annex 2
New Horizons in Musculoskeletal Imaging, Room B-1
Parallel Imaging 2004, Annex 1
Spectroscopy: The Brain and Beyond, Room B-2

PLENARY LECTURES: MRI BEYOND TISSUE ANATOMY WITH NOVEL CONTRAST AGENTS

08.15: **MRI of Biochemical Variables with Novel Contrast Agents**, *A. Dean Sherry*

08.40: **Improved Blood Pool Agents for High Resolution Angiography and Vascular Research**, *Robert M. Weisskoff*

09.05: **Stem Cell Tracking in Physiology and Pathology**, *Mathias Hoehn*

Main Hall

09.30 - 10.30 COFFEE BREAK

10.30 - 12.30 ORAL SESSIONS AND CLINICAL CATEGORICAL

Labeling and Tracking of (Stem) Cells Main Hall	***Clinical Categorical:*** **Interventional MRI: The State of the Art and Beyond** Room A	**Myocardial Viability: From Pulse Sequences to Patients** Annex 1	**Exploiting Endogenous Contrast Mechanisms** Sakura	**RF Pulse Design and Manipulation** Annex 2	**fMRI: Spatial Temporal Response** Room D	**Evolution and Validation of Cartilage MRI in Humans** Room B-1	**Imaging the Tumor Micro-environment** Room B-2

12.30 - 13.30 LUNCH – GOLD CORPORATE SYMPOSIUM
Main Hall **Amersham Health**
"The Great Debate II: Cardiac Controversies"

13:30 - 15:30 POSTER SESSION, CLINICAL SCIENCE FOCUS SESSIONS, AND BASIC SCIENCE FOCUS SESSIONS

POSTER SESSION	***Clinical Science Focus Session:*** **Peripheral and Renal MRA** Room A	***Basic Science Focus Session:*** **Design Considerations for RF Coils in Parallel Imaging** Sakura	***Basic Science Focus Session:*** **MSK Gone Soft: Basic Science MR Imaging of Cartilage and Muscle** Room B-1	***Clinical Science Focus Session:*** **MR Mammography–Clinical and Technical Developments** Room B-2

15.30 - 16.00 COFFEE BREAK

16.00 - 18.00 ORAL SESSIONS AND EDUCATIONAL COURSE

Cells: Inside and Out? Main Hall	**MR Physics and Techniques for Clinicians** Room A	**Rapid Steady State Free Precession Imaging** Annex 1	**fMRI: Spatial and Temporal Signal Characteristics** Sakura	**New Contrast Agents: Theory and Applications** Annex 2	**MR Spectroscopy of Acquired Brain Disease** Room D	**Myocardial Perfusion and Oxygen Consumption** Room B-1	**Techniques for Quantitative Spectroscopic Measurements** Room B-2

18.00 - 19.30 JAPANESE LANGUAGE SUMMARY SESSIONS 概略会議(日本語で)

Basic Science Highlights, Room B-1 基礎科学のハイライト　　New Clinical Developments, Room B-2 新しい臨床開発

18.15 - 19.45 BRONZE CORPORATE MEMBER SYMPOSIA

Tyco Healthcare Mallinckrodt ***"Clinical Application of MR Contrast Delayed-Enhancement"*** Sakura	**Bruker BioSpin MRI, Inc.** ***"Translational Imaging Strategies to Optimize Drug Discovery"*** Room A	**Bracco** ***High Dose Contrast Enhancement in MRI: When, Why, How?*** Annex 1

ISMRM 12TH SCIENTIFIC MEETING

WEDNESDAY, 19 MAY 2004

07.00 - 08.00 **Morning Categorical Courses:**
Functional Body MRI: From Morphology to Function, Sakura
Understanding Diffusion Tensor Imaging and Functional MRI, Room A
Echo Management, Room D
Established and Evolving Applications of MRA, Annex 2
New Horizons in Musculoskeletal Imaging, Room B-1
Parallel Imaging 2004, Annex 1
Spectroscopy: The Brain and Beyond, Room B-2

PLENARY LECTURES: MR IN SCREENING

08.15: **Disease Screening in the 21st Century: Is It Viable and What are the Tools,** *Bruce J. Hillman*

08.40: **MR Screening in Cardiovascular Disease,** *Zahi A. Fayad*

09.05: **Screening for Breast Cancer with Conventional Imaging and MRI,** *Christiane K. Kuhl*

Main Hall

09:.30 - 10.30 COFFEE BREAK

10.30 - 12.30 ORAL SESSIONS AND CLINICAL CATEGORICAL

Limits in Parallel Imaging	*Clinical Categorical:* Hot Topics for Clinical Practice	DTI in the Developing Brain	Novel Reconstructive Methods	Modeling Human Abdominal Disease	Cerebral Vascular Imaging Methodology	Catheter Tracking and Cardiovascular Intervention	Clinical Cancer MRS: Improved Definition
Main Hall	Room A	Annex 1	Sakura	Annex 2	Room D	Room B-1	Room B-2

12.30 - 13.30 LUNCH – GOLD CORPORATE SYMPOSIUM
Main Hall **Philips Medical Systems**
"Breakthrough Applications in MR"

13.30 - 15.30 POSTER SESSION AND CLINICAL SCIENCE FOCUS SESSIONS

POSTER SESSION	*Clinical Science Focus Session:* fMRI of Language and Cognition	*Clinical Science Focus Session:* Cerebrovasvular Diseases and Stroke: Diffusion and Perfusion	*Clinical Science Focus Session:* Novel MR Techniques for Clinical Musculo-skeletal Imaging	*Clinical Science Focus Session:* Digestive Tract MRI
	Sakura	Annex 2	Room B-1	Room B-2

15.30 - 16.00 COFFEE BREAK

16.00 - 18.00 ORAL SESSIONS AND EDUCATIONAL COURSE

Diffusion: Sequences and Schemes	MR Physics and Techniques for Clinicians	Vascular MRI: Illuminating the Wall	MRI and MRS in Multiple Sclerosis	Thermotherapy Assessment	Computational Electromagnetics	fMRI Data Analysis	Liver MR: Focal, Diffuse, and Metabolic
Main Hall	Room A	Annex 1	Sakura	Annex 2	Room D	Room B-1	Room B-2

18.00 - 19.30 JAPANESE LANGUAGE SUMMARY SESSIONS 概略会議(日本語で)

Basic Science Highlights, Room B-1 基礎科学のハイライト New Clinical Developments, Room B-2 新しい臨床開発

18.15 - 19.15 ISMRM BUSINESS MEETING
Room A

ISMRM 12TH SCIENTIFIC MEETING

THURSDAY, 20 MAY 2004

07.00 - 08.00 **Morning Categorical Courses:**
Functional Body MRI: From Morphology to Function, Sakura
Understanding Diffusion Tensor Imaging and Functional MRI, Room A
Echo Management, Room D
Established and Evolving Applications of MRA, Annex 2
New Horizons in Musculoskeletal Imaging, Room B-1
Parallel Imaging 2004, Annex 1
Spectroscopy: The Brain and Beyond, Room B-2

08.00: **Announcement of Young Investigator Awards**

08.15: **INAUGURAL SIR PETER MANSFIELD LECTURE:**
Fast Forward– Horizons in Rapid MR Imaging, Robert R. Edelman

PLENARY LECTURES: THE CURRENT AND FUTURE ROLE OF IMAGING IN CANCER THERAPY ASSESSMENT

08.45: **The Role of Imaging in the Assessment of Cancer Treatment,** *Anthony F. Shields*

09.10: **Current Concepts in MR Based Therapy Assessment,** *Michael V. Knopp*

09.35: **Molecular Imaging in Cancer Therapies of the Future,** *Chrit T. Moonen*

Main Hall

10.00 - 10.30 COFFEE BREAK

10.30 - 12.30 ORAL SESSIONS AND CLINICAL CATEGORICAL

fMRI Imaging Techniques Main Hall	***Clinical Categorical:*** **Cardiovascular MR: Today and Beyond** Room A	**Neuro Impairment** Annex 1	**The Breadth of Rapid Imaging** Sakura	**MRI and MRS to Monitor Anti-tumor Therapy** Annex 2	**Flow Quantification and Vessel Wall Function** Room D	**Functional Renal MRI** Room B-1	**Tissue Characterization with Elasto-graphy and Micrography** Room B-2

12.30 - 13.30
Main Hall
LUNCH – GOLD CORPORATE SYMPOSIUM
Berlex Imaging/Schering AG
"The New Wave in Contrast-Enhanced MRI"

13.30 - 15.30 POSTER SESSION, CLINICAL SCIENCE FOCUS SESSION, AND BASIC SCIENCE FOCUS SESSIONS

POSTER SESSION	***Basic Science Focus Session:*** **Parallel Imaging: Reconstruction Methods and Regularization** Annex 1	***Clinical Science Focus Session:*** **DTI, fMRI, and Volumetrics in Pediatric Brain** Sakura	***Clinical Science Focus Session:*** **fMRI: Drugs, Pain, and Treatment** Annex 2	***Clinical Science Focus Session:*** **Cancer Diagnosis and Brachytherapy** Room B-2

15.30 - 16.00 COFFEE BREAK

16.00 - 18.00 ORAL SESSIONS AND EDUCATIONAL COURSE

Diffusion: Fibers, Layers, and Areas Main Hall	**MR Physics and Techniques for Clinicians** Room A	**Radial Imaging** Annex 1	**Functional and Pharmacological Brain Activation in Animals** Sakura	**Myofiber Architecture and Strain** Annex 2	**MR Safety and Bioeffects** Room D	**MRI of Lung: Form and Function** Room B-1	**Spectroscopic Localization and Editing Techniques** Room B-2

CLOSING EVENING RECEPTION
18:15
The Garden Area

FRIDAY, 21 MAY 2004

07.00 - 08.00 **Morning Categorical Courses:**
Functional Body MRI: From Morphology to Function, Sakura
Understanding Diffusion Tensor Imaging and Functional MRI, Room A
Echo Management, Room D
Established and Evolving Applications of MRA, Annex 2
New Horizons in Musculoskeletal Imaging, Room B-1
Parallel Imaging 2004, Annex 1
Spectroscopy: The Brain and Beyond, Room B-2

PLENARY LECTURES: EXTENDING THE LIMITS OF MRI: NEW CONCEPTS FOR SIGNAL DETECTION AND ENHANCEMENT

08.15: **Signal Detection in NMR: Macroscopic, Microscopic and Nanoscale,** *James Tropp*

08.40: **"Lighting Up" NMR and MRI**, *Alexander Pines*

09.05: **Beyond Relaxation Contrast: Agents for Polarization Enhancement in MR Imaging**, *J. Stefan Petersson*

Main Hall

09.30 - 10.30 COFFEE BREAK

10.30 - 12.30 ORAL SESSIONS

Novel Sequence Design and Optimization	Coronary MRI	Neuro MR Perfusion: Spin Labeling Methods	White Matter Structure and Function by MRI	fMRI of Complex Neural Systems	Advances in Gradient Coil Design and Field Homogeneity Improvement	Image Processing: Segmentation, Registration, Other	Applications of Hyperpolarized Gases
Main Hall	Room A	Annex 1	Sakura	Annex 2	Room D	Room B-1	Room B-2

12.30 ADJOURNMENT

SMRT and ISMRM Joint Presentation at the 12th Scientific Meeting of the ISMRM: Managing MR Artifacts and Pitfalls

Kim Butts and John Christopher, Organizers
Monday, 17 May, 14.00 - 16.00

OVERVIEW

This course will describe the physical bases for artifacts in MR imaging. Building upon this information, it will be described how artifacts serve as pitfalls for clinical interpretation of MR images.

AUDIENCE DESCRIPTION

This session is designed for a broad spectrum of attendees ranging from (1) physicians in all subspecialties, including those new to the field and experts looking to refresh their skills, (2) fellows and residents who wish to learn about potential artifacts and methods to compensate for them, (3) physicists from all levels of expertise, (4) technologists/radiographers with broad ranges of experiences needing to stay knowledgeable of artifacts and how to address them and (5) students and postdoctoral fellows interested in addressing artifacts that are more intrinsic to sequence or hardware design.

EDUCATIONAL OBJECTIVES

Upon completion of this course, participants should be able to:

- Recognize and identify common MR artifacts;
- Describe the physical causes of many common MR artifacts;
- Describe how these artifacts hinder clinical interpretation of MR images;
- Recommend imaging solutions to prevent artifacts in MR images.

PROGRAM

14.00 **MRI Artifacts: A Technical Perspective**
Gregory C. Brown, R.T.

14.25 **The Physics of Cardiac and Blood Flow Artifacts**
David N. Firmin, Ph.D.

14.50 **Neuro and Vascular Pitfalls**
William G. Bradley, Jr., M.D., Ph.D.

15.15 **Body and Cardiac Pitfalls**
Katsuyoshi Ito, M.D.

15.40 **Discussion**

16.00 **Adjournment**

SMRT 13th Annual Meeting Program *"Rising to Excellence"*

Friday, 14 May 2004

18.30-21.00 **Poster Exhibit, Poster Presentations, and Poster Walking Tour Reception**

19.00 **"Susceptibility Weighted Imaging (SWI)"**
Zahid Latif, R.T., (R)(MR)(CT)

19.10 **"Navigator Triggered 3-D Turbo Spin-Echo for MRCP: Comparison with Single Shot Techniques"**
Charles Fasanati, R.T. (R)(MR)

19.20 **"Use of Gadolinium MR Venography to Evaluate Central Venous Stenosis and Occlusion in Patients on Hemodialysis"**
Christopher Au, R.T.

19.30 Break

19.45 **"Protocols and Work-flow in Whole-Body MRI Screening"**
Ya-Wen Shen, R.T.

19.55 **"A New Look into Kicking a Football– An Investigation of Muscle Activity Using MRI"**
Kara Baczkowski, R.T.

20.05 Adjournment

Saturday, 15 May 2004

07.45 Welcome and Announcements
Maureen Ainslie, M.S., R.T. (R)(MR), 2004 SMRT President

08.00 **MR Colonography and Virtual Colonoscopy**
Silke Bosk, R.T.

08.55 **3T Imaging**
David Stanley, B.S., R.T. (R)(MR)

09.50 Break

10.00 **Proffered Paper–** *1st Place Award– Research Focus:*
Caron Murray, R.T., A.C.R., (R)(MR)
"Projection Reconstruction and Time Resolved Imaging of Contrast Kinetics in Breast MRI"

Proffered Paper– *2nd Place Award– Research Focus:*
Joanne Muldoon, M.R.T., (R)(MR)
"Use of Guidance Software During MR Breast Interventional Procedures"

Proffered Paper– *1st Place Award– Clinical Focus:*
Mercedes Pereyra, R.T.
"Comparison Between Single Breath-Hold Volumetric Delayed Enhancement Imaging of the Left Ventricle and Navigator Guided Free Breathing 3D DE Imaging"

Proffered Paper– *3rd Place Award– Clinical Focus:*
Sandra Massing, R.T.
"Assessment of Myocardial Viability using Contrast-Enhanced MRI– Comparison of Gd-DTPA and GD-Bopta"

11.00 Awards Luncheon and SMRT Business Meeting

13.15 **MRI for the Management of Haemochromatosis**
Gregory Brown, R.T.

14.10 **State of the Art in Breast Imaging**
Anne Sawyer-Glover, B.S., R.T. (R)(MR)

15.05 Break

15.20 **Male Pelvis**
E. Scott Pretorius, M.D.

16.15 **Proffered Paper–** *President's Award:*
Eric Douglas, R.T., (MR)
"Direct Comparison of Sensitivity Encoding (SENSE) Accelerated and Conventional 3D Contrast-Enhanced MR Angiography (CE-MRA)of Renal Arteries: Effect of Increased Spatial Resolution"

Proffered Paper– *2nd Place Award– Clinical Focus:*
Sandra Massing, R.T.
"Optimization of Contrast-Enhanced Peripheral MR Angiography with Mid-Femoral Venous Compression (VENCO)"

Proffered Paper–
David Stanley, B.S., R.T. (R)(MR)
"MR Assessment of Laparoscopic Nissen Fundoplication"

17.00 Adjournment

Sunday, 16 May 2004

07.45 Welcome and Announcements

08.00 **Diffusion Tensor MR Tractography**
Roland Bammer, Ph.D.

08.55 **Advances in Abdominal Imaging**
Carolyn K. Roth, R.T. (R)(MR)(CT)(M)(CV)

09.50 Break

10.05 **One Stop Shopping: The 30-Minute Ischemic Heart Disease Exam**
Michaela Schmidt, R.T.

11.00 **Functional Assessment of the Joints using Kinematic MRI**
Frank G. Shellock, Ph.D.

11.55 **Contrast MRA and New Blood Pool Agents**
Martin A. Prince, M.D., Ph.D.

12.50 *Lunch*

13.30 **Clinical and Research Spectroscopy**
H. Cecil Charles, Ph.D.

14.25 Break

14.45 **Proffered Paper–** *3rd Place Award– Research Focus:*
Helle Juhl Simonsen, (MRT)
"Pathogenesis of Corticospinal Tract Degeneration in ALS Patients by Diffusion Tensor Imaging"

Proffered Papers–
Anne Dorte Blankholm, R.T. (MR), Pg.D.
"3D FIESTA (TRUE FISP) Compared to 3D IR-SPGR (Inversion Prepared Spoiled Grass) at C2 Level in the Assessment of Multiple Sclerosis"

Anna Kirilova, R.T., (R)(MR)(MRT)
"Evaluation of PROstate Spectroscopy Examination (PROSE) Sequence in the Treatment and Follow-Up of Patients Pre- and Post- Brachytherapy"

15.30 **MR Safety Forum**
Frank Shellock, Ph.D., Chair and Moderator
Michael Kean, R.T., Alayar Kangarlu, Ph.D., A. Gregory Sorenson, M.D., James Stuppino, B.S., R.T. (R)(MR)

17.30 Adjournment

STUDY GROUP UPDATE

The Study Group program continues to thrive, with 13 study groups presenting programs at the ISMRM 12th Scientific Meeting and Exhibition in Kyoto. Please monitor the ISMRM Website, both under the 12th Scientific Meeting program information and the individual study groups, for program updates; however, following are the preliminary plans of each study group for the Kyoto meeting:

Sunday, 16 May 2004, from 15.00 to 16.30

Dynamic NMR Spectroscopy Study Group *and* Psychiatric MRS and MRI Study Group

The Dynamic NMR Spectroscopy Study Group and the Psychiatric MRS and MRI Study Group will present a joint scientific program entitled ***"Dynamic Measurements of GABA,"*** and separate business meetings on Sunday, 16 May 2004, from 15.00 to 16.30 in the Main Hall.

1. GABA and Inhibitory Neurotransmission, Clinical Importance
2. Measurement Methods of GABA
3. Kinetics of GABA in Response to GABAergic Drugs

Business Meeting: Psychiatric MR Spectroscopy
Announcement of Election Results

Business Meeting: Dynamic NMR Spectroscopy
Announcement of Election Results
Planning Meeting for next Dynamic Spectroscopy Workshop
Website for Dynamic Spectroscopy: Update

MR in Drug Research Study Group

The MR in Drug Research Study Group will present a scientific program entitled ***"MR in Drug Research in Japan,"*** on Sunday, 16 May 2004, from 15.00 to 16.30 in Room A.

Presentations:

Overview of Current Status of MR in Japanese Pharmaceutical Industry
Chair, Yukiharu Yamaguchi, Ph.D., Pfizer Pharmaceuticals, Tokyo, Japan

MR in Japanese Pharmaceutical Industry
Keiko Koga, Ph.D., Otsuka Pharmaceutical Co., Tokushima, Japan

MR in Cardiovascular Drug Research
Jonathan H. Gillard, M.D., University of Cambridge, Cambridge, England, UK

MR in Oncology Drug Research
Teresa M. McShane, M.S., Ph.D., D.V.M., Pfizer, Groton, Connecticut, USA

Adjournment

White Matter Diseases Study Group

The White Matter Study Group will present a scientific program on Sunday, 16 May 2004, from 15.00 to 16.30 in Room B-1.

Scientific Presentation:
Diffusion Tensor Imaging for Developing Brains: What Kind of New Information Can We Obtain?
Susumu M. Mori, Ph.D., Johns Hopkins University School of Medicine, Baltimore, Maryland, USA

Sunday, 16 May 2004, from 16.30 to 18.00

Cardiac MR Study Group

The Cardiac MR Study Group will present a scientific program entitled ***"Controversies in Cardiac MRI,"*** on Sunday, 16 May 2004, from 16.30 to 18.00, in the Main Hall.

Controversies in Cardiac MRI
How Should Visibility Be Assessed?
Delayed Enhancement vs. Dobutamine Stress?
How Should Coronary Artery Disease Be Detected?
MR Angiography vs. Stress Testing

Interventional MR Study Group

The Interventional MR Study Group will present a scientific discussion on Sunday, 16 May 2004, from 16.30 to 18.00 in Room B-2.

Scientific Discussion on MR-Compatible Devices:
MR Compatibility
The Approval Process
Survey of Current Equipment
Interventional MRI of the Future
Question and Answer

MR Engineering Study Group

The MR Engineering Study Group will present a scientific program on Sunday, 16 May 2004, from 16.30 to 18.00 in Room B-1.

Business Meeting

Presentations:

Technical Considerations for a Whole Body 9.4T System
Keith R. Thulborn, M.D., Ph.D., University of Illinois at Chicago, Chicago, Illinois, USA

Gradients and Noise
William A. Edelstein, Ph.D., MR Science LLC, Schenectady, New York, USA

How Many Elements is Best for Head Phased Array Coils–Hardware Considerations
Larrrence L. Wald, Ph.D., Massachusetts General Hospital, Charlestown, Massachusetts, USA

*See **Study Groups** page 18*

MR of Cancer Study Group

The MR of Cancer Study Group will conduct a business meeting and present a scientific program on Sunday, 16 May 2004, from 16.30 to 18.00 in Room A.

Business Meeting

Presentations:

Nano-size Dendrimer-Based MRI Contrast Agents: Applications for Investigation of Tumour Angiogenesis and Lymphatics
Hisataka Kobayashi, M.D., Ph.D, National Institutes of Health, Bethesda, Maryland, USA

Advances in MR Molecular Imaging for Oncology
Dmitri Artemov, Ph.D., Johns Hopkins University School of Medicine, Baltimore, Maryland, USA

Adjournment

Monday, 17 May 2004, from 18.30 to 20.00

Diffusion and Perfusion Study Group

The Diffusion and Perfusion Study Group will have a business meeting and scientific program on Monday, 17 May 2004, from 18.30 to 20.00 in the Main Hall.

Business Meeting and Announcements
Debate on Splitting the Study Group
Perfusion Workshop Highlights
Diffusion Workshop Planning
Artifact Gallery

High Field Systems and Applications Study Group

The High Field Systems and Applications Study Group will conduct a business meeting and present a scientific program on Monday, 17 May 2004, from 18.30 to 20.00 in Annex 2.

Business Meeting
Update on Plans for Study Group Website
Discussion on Renewal of Study Group, Anticipating Expiration
Call for Nominees for 2005 Study Group Officers

Scientific Program

Update on High Field Safety Issues
Penny A. Gowland, Ph.D., University of Nottingham, Nottingham, England, UK

Clinical Potential of High Field MR: What Works and What Doesn't?
Mark C. DeLano, M.D., Michigan State University, East Lansing, Michigan, USA

Managing SAR using Novel RF Design
Jürgen Hennig, Ph.D., Universität Freiburg, Freiburg, Germany

Hyperpolarized Noble Gas MR Study Group

The Hyperpolarized Noble Gas MR Study Group will present a scientific program of two presentations on Monday, 17 May 2004, from 18.30 to 20.00 in Room D.

Business Meeting:

Welcome

Recognition of Study Group Sponsors

ISMRM Announcements

Study Group Membership Status

Announcement of any Upcoming Meetings of Interest

Summary of the Status of Study Group's Web Page Development

Discussion of Study Group Sponsored Workshop

Scientific Program:

Hyperpolarized Noble Gas MRI: A Pulmonologist's Perspective
David Lipson, M.D., University of Pennsylvania, Philadelphia, Pennsylvania, USA

The Potential Role of Hyperpolarized Noble Gas Imaging in Drug Development
Jim Snapper, M.D., Glaxo Smith Kline

MR Flow and Motion Quantitation Study Group

The Flow and Motion Quantitation Study Group will present a scientific program on Monday, 17 May 2004, from 18.30 to 20.00 in Room A.

Meeting Agenda:

Meet and Greet

Business Meeting

Six 5-minute Poster Presentations

Invited Presentation on Elastography
OR Two 10-minute Commercial Software Presentations

Adjournment

Musculoskeletal Imaging Study Group

The Musculoskeletal Study Group will hold a business meeting and present a scientific program on Monday, 17 May 2004, from 18.30 to 20.00 in the Sakura Room.

Molecular and Cellular Imaging Study Group

The Molecular and Cellular Imaging Study Group will present a scientific program on Monday, 17 May 2004, from 18.30 to 20.00 in Annex 1.

FROM THE TREASURER

Update on the Financial Outcome of the Toronto Meeting

In response to our members' concerns regarding the financial outcome of the meeting in Toronto, I am pleased to report that the meeting was a success with an attendance of 3,114.

Rescheduling of the Annual Meeting in Toronto led to greater financial uncertainties than originally predicted when the Board approved the FY2003 annual budget. The Annual Meeting was budgeted to generate $1,770,850 in revenue; the actual amount of such revenue, including corporate support to the technical exhibition and scientific meeting registration fees, generated $1,468,775.

Expenses related to the Annual Meeting were $1,120,718. The budgeted amount was $1,192,500. Direct administrative expenses were $27,126 more than budgeted. The educational and meeting materials were under budget by $30,845. Contractual and professional services were $17,788 more than budgeted. On-site expenses were $9,321 less than budgeted. Travel and lodging expenses were $72,639 less than budgeted, largely as a result of participants not claiming expenses that had been included in the budget. Staff personnel expense and administrative overhead allocated to the Annual Meeting totaled $467,184. Total expense was $1,587,902. The meeting resulted in an excess of expense over revenue of $119,127.

The Society is in good financial shape. On September 30th 2003, the unaudited statement of financial position showed that FY 2003 ended with approximately $4,030,933 in Total Assets. Total Net Assets of $3,532,741 include $3,190,980 in unrestricted net assets. The FY 2003 budget predicted a decrease in Unrestricted Assets of $35,671. The actual change in unrestricted assets on September 30, 2003 was an increase of $286,245. The variance is largely due to an unrealized gain on investments of $262,222. Considering the difficulties and uncertainties posed by the change in the date of the Annual Meeting, the ISMRM has fared remarkably well in FY 2003. However, as in past years it must be kept in mind that the funds allocated to Strategic Programs have been underused and have helped balance the increases in direct expenses.

— Roxanne Deslauriers, ISMRM Treasurer

Board Motions

ISMRM Board of Trustees and Board Motions

OFFICERS

President:
Michael E. Moseley, Ph.D.*
President-Elect:
Walter Kucharczyk, M.D., FRCP(C)*
Vice President:
Chrit T. Moonen, Ph.D.*
Past President:
Richard L. Ehman, M.D.*
Treasurer:
Roxanne Deslauriers, Ph.D.*
Secretary:
David H. Miller, M.D.*

BOARD OF TRUSTEES

Peter S. Allen, Ph.D.
Peter Boesiger, Ph.D.
Linda Chang, M.D.
Jeffrey L. Duerk, Ph.D.*
J. Paul Finn, M.D.
Donald M. Hadley, M.B., Ch.B., Ph.D.
Joseph V. Hajnal, Ph.D.
Margaret A. Hall-Craggs, M.D.
Peter Jezzard, Ph.D.
Risto A. Kauppinen, M.D., Ph.D.
Roland Kreis, Ph.D.
Vivian S. Lee, M.D., Ph.D.
David J. Lomas, M.D., *(ex officio)*
James F. M. Meaney, M.D.
Shoji Naruse, M.D., Ph.D.
Michal Neeman, Ph.D.
C. Leon Partain, M.D., Ph.D., *(ex officio)*
Martin R. Prince, M.D., Ph.D.
Michael B. Smith, Ph.D.
A. Gregory Sorensen, M.D.
Patrick Stroman, Ph.D., *(ex officio)*
Peter Van Zijl, Ph.D.
Felix W. Wehrli, Ph.D., *(ex officio)*

**Executive Committee*

MOTIONS FROM THE MEETINGS OF THE BOARD OF TRUSTEES NOVEMBER 2003

It was moved, seconded, and carried to accept the consent agenda.

It was moved, seconded, and carried that the Nominating Committee is charged to work on a definition of clinician and scientist for consideration by the Board.

It was moved, seconded, and carried to approve the list of 18 names put forward by the Nominating Committee.

It was moved, seconded, and carried to endorse the Second East Mediterranean Congress of MR Imaging.

It was moved, seconded, and carried to endorse the 11th Summer School on MRI and MRS.

It was moved, seconded, and carried to sponsor the Workshop on Advances in Experimental and Clinical MR in Cancer Research.

It was moved, seconded, and carried to approve the nominations of the Awards Committee.

It was moved, seconded, and carried to approve the Study Group on Molecular and Cellular Imaging.

It was moved, seconded, and carried to support the American Board of Medical Physics for five (5) years with US$10,000 per year and to have three (3) ISMRM members to sit on the ABMP Board.

It was moved, seconded, and carried to discontinue the paper version of *MR Pulse* and to continue with the electronic version only.

It was moved, seconded, and carried to use funds from the strategic reserve to support the activity of an Ad Hoc Strategic Planning Committee to develop a new Strategic Plan to be put forward to the Board.

It was moved, seconded, and carried that in order to allow Board members to attend more scientific sessions at Annual Meetings, meetings of the Board, Executive Committee, and other committees will be re-scheduled so that as far as possible they do not occur during Monday through Thursday of the Annual Meeting. A new schedule for Board and committee meetings will be fully installed at Miami in 2005. At Kyoto in 1004, committee meetings only will be re-scheduled, with the Board and Executive Committee meetings occurring at their traditional times.

It was moved, seconded, and carried that Gold Corporate Members can name one person to join the Safety Committee with non-voting *ex officio* status subject to the approval of the President of ISMRM.

It was moved, seconded, and carried to set aside two-thirds of the unrestricted net assets from year 2002/2003 to be placed in the Scientific and Educational Reserve.

It was moved, seconded, and carried to approve the 2004 budget subject to the following amendments: US$10,000 is allocated for the ABMP; there is a salary and bonus increment for the Executive Director of ISMRM; US$20,000 is allocated for printed educational syllabi.

It was moved, seconded, and carried to provide US$10,000 from Fast Track funds to provide stipend support to students from disadvantaged countries whose abstracts fail to meet the threshold for regular stipend support.

Ballots Are Counted

March 2004 ISMRM Election Results

Results of the ISMRM 2004 Ballot

The results of the election for Vice President and members of the Board of Trustees are as follows:

Vice President: J. Paul Finn, M.D.

Board of Trustees: Peter Börnert, Ph.D.
Kim Butts, Ph.D.
Martin O. Leach, Ph.D.
Jeffrey J. Neil, M.D., Ph.D.,
Leif Østergaard, M.D., Ph.D.
Daniel K. Sodickson, M.D., Ph.D.

The Radio Wave Description of MRI – is it time to quietly drop it?

I well remember a conversation some twenty years ago with a now-eminent radiologist. I had protested that, contrary to his description, NMR imaging (as it was then called) did not use radio waves. He listened to my explanation and then said "That may be so, but I'm going to carry on using the description anyway. It's simple and it reassures my patients because radio waves are so familiar." I was shocked, really shocked– so much so that I was at a loss for words. Like most basic scientists, I had been carefully schooled, both as an undergraduate and then as a graduate, to believe that accurate description of physical phenomena was the bedrock of the scientific method. Without it, the grand tower of science was bound to collapse at some point. And now this highly-educated man was riding roughshod over these principles. It was– well– sacrilegious!

Two decades later, I am perhaps sadder and wiser and understand better the total lack of concern with how imaging works– only the images are important. Meanwhile though, there are now dozens of texts out there (particularly those for technologists/radiographers) carrying an inaccurate message, and I have had to endure more than one comment from colleagues in other areas– notably field theory physicists– who shake their head and say "What is it with these imaging people? Don't they know their physics?" To make matters worse, the recent Nobel committee and its lovely poster perpetuates the myth.

Does it really matter? I'm beginning to think it does, but not just from the point of view of academic pedantry. We abolished the "nuclear" from "nuclear magnetic resonance" a good number of years back to remove the implication of radiation– "No nukes in our neighbourhood"– but guess what, it's back. Radio waves are radiation– they radiate energy– and this fact has finally surfaced both in the radiological community and also in the press, the subtle distinction between non-ionising and ionising radiation being totally lost in the noise. If statements like the following haven't yet appeared in your local paper, they will, never fear. These are from mine: Protesting about private MRI clinics in parts of Canada, the chief executive of a certain radiologist's group said "They pose a health hazard because healthy people– the 'worried well' he called them– can walk in without a doctor's referral and be scanned, exposing themselves to an unneeded dose of radiation." In a separate article, a reporter wrote that "a chest MRI is equivalent to 400 to 500 x-rays." When you add to this brew the fear that radio waves from cell (mobile) phones cause cancer, there exists a very real danger that the public will soon perceive MRI as hazardous, and the more subtle danger that the average general practitioner will too. This in turn will influence their referral practices. In short, I believe it is long overdue that we attempt to put the radio wave genie back in the bottle, difficult though it may be, and replace it with some other homely analogy. How about the following: Think of a pulse as being equivalent to suddenly spinning a bicycle wheel, while the received MRI signal is generated by a dynamo– you know, the little generator on the wheel that gives a cyclist light at night. In addition to being homely, this also has the advantage of being reasonably accurate; and did you ever hear of anyone attempting to explain a bicycle dynamo in terms of radio waves?

At this point, I can hear some medical physicists protesting loudly "Of course it's radio waves! Dicke showed in the 50's that the NMR signal was due to 'coherent spontaneous emission', i.e. radio waves, and it's the accepted theory." This so-called "accepted theory" is actually in direct contradiction to classical electromagnetics to which, by the Correspondence Principle, any such quantum description must adhere. However, if these physicists want a quick demonstration that Dicke was wrong, they can simply use his formulae to calculate the radiated energy. They will find it's the same as the classical formula for the radiation from a rotating magnet (he got that bit beautifully right), and with some mathematical juggling, you can show that it's proportional to the sixth power of the magnet field strength; in other words, the size of the radio wave signal created in the MR receiving coil is proportional to the cube of the field strength. If this were so, NMR spectroscopists would be in seventh heaven with their 15 T magnets. Unfortunately, of course, the dependence is only squared, as they will ruefully attest. In some experiments a student and I performed some years ago, we showed that the radio wave description gave completely the wrong voltage in a MR receiving coil at 64 MHz. It was too small by two orders of magnitude, while a calculation using Faraday induction (the "dynamo effect") was right to better than one percent. Physics has moved on since the time of Dicke, but regrettably, MR physics hasn't. Feynmann's theory of quantum electrodynamics is needed to explain the MR signal, but it is a very nasty piece of work best avoided when classical physics gives such a simple and accurate description.

Please note that I am not saying that no radio waves are emitted; merely that their contribution to the MR signal is negligible at the field strengths (up to 1.5 T) we commonly use. If the day ever comes when we start operating routinely at say 8 T, we will have to think again for there, the cubic dependency is catching up with the squared. In the meantime it is probably in all our best interests if the radio wave description is quietly dropped, to be replaced by bicycles and dynamos or the like.

— David Hoult, Institute for Biodiagnostics, National Research Council, Winnipeg, Canada
E-mail: david.hoult@nrc-cnrc.gc.ca

Radiologist Assistant

The hottest topic for technologists today is the role of the advanced practice technologist. The American College of Radiology (ACR) and the American Society of Radiologic Technologists (ASRT) are working together to draft requirements and guidelines for advanced practice technologists. The current statement "The Radiologist Assistant: Improving Patient Care While Providing Work Force Solutions" can be viewed on the ASRT Professional Development webpage at https://www.asrt.org/. This is a first attempt to advance the role of the radiologic technologist in the clinical setting that has been supported by the ACR. However, the idea of advanced practice technologists is not new. There are a few Radiology Physician Assistants (PAs) in existence and Weber State University has had a program since 1996. The United Kingdom has had an Advanced Technologist Program for many years. The recent shortage of Radiologists has spurred the resurgence of the advanced practice technologist in the United States. The American Registry of Radiologic Technologists (ARRT) will offer the first certifying examination for RAs in fall of 2005. The US program will accept no grandfathering.

The ACR wants to set up a model for advanced practitioners that will be well received in clinical practice and that will not risk reimbursement. Several Universities are currently working or have recently started on developing programs through grants from the ASRT: Loma Linda, Midwestern State University, University of Medicine & Dentistry of New Jersey, University of North Carolina at Chapel Hill, Virginia Commonwealth University, State University of New York at Syracuse, Ohio State University, University of Alabama at Birmingham, University of Arkansas at Little Rock, Quinnipiac University, and Northern Kentucky University. Most of these programs are or will be post-baccalaureate certificate or master's degree. An existing program at Weber State University has been instrumental in helping formulate the current draft guidelines and models.

What will RAs do? Advanced Radiographers in the UK fall under various specialties at the master's prepared level. Among the responsibilities of the Advanced Radiographer in the UK are reading films and writing reports, conducting breast biopsies, peripheral contrast angiography, barium enema sessions, colonoscopies with biopsies, administering and prescribing medications, and ordering specific radiological exams (Peter Hogg, UK). The US program will be quite different due to the legal and professional differences in the US healthcare system.

In the US, the RA will be defined as follows: "A radiologist assistant is an advanced-level radiologic technologist who enhances patient care by extending the capacity of the radiologist in the diagnostic imaging environment. The radiologist assistant is an ARRT-certified radiographer who has completed an advanced academic program encompassing a nationally recognized radiologist assistant curriculum and a radiologist-directed clinical preceptorship. With radiologist supervision, the radiologist assistant performs patient assessment, patient management, fluoroscopy and other radiology procedures. The radiologist assistant also makes initial observations of diagnostic images, but does not provide an official interpretation (final written report) as defined by the *ACR Standard for Communication: Diagnostic Radiology*."

The RA in the US will be responsible for patient assessment, patient management and patient education. The RA will perform selected radiology procedures such as dynamic and static fluoroscopy, and possibly cyst aspiration, needle biopsies and lumbar punctures. The RA will also be responsible for evaluating image quality, making initial image observations, and communicating observations to the supervising radiologist. RAs will not do formal written reports or make diagnoses. The biggest area of concern is in the development of methodology for competency assessment. The programs will consist of a combination of didactic courses and a clinical practicum with a radiologist. It is expected that the actual roles of the RA will evolve over time. A curriculum has been drafted and can be viewed at http://www.asrt.org/other_categories/professional_dev/pdfs/2002RACurriculum%20Draft.pdf. It is also noted that the RA position may take longer to establish in some states, since the laws in certain states must be changed/modified to allow some of the proposed functions to be performed by a non-physician.

Why should MR technologists be interested in advanced practice? Although the Radiologist Assistant role at this time is focusing on general radiography, they hope to set up models for advanced practice in all modalities/specialties some day. How MR is going to fit into this picture is yet to be determined. The SMRT is working to come up with ideas and plans to contribute to the formulation of the advanced practice MR technologist. MR technologists are encouraged to contact the ASRT to comment, and to insist that MR technologists have a major voice in the design of the MR advanced practice technologist. The ASRT is seeking public comment. Comments can be sent to Kevin Powers at kpowers@asrt.org or to any member of the SMRT Executive Committee.

— Maureen Hood, SMRT Executive Liaison-External Relations

MR in Drug Development: From Discovery to Clinical Therapeutic Trials

2-3 April 2004

Hilton McLean Tysons Corner
McLean, Virginia, USA

Co-Sponsored by the U.S. Food and Drug Administration

This workshop is seen as a major step forward in bringing together the various players who will help MR technologies approach their potential for beneficial impact on the drug development process. We believe that this will ultimately lead to the development of more efficacious therapies which will enhance public health and safety worldwide.

While there has never been any doubt that MR technologies could have a significant impact on drug development, the issue has been an inadequate understanding of the problems and obstacles involved in achieving this. This meeting will provide an opportunity for scientists, clinicians, regulators and industry representatives to study the issues that are being encountered or will need to be addressed in order to advance the incorporation of MR technologies into drug development. The workshop will cover aspects of the drug development process, technology considerations, and logistics regarding preclinical and clinical studies that will provide the attendees with a broad perspective of the complex issues with which they must deal. Experts will provide a perspective on the basic metabolic processes of ischemia, and there will be representation from both North America and Europe.

This is the first meeting of its type, and over two days it will identify the obstacles to incorporating MR technologies as a routine tool in drug development, and offer directions for overcoming these obstacles.

SESSION TOPICS

- Drug Chemistry: Preclinical Disease Models
- Preclinical Safety Models: Translational Research
- Overview of Drug Development
- Phase II/III Regulatory Experiences
- Panel Discussion on Future Directions

AUDIENCE DESCRIPTION

This workshop is designed for users and developers of MRI methodologies from academia, industry (pharmaceutical and otherwise), and government.
It will be of interest to those in industry and academia who wish to hear regulatory perspectives, and regulators wanting to learn how MR techniques can aid the drug development process.
Prior experience is not required.

CREDIT HOURS AVAILABLE

The International Society for Magnetic Resonance in Medicine designates this educational activity for up to **13.25 category 1** credits towards the Physician's Recognition Award of the American Medical Association. Each physician should claim only those credits actually spent in the activity.

EDUCATIONAL OBJECTIVES

Upon completion of this workshop participants should be able to:

- Describe how MRI techniques can contribute to the drug development process;
- Explain the various stages of drug development and how they relate to each other;
- Identify future applications and directions of MRI methodologies and their future applications to the pharmaceutical industry;
- Recognize how MRI methodologies can be incorporated into clinical trials for regulatory submission;
- Describe how MRI will help in the transition from preclinical to clinical trials in the drug development process;
- Describe the difference between use of MRI for diagnostics vs. clinical therapeutic trials.

WORKSHOP ORGANIZING COMMITTEE

- David S. Lester, Ph.D., Chair, Pfizer Global Research & Development, New York, New York, USA
- Jeffrey L. Evelhoch, Ph.D., Pfizer Global Research & Development, Ann Arbor, Michigan, USA
- John R. Griffiths, M.B.B.S., D.Phil., St. George's Hospital Medical School, London, England, UK
- Nakissa Sadrieh, Ph.D., U.S. Food and Drug Administration, Rockville, Maryland, USA
- Liqun Wang, Ph.D., GlaxoSmithKline, ACCI, Addenbrooke's Hospital, Cambridge, England, UK
- John C. Waterton, Ph.D., AstraZeneca, Macclesfield, Cheshire, England, UK
- Steve C. R. Williams, Ph.D., Institute of Psychiatry, London, England, UK

WORKSHOP SPEAKERS

- Deborah Burstein, Ph.D., Harvard Institute of Medicine, Boston Massachusetts, USA
- Jerry M. Collins, U.S. Food and Drug Administration, Rockville, Maryland, USA
- Marielle Delnomdedieu, Ph.D., Pfizer, Groton, Connecticut, USA
- William Dow, Ph.D., Metaprobe, San Diego, California, USA
- Joseph A. Frank, M.D., National Institutes of Health, Bethesda, Maryland, USA
- Raymond E. Gibson, Ph.D., Merck and Company, West Point, Pennsylvania, USA
- Richard Hargreaves, Ph.D., Merck and Company, West Point, Pennsylvania, USA
- Ajaz Hussain, Ph.D., Food and Drug Administration, Rockville, Maryland, USA
- Gregory M. Lanza, M.D., Ph.D., Washington University School of Medicine, St. Louis, Missouri, USA
- Michael F. Tweedle, Ph.D., Bracco Research USA, Princeton, New Jersey, USA
- David P. Vernon, Ph.D., IBM Life Sciences, Tuscon, Arizona, USA
- Steven Warach, M.D., Ph.D., National Institutes of Health, Bethesda, Maryland, USA
- Paul Workman, Ph.D., UK Centre for Cancer Therapeutics, Sutton, Surrey, England, UK
- Chun Yuan, Ph.D., University of Washington, Seattle, Washington, USA

INTERNATIONAL SOCIETY FOR ISMRM MAGNETIC RESONANCE IN MEDICINE

FOR FURTHER INFORMATION, PLEASE CONTACT ISMRM

Phone: +1 510 841 1899 FAX: +1 510 841 2340 E-mail: info@ismrm.org ISMRM Website: www.ismrm.org

Mark Your Calendar!

Other Meetings of Interest

http://www.ismrm.org/dates/

ISMRM IMPORTANT DATES AND DEADLINES

21-23 MARCH 2004
ISMRM Workshop on
Quantitative Cerebral Perfusion Imaging Using MRI: A Technical Perspective
Isola di San Servolo, Venice, Italy.

2-3 APRIL 2004
ISMRM Workshop on
MR in Drug Development: From Discovery to Clinical Therapeutic Trials
Hilton McLean Tyson's Corner, McLean, Virginia, USA.

2 APRIL 2004
Deadline for Advance Registration for the ISMRM Twelfth Scientific Meeting & Exhibition.

30 APRIL 2004
Full Text version of the *Proceedings* is available online to preregistered attendees only.

15-21 MAY 2004

TWELFTH SCIENTIFIC MEETING AND EXHIBITION *KYOTO • JAPAN*

FRIDAY, 14 MAY 2004
On-site Registration open from 14.00 - 20.00.
SMRT Poster Tour & Reception 18.30 - 20.00.

SATURDAY, 15 MAY 2004
Weekend Educational Programs begin.
On-site Registration open from 06.30 - 18.00.
SMRT 13th Annual Meeting begins 07.45.

SUNDAY, 16 MAY 2004
Weekend Educational Programs continue.
On-site Registration open from 07.00 - 18.00.
SMRT 13th Annual Meeting 07.45.

MONDAY, 17 MAY 2004
On-site Registration open from 06.30 - 18.00.
Scientific Sessions begin at 07.45.
Technical Exhibition open at 10.00.

TUESDAY-THURSDAY, 18-20 MAY 2004
On-site Registration open from 06.30 - 18.00.
Morning Categorical Courses begin at 07.00.
Scientific Sessions begin at 08.15.
Technical Exhibition open at 09.30.

FRIDAY, 21 MAY 2004
On-site Registration open from 06.30 - 12.30.
Morning Categorical Courses begin at 07.00.
Scientific Sessions begin at 08.15.
Scientific Meeting adjourns at 12.30.

Bill Negendank Award Fund

In memory of William George Negendank, M.D., his colleagues in the ISMRM MR of Cancer Study Group have established the ***Bill Negendank Award Fund*** to recognize outstanding young investigators in the field of Cancer MR (see *MR Pulse*, Vol. 3, No. 3, page 6). To make your tax-deductible contribution, please send your check made payable to the ISMRM or submit your Visa, MasterCard, American Express, or Eurocard number, expiration date, and amount you wish to donate to the following address:

Bill Negendank Award Fund, International Society for Magnetic Resonance in Medicine, 2118 Milvia Street, Suite 201, Berkeley, CA 94704, USA

INTERNATIONAL SOCIETY FOR ISMRM MAGNETIC RESONANCE IN MEDICINE

International Society for Magnetic Resonance in Medicine
2118 Milvia Street, Suite 201
Berkeley, CA 94704, USA
Phone: +1 510 841 1899
FAX: +1 510 841 2340
E-mail: info@ismrm.org
Website: www.ismrm.org

Editor: Patrick Stroman, Ph.D.
Associate Editor: F. Scott Pereles, M.D.
Executive Director: Jane E. Tiemann
Publications Manager: Sheryl Liebscher