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ESMRMB 2006 WARSAW

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Gabriel P. Krestin, Bernard Van Beers WELCOME	3
Klaas Prüssmann STARTING A CAREER IN MR? ESMRMB REACHES OUT TO JUNIORS	4
Klaas Prüssmann SUBMISSION STATISTICS ESMRMB 2006	5
ESMRMB 2006 REGISTRATION	5
CARDIAC MR THROWS DOWN SERIOUS CHALLENGE	6–7
Jens Bremerich, Wolfgang Steinbrich SCHOOL-OF-MRI: FIRST HANDS-ON WORKSHOPS	8
Klaus Scheffler LECTURES ON MR	9
David Norris SAFETY: EC DIRECTIVE 2004/40/EC	10
Patrick J. Cozzone MAGMA HIGHLIGHTS	11
ISMRM–ESMRMB JOINT ANNUAL MEETING 2007: CHANGED DATE AND VENUE	12





Gabriel P.
Krestin
President



Bernard
Van Beers
Secretary

Dear Members of ESMRMB, dear Colleagues,

It is with great pleasure and pride that we present to you on behalf of the entire Executive Board of our Society the first edition of our electronic newsletter. We think that good and up-to-date information is one of the prerequisites of a well-functioning organisation. Moreover, the Executive Board of ESMRMB considers that keeping the membership of our Society well informed may only increase the involvement and commitment of our members. This involvement and commitment would be however underscored if the newsletter could serve as the first step towards an increasing dialogue between the officers of the Society and the membership. Therefore we hope that you will not only read but also react and advise us on the matters raised in this and future newsletters.

The European Society for Magnetic Resonance in Medicine and Biology is a unique professional organisation gathering both physicians involved in daily medical practice and scientists mainly dedicated to the advancement of knowledge and development within the field of biomedical MR. This unique interaction of professionals from different disciplines provides not only the orientation but also the strength of our organisation. All our goals and activities have the purpose to serve in one way or another our diverse community involved in biomedical MR. Our Society is in a good strategic and financial shape. However, this fact only encourages us to further extend and improve our services towards our community and particularly towards our membership. Our extensive teaching activities, the Annual Scientific Meeting, and our yearly improving journal MAGMA form a solid basis of these efforts. But there are also additional current issues that draw our attention and have led to new strategies: the European EMF Directive has kept us busy over the past couple of months and still needs our utmost attention. Our new programme "Investing in the Youth" offering free participation for our students and residents in our Annual Scientific Meeting shows the commitment of our organisation towards the future generation.

We strongly hope that you will continue to support our activities and give us the feedback that is necessary to extend and improve them over the next years.

Gabriel P. Krestin
President

Bernard Van Beers
Secretary

Klaas Prüssmann
Chairman
SPC 2006



Why should a young scientist go into MR research? The foundations of NMR spectroscopy are well established and over 60 years old, the concept of MR imaging has been known for more than half that time. The field has advanced at an impressive pace and already reached a stage of tremendous diversity, complexity, and impact. So for those starting an MR career today it is only natural to consider carefully what will drive the field for the next 30 years.

In trying to answer this question one must keep in mind that the evolution of MR research has constantly proven unpredictable in the past. Much of present-day MR technology was unforeseen in the early days, while the diversity of MR methods and the breadth of their applications continue to defy all but the most visionary prophecies.

And today again it would be foolish to make specific predictions. But there are strong indications that MR will continue to thrive and break new ground. First of all, the life sciences continue to grow vigorously and will keep drawing attention and funding for academic and industrial research. Offering one of the most versatile mechanisms for the study of live systems, MR seems bound to grow along with its life-science applications. Medical uses, in particular, will play a central role in efforts to cope with aging populations, increasing prevalence of degenerative diseases, and the challenges of personalised medicine. And finally, the physical, methodological, and engineering basis of MR will see further advances. Today already several strands of innovation are expanding in-vivo MR in fundamental ways, be it with ultra-high magnetic fields, parallel RF systems, molecular probes, or hyperpolarisation.

So there is a strong case to make in favour of a career in MR research. But is Europe a good place for launching it? Clearly, conditions could always be better and there are regional differences, yet overall the continent has a lot to offer. It looks back upon a long and rich MR tradition and is home not only to many excellent research institutions but also to a thriving MR industry. In addition, substantial commitments are currently being made by national bodies to boost research activity in our field.

This is all good news for junior researchers looking for career opportunities. Conversely it poses the challenge to the established MR community to create

conditions in which the next generation of scientists can thrive. Ultimately, bringing current investments to fruition and powering the future advances in the field must rely on the students and junior researchers of today.

The ESMRMB is aware of this challenge and works in various directions to meet it. One undisputed key to the next generation's success is connecting people early on, both across institutions and countries as well as across research areas. Getting connected is the basis of spreading knowledge and ideas, teaming up in research collaborations, and, not least, exposing one's work to others for critical and competitive appraisal. All of these processes are best catalysed by face-to-face encounters and presentations at international meetings. The ESMRMB has therefore decided to reach out to the younger generation by making its annual meetings even more accessible and attractive for this group.

The new policy has two essential elements. In a first move the annual meeting's educational profile is strengthened. The 2006 meeting in Warsaw will offer teaching sessions throughout, giving attendees the freedom to choose their personal balance between education and the latest science.

The second measure concerns the cost of attending ESMRMB meetings. For many students and residents in training financial constraints form a key obstacle to attending international conferences. In view of this issue the Society's Executive Board has decided to make another serious commitment and truly reach out to the youth: This year, students and residents in training are admitted to the annual meeting for free, as long as they register within the advance-registration window. In addition, the traditional student support programme is continued, offering travel assistance to outstanding young colleagues.

ESMRMB is glad and proud to make these contributions to getting juniors connected and up to speed for a brilliant MR career. And we are pleased to report that the Society's outreach seems to address a true demand in the community: For the Warsaw meeting a record number of scientific abstracts has been submitted, amounting to an increase by no less than 22%.

See you there!

SUBMISSION STATISTICS ESMRMB 2006 TOP 10 COUNTRIES

Country	2003 NL	2004 DK	2005 CH	2006 PL	
 DE	89	81	78	118	+ 51%
 PL	19	20	26	60	+ 130%
 FR	51	42	55	58	+ 5%
 UK	41	29	43	52	+ 21%
 IT	40	33	20	37	+ 85%
 CH	33	44	56	36	- 36%
 BE	32	28	21	31	+ 48%
 ES	20	22	22	24	+ 9%
 NL	32	36	20	23	+ 15%
 US	19	23	34	19	- 44%
Total (all countries)	511	517	494	604	+ 22%

ESMRMB 2006 REGISTRATION AND HOTEL INFORMATION

With the abstract notifications being sent and all sessions compiled, it is now time to think about congress registration!

Early registration fees until July 15, 2006

Delegates registering until July 15, 2006 benefit from reduced fees. Please note that your registration can only be processed at the early registration fee, if your registration form and full payment are received by the ESMRMB Office by July 15, 2006.

!!!! Free advance registration for students and residents !!!!!

As an encouragement for participation and submission of their work, ESMRMB for the first time invites undergraduate and graduate (PhD) students and residents in training to join the congress free of charge!

- Your registration form (online or by postal mail/fax) has to be received by the Office until August 25, 2006. For onsite registration in Warsaw, a student/resident fee will apply.
 - Students: A copy of your valid student ID has to be enclosed to your registration. In case of online registration, the proof of your student status has to be received no later than 10 days after registration.
 - Residents in training: A copy of your university diploma (doctoral or equivalent degree after January 1, 2002) and a letter from the head of your department, confirming your "resident in training" status, have to be enclosed to your registration. In case of online registration, the documents have to be received no later than 10 days after registration.
- If you have registered for the meeting as student/resident and are unable to attend, please notify the Office in writing until August 25, 2006.

Extensive information on registration can be found at www.esmrmmb.org
Please address any inquiries to registration@esmrmmb.org

Hotel booking until July 15, 2006

Delegates and spouses are offered special rates at selected hotels of different categories. For more information and bookings, please refer to www.esmrmmb.org

SEE YOU IN WARSAW!

Cardiac MRI is finally poised to move beyond teaching and research institutions into mainstream clinical practice. The evolution of MR systems, software, and postprocessing capabilities is the key behind the current rapid growth and optimistic future projections.

ESMRMB will host a Round Table Discussion on the role of MR in heart disease on September 22 at its forthcoming annual congress, to be held in Warsaw, Poland, from 21 to 23 September. The session leaders will include Dr. Jens Bremerich, University Hospital of Basle, Switzerland; Prof. Albert de Roos, University Medical Centre, Leiden, the Netherlands; and Prof. Reza Razavi, Guy's and St. Thomas' Hospital and King's College, London.

"For a long time, MRI for heart disease was a 'promising' technique," said Prof. de Roos. "Now MRI is delivering practical information for patient management."

MR has shown its value for diagnostic, surgical planning and post-therapy purposes. Among the most commonly used protocol is late enhancement. Late enhancement is fairly easy and straightforward, yielding images that are relatively simple to interpret and providing highly practical patient management information. In patients scheduled for surgery to reshape the left ventricle, for example, late enhancement can clearly show the extent of scar tissue. Late enhancement is also a powerful tool for predicting function recovery after bypass surgery or angioplasty.

"This is important in management of patients after infarction to avoid unnecessary and potentially dangerous revascularisation procedures," said Dr. Bremerich. "Moreover, late enhancement is of value in inflammatory diseases of the heart, like myocarditis."

Among some radiologists, cardiac MRI is considered a 'one-stop-shop' procedure because it provides complementary and clinically relevant information in a single examination. "I guess this term is appropriate since no other modality is capable of providing such complementary information on cardiac function, anatomy, metabolism, and tissue characterisation on a single instrument," said Dr. Bremerich. Others find this description premature, noting that MRI still lags behind multislice CT (MSCT) for coronary and perfusion studies. ECG-gated coronary MSCT remains superior to MRI for assessing bypass patency.

Coronary MSCT may still overshadow cardiac MR in some applications, but advanced MR is catching up with MSCT in both sensitivity and specificity for detecting stenosis. MSCT is MR's primary competitor for assessing patients after bypass surgery. MSCT is simple, quick and can be less expensive. Although there is not yet a 'robust' coronary MR protocol, MRI can still provide information on bypass patency and restenosis similar to MSCT, with the added value of showing flow and function.

Evolving applications include cardiac MR for paediatric patients. Children with congenital heart defects are more likely to suffer adverse reactions to conventional X-ray cardiac catheterisation and the radiation exposure of such procedures carries much higher risks than in adults. Prof. Razavi and his colleagues have used MRI to define ventricular and valvar function and vascular anatomy in infants with hypoplastic left heart syndrome (following the Norwood operation). The MR scans are then used to plan the bidirectional cavopulmonary connection.

MR for heart disease still has its contraindications, including electrical implants, claustrophobic patients, and lengthy examinations such as perfusion studies. Equipment manufacturers, however, are racing to develop electric implants that will be MR-compatible. New large-bore, short-gantry scanners may help claustrophobic patients, and advanced software should improve the ease and reliability of image

analysis. Cost can also be a thorny issue. Variations within the healthcare delivery and financing systems of European countries make comparisons difficult. In the Netherlands, for instance, due to global capping of expenses, cardiac MRI is reimbursed at a single fee rate regardless of complexity, technique, image processing, or contrast use, Prof. de Roos noted.

Technical developments in MR specifications, as well as new contrast agents, will help overcome current limitations. Some centres, like that in Leiden, have moved from 1.5T systems, MR's gold standard for nearly two decades, to 3T systems. The Leiden centre also has a 7T system for human scanning under construction. As more protocols are developed to work with these powerful systems, new MR scanning applications are sure to emerge.

Few question the strong potential of MRI to play a major role in diagnosis and management of heart disease, but many observers wonder whether these applications will remain in the hands of radiologists, move to the control of cardiologists, or be shared.

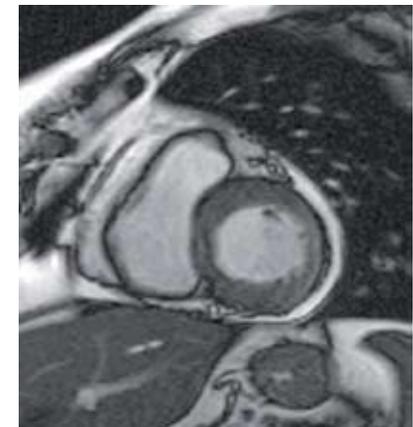
The great potential of MRI is very attractive to most people involved in the field," Prof. de Roos observed. "A multidisciplinary approach is the most productive because it takes advantage of the expertise of many people. Most people involved recognise that these technologies involve clinical as well as technical expertise which may be difficult to find in just one person."

This article was written by Brenda Tilke and published in ESR Newsletter 02/06.

**Round Table
Discussion,
September 22,
17:15 – 18:15**
Imaging heart
disease:
Which role can MR
play?

Cardiac MR scan of 62-year old patient with typical posterior-inferior infarction. The contrast agent, MultiHance from Bracco, was used.

***Provided by Dr. G. Schneider,
Homburg, Germany***



The School of MRI is the prospering educational module of the ESMRMB attracting an increasing number of scientists, clinicians and technologists seeking to enhance their knowledge of magnetic resonance and its clinical applications.

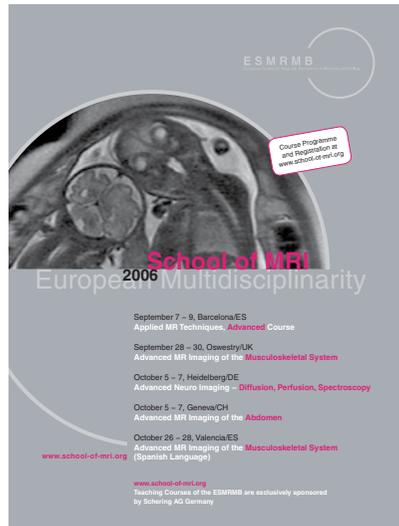
In 2006, the School of MRI has further extended its activities by introducing a Hands-On Workshop in advanced cardiac imaging. This specific area attracts increasing attention because of the unique capability of MR to image cardiac function, morphology and metabolism on a single instrument. The role of MR in imaging congenital heart disease, masses, pericardial disease, cardiomyopathies, metabolic and inflammatory disease is well established. More recently, MR has evolved to a strong tool for perfusion assessment and is now the gold standard for cardiac function and viability. These parameters are of paramount importance for management of patients with coronary heart disease, the most frequent cause of death in Europe.

Cardiac imaging, however, remains technically demanding and requires profound knowledge of MR methodology and cardiac pathophysiology. Cardiac and respiratory gating as well as stress testing are unique to cardiac imaging and were key issues of the first Hands-On Workshop, held at the University Hospital Basle in Switzerland. Students from Europe, Australia, Turkey, and the United States discussed indications, protocols, stress medication, safety issues, concepts for cardiac emergencies in the MR environment, optimisation of parameters, and reduction of typical artifacts. Volunteers were imaged at standard and large bore magnets allowing direct comparison of both scanners and thorough discussion of every single step during the process of set-up, image acquisition and postprocessing. Function, flow and perfusion data were analysed by all participants. This Hands-On training scheme closes the gap between theory in the lecture room and practical application at the home institution.

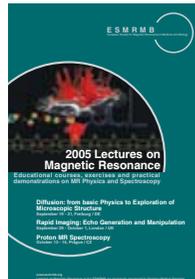
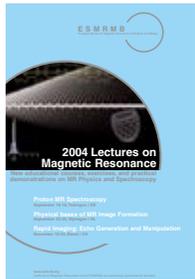
Jens Bremerich
Course Organiser, School of MRI Cardiac Course

Wolfgang Steinbrich
Director of the School of MRI

Department of Radiology
University Hospital Basle
4031 Basle, Switzerland



Visit: www.school-of-mri.org



While education and courses on magnetic resonance techniques and applications for clinicians, radiologists and technicians have a long tradition and success, comparable education possibilities for physicists and engineers are nearly completely missing. In 2003 ESMRMB decided to fill this gap and, in parallel to the more clinically oriented School of MRI, to launch the Lectures on Magnetic Resonance.

With the first Lectures on Magnetic Resonance given in 2004 the ESMRMB has pioneered new education courses that are especially designed to provide the physical fundamentals of magnetic resonance imaging and spectroscopy, as well as aspects of applications of these techniques in clinical and biochemical research and development.

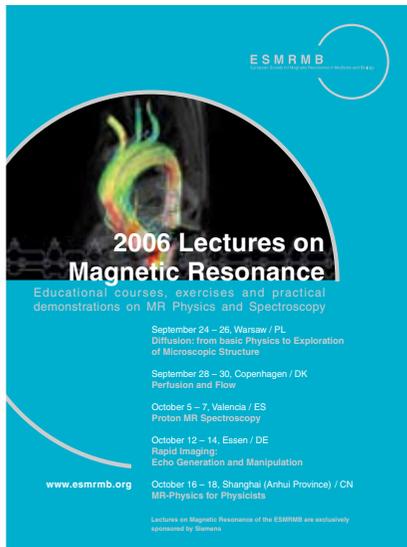
The ESMRMB and its Education and Workshop Committee is convinced that there is a strong need and request to provide this kind of courses that are dedicated towards the needs of MR physicists and other basic scientists working within a clinical or research

environment. The Lectures on Magnetic Resonance are thus organised and composed to offer a physically and mathematically oriented description of basic and non-basic physical properties of state-of-the-art MR techniques.

Starting with two lectures in 2004 on “Rapid Imaging: Echo Generation and Manipulation” in Basle, Switzerland, and “Proton MR Spectroscopy” in Tübingen, Germany, the programme of the Lectures on Magnetic Resonance was substantially increased during the following years. For 2005 a new course on “Diffusion: from basic Physics to Exploration of Microscopic Structure” was added. In 2006 the Lectures on Magnetic Resonance will offer five courses on Rapid Imaging, Flow and Perfusion, Diffusion, Spectroscopy, and an overview on MR-Physics in China in October.

Klaus Scheffler

Director of the Lectures on MR programme



Check out this year's programme at
www.esmrb.org

Boat on the river Thames: Social evening during “Rapid Imaging: Echo Generation and Manipulation” course given September 2005 in London. Participants and our lecturers (Stefan Petersson, left, and Klaus Scheffler, Director of Lectures on MR, right) are enjoying fish and chips!



David Norris
 Chairman,
 ESMRMB
 Committee on
 Safety Issues



Impact on the MR community and current state

This Directive lays down a minimum safety requirement for the protection of workers from the harmful effects of electromagnetic radiation, for all nations within the EU, and has to be implemented in national law by all member states by the 30th April 2008. The principle of the Directive itself is praiseworthy, however, the actual exposure values to be found in the Annex to the Directive are conservative and can impinge on the practice of MRI in a number of situations.

The Directive sets out a range of action values for magnetic fields as a function of frequency. If the action values are exceeded then the employer is obliged to determine whether the associated exposure limits are also exceeded. The main problem for the MR community is posed by the proposed limits for time-varying magnetic fields in the kHz range. Such magnetic fields are generated by the switched magnetic field gradients used for spatial localisation in MRI. Furthermore motion in the gradient of a static magnetic field inevitably results in exposure to a time-varying field, and is hence covered by the terms of the Directive.

The Directive will impact on the following situations:

1. The field of the switched magnetic field gradients used within the MRI system extends to some extent outside the bore of the magnet. Any professional in the vicinity of the magnet during an investigation may be exposed to fields in excess of the exposure limits. This will impinge on those providing a comforting presence to easily stressed patients during an examination, such as children, as well as any examinations involving anaesthetics or injection by hand during the examination.

2. The stray magnetic field of modern systems can go from a few milli-Tesla to hundreds of milli-Tesla over the first metre from the end of the magnet bore. Hence a person moving even at a modest speed of about a metre per second will be exposed to significant changes in magnetic field. Dependent on the field strength, magnet design and speed of motion, the exposure values of the Directive may be exceeded. The effects in this situation are particularly severe for very high field systems particularly with a self-shielded magnet design. Although no static field limit was imposed in the Directive, this regulation will make it difficult or impossible to use some systems.
3. In interventional MR the interventionalist may be exposed to a combination of the two above effects. The precise details will of course depend on the system being used, but they may be exposed to the same switched magnetic field gradients as the patient, and also move in strong static field gradients.

The Directive is concerned with protecting workers against acute short-term effects. The limits hence apply to any exposure, however brief. The limits are taken from recommendations of the International Commission for Non-Ionising Radiation Protection (ICNIRP) that were made in 1998. Careful reading of the ICNIRP publication reveals that the limits were set in order to avoid physiological effects in general, and not specifically harmful effects.

In March representatives of all radiological and scientific organisations active in MRI in Europe visited Brussels for a discussion with Commissioner Spidla, the EU Commissioner responsible for Employment, Social Affairs and Equal Opportunities. The organisations represented were the EAR, ECR, EFOMP, ESMRMB, ISMRM, UEMS. The delegation received a sympathetic hearing, but it was pointed out during the meeting that changing an established Directive can be a lengthy business. The Commission is now establishing a committee in order to explore the exact effects of the Directive. In the short term it is important that the MR-user community makes its voice heard at both the national and international level. Change to the Directive will most easily be achieved if the European Commission, Council and Parliament all agree that it is necessary, and this will only be achieved by concerted action to bring our case to the Commission, national representatives and MEPs.

MAGMA (Magnetic Resonance Materials In Physics Biology And Medicine) is the official journal of the European Society for Magnetic Resonance in Medicine and Biology. It is published in both electronic and print formats by Springer (Germany). The journal is widely distributed worldwide through the Springer consortia system and journal subscriptions. At the moment, MAGMA is received electronically by over 3,600 institutions throughout the world.

MAGMA is a multidisciplinary international journal devoted to the publication of articles on all aspects of magnetic resonance techniques and their applications in medicine and biology. MAGMA currently publishes short communications, full-length research papers, invited reviews, commentaries, and book reviews six times a year. Short communications are intended for the rapid publication of case reports, technical and methodological notes or any important new findings of immediate interest to the community. The subject areas covered by MAGMA include:

- advances in materials, hardware and software in magnetic resonance technology,
- new developments and results in research and practical applications of magnetic resonance imaging and spectroscopy related to biology and medicine,
- study of animal models and intact cells,
- reports of clinical trials on humans and clinical validation of magnetic resonance protocols.

MAGMA is published with a frequency of six regular issues per calendar year. Regular issues contain primarily peer-reviewed scientific articles and may also contain Society news, commentaries and other material at the discretion of ESMRMB and the Editor-in-Chief. MAGMA being the official journal of ESMRMB, the selection of topics represents also the interests of ESMRMB members. In addition to regular issues, the journal publishes Special Issues on hot topics such as “Small Animal MR Imaging and Spectroscopy” (volume published in December 2004 with 32 articles). MAGMA will continue with this policy of publishing topical issues and reviews. In 2007, a special issue on “High Field MR Imaging” will be published with Jürgen Hennig as guest Editor.

MAGMA is attracting a growing number of publications from MR scientists and clinicians from all over the world. The number of submissions has more than tripled over the past 3 years. With Manuscript Central as on-line tracking system, the journal has achieved fast reviewing and processing of articles. In 2005, the average first response to authors was sent by the Editorial Office 6 weeks after reception of the manuscript and the average production cycle (following final acceptance of the paper) was 7 weeks to on-line publication. In some cases, original papers have been granted a fast track, being reviewed in 4 weeks and published electronically 4 weeks after final acceptance. And as a bonus for authors, MAGMA keeps with its policy of not applying charges for color illustrations!

To submit a paper, log on <http://mc.manuscriptcentral.com/magma>. Authors retain the option of communicating with the MAGMA Editor-in-Chief if they consider that a direct contact is necessary.

In order to have all citations to the journal taken into account in the calculation of the Thomson-ISI impact factor and citation index, please always refer to MAGMA as Magn. Reson. Mater. Phy. in all your publications. Magn. Reson. Mater. Phy. is the only official abbreviation of the journal that is monitored by the Thomson-ISI tracking system.



Patrick J. Cozzone
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Dear Colleagues:

Please note on your calendars that the location of the ISMRM-ESMRMB Joint Annual Meeting 2007 has been changed from Barcelona, Spain, to Berlin, Germany, with the new dates 19 – 25 May 2007.

Very recently, the ISMRM was informed that a very large tradeshow had been scheduled in Barcelona over the dates of our upcoming ISMRM-ESMRMB Joint Annual Meeting 2007. This particular tradeshow of 4,500+ exhibitors brings in 265,000 participants and reserves nearly all rooms in 350 hotels in Barcelona. It became readily apparent from our discussions with representatives from the city of Barcelona and its convention facilities that alternatives to our published dates of 12 – 18 May 2007 needed to be explored because we and the city were deeply concerned as to whether Barcelona would be able to accommodate all our attendees.

Specifically, we felt that there would be insufficient hotel room availability for those of our attendees who do not book their rooms through our housing company. Unfortunately, there were no viable alternatives available in Barcelona, and it became necessary to explore other options in Europe.

We are extremely pleased to inform you that the International Congress Center (ICC) in Berlin, Germany, will be the site of the ISMRM-ESMRMB Joint Annual Meeting 2007, 19–25 May 2007, just a week following our previously published dates.

15 years ago the SMRM-ESMRMB Joint Annual Meeting was held in Berlin, Germany. We hope you will all join us 19 – 25 May 2007 in our rediscovery of this dynamic city and share in experiencing all the changes that have occurred since we last met in Berlin.



European Multidisciplinarity

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