



**ESMRMB**

European Society for Magnetic Resonance in Medicine and Biology

**Vol. 6, 2008, November**

# **Newsletter**

**European Multidisciplinarity**



IMPRINT

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Vol. 6, 2008, November

Newsletter

European Multidisciplinarity



**Prof. Isabelle Berry**

Dear Colleagues and Friends,

The European Society for Magnetic Resonance in Medicine and Biology (ESMRMB) now has more than 1000 active members and aims, as a non-profit organisation, to support educational activities and research in MR with an even larger scope, expanding to other imaging modalities related or comparable to MR.

Our society was founded in 1984 as a platform for clinicians, physicists and basic scientists with an interest in the field of MR. The society has continuously favoured multidisciplinary interactions and has tried to attract the largest possible number of students and young researchers to ESMRMB congresses. The congresses offer a highly appreciated forum for integrated European research activities in basic and clinical MR applications, and have attracted more and more participants every year, reaching a record attendance of over 1200 in Valencia in 2008.

ESMRMB has organised 25 scientific congresses and a large number of educational activities. Detailed information on the history of the society is available on our website [www.esmrm.org](http://www.esmrm.org).

The next Annual Scientific Meeting of the ESMRMB will be held in Antalya, Turkey from October 1–3, 2009. The following year a joint meeting of ISMRM/ESMRMB will take place in Stockholm, Sweden from May 1–7, 2010.

Since the end of the 1990s, the ESMRMB has organised basic and advanced technical and clinical MR courses for clinicians under the name of the School of MRI. This highly successful educational programme grows with every year, and constitutes one of the primary objectives of the ESMRMB Strategic Plan.

The programme, which became part of ESOR (European School of Radiology) at the start of 2008, included 12 courses held in various cities throughout Europe as well as Russia this year, with previous courses also taking place in South Africa and Egypt.

Since 2004, the Lectures on MR have offered teaching courses for MR physicists and basic scientists. There will be 5 of these courses in 2009.

From this year there will be a new Hands-On MRI Programme aimed at advanced technicians and technologists and interested physicians, and this will be held in collaboration with system manufacturers.

As a member of our society, you enjoy reduced participation fees for all events organised by the ESMRMB.

In 1994, MAGMA was adopted as the official journal of our Society and has become a well-established journal, with a remarkably high quality of scientific content. ESMRMB membership includes a free subscription to MAGMA as well as online access to the journal.

These and many more are the reasons to be a member of our society and to be involved in our broad range of activities. Since 2006, national MR organisations have the opportunity to join the ESMRMB as Affiliated Members. The individual members of these organisations are offered Associate Membership of the ESMRMB. For more information, please contact the ESMRMB Office at [office@esmrm.org](mailto:office@esmrm.org).

I thank you very much for your continuous support and your commitment to ESMRMB as members, and I look forward to welcoming you if you would like to join!

With my kindest regards,

**Prof. Isabelle Berry**  
ESMRMB President

**Presentation of new Executive Board Members:**



**Prof. Isabelle Berry**  
**President**

Head of Department of Nuclear Medicine  
Hospital Rangueil, Toulouse/FR



**Prof. Dr. Ahmet Muhtesem Agildere**  
**Chairperson of the Local Organising Committee 2009**

Department of Radiology  
VKF American Hospital, Istanbul/TR



**Prof. Dr. Oliver Speck**  
**President Elect**

Professor for Biophysics and Director of the  
Department of Biomedical Magnetic Resonance  
Otto-von-Guericke University in Magdeburg/DE



**Prof. Dr. Klaus Scheffler**  
**Director, Lectures on Magnetic Resonance**

Division of Radiological Physics,  
University Hospital Basel/CH



**Dr. Margaret Anne Hall-Craggs**  
**Chairperson of the Scientific Programme Committee 2010**

University College Hospital, London/UK



**Assoc. Prof. Aad van der Lugt**  
**Director, Hands-On MRI**

Radiologist, Department of Radiology  
Erasmus MC, Rotterdam/NL



**Prof. Sebastián Cerdán**

### Outgoing President

It is with great pleasure that I write these lines as the outgoing President of ESMRMB during the 2008 Valencia Meeting. It is now time for me to briefly summarise two years of dedication to ESMRMB presidency that have been the most personally rewarding that I remember.

Since I assumed the president's office, the society has experienced an unprecedented degree of development. Our membership approaches one thousand, we have gathered the support of more than a dozen affiliated societies, our consolidated educational programmes such as the School of MRI and Lectures in MR have increased and new educational activities like the Hands-On MRI courses are being established, and we have strengthened our relationships with other societies, including the ESR, EFOMP and the ISMRM. None of these achievements would have been possible without the work of previous ESMRMB presidents and Ex-Board members, the support of our dedicated membership, the professional assistance of the Office and the invaluable collaboration of industry through the MR Enterprise consortium.

I am glad to confirm that our society is now able to face the future with optimism, by maintaining what we have achieved and continuously improving our already excellent performance.

To achieve this difficult task the ESMRMB is endowed with the best tools, a new dedicated president, an enthusiastic membership and the most dedicated team of experts I have had the opportunity to work with.

Best wishes to all and see you in Antalya,

**Prof. Sebastián Cerdán**  
ESMRMB Past President



**Dr. Luis Martí-Bonmatí**

### Local Organising Committee

At the Local Organising Committee we are very proud of how the Valencia meeting ran through those days of early October. During the weeks before we did have some rain but the weather was quite nice to celebrate the 25<sup>th</sup> Anniversary Party of the ESMRMB Annual Meeting! The largest number of attendees ever facilitated the fruitful exchange of ideas and experiences between clinicians, basic scientists and industry.

The beautiful and spacious Valencia Conference Centre was big enough to host all of us. The Welcome Reception, held on Thursday at the Hotel Sorolla, was a nice time to have fun and listen to one of the best music groups in Valencia, the Dr Peset Jazz Band, a group that started at my hospital with collaboration between different medical specialties, including radiology, in their free time!

The Faculty & VIP Dinner was held on Friday at Hotel Las Arenas. All the members of the different committees, lecturers, and representatives from industry shared a delicious dinner in that marvelous environment with the sound and sight of Spanish and flamenco dances. This group was also formed by colleagues from the radiology and nuclear medicine department, together with professional players. It was really an exceptional night.

The Closing Ceremony was organised on Saturday at the Palacio de Congress. With sparkling Valencia wine all the attendees said goodbye to Valencia and welcome to Antalya.

All this effort was possible because of the help of the people and offices of Spanish companies involved in the MR field. We would like to demonstrate our gratitude to the Spanish counterparts of GEHC, Philips, Covidien, Rovi, Bayer Schering Pharma, Guerbet, Seram and Agfa for their support.

**Dr. Luis Martí-Bonmatí**  
Chairperson of Local Organising Committee



**Prof. Carles Arús**

### Chairperson of the Scientific Programme Committee

The Valencia meeting attendance, slightly over 1,200, confirmed the continued increase experienced at the last meetings of ESMRMB.

A total of 789 abstract submissions were received; 270 on clinical and 499 on preclinical studies. A further 20 abstracts were received for the new Info-RESO topic. After evaluation, a total of 704 proffered contributions were accepted for the meeting (10.7% rejection rate). Oral contributions were organised into 30 sessions over the 3 meeting days, with a maximum of six simultaneous sessions (5 scientific +1 teaching).

Furthermore, 4 Electronic Poster (EPOS™) highlights sessions were held, with the remaining abstracts accessible electronically from PCs. A restricted Paper Posters exhibition was held on an experimental basis. Feedback on this was positive, but not unanimously so. The new Info-RESO topic also attracted the interest of attendees.

The meeting proceeded smoothly, although, unfortunately, one of the plenary speakers had a last minute health problem that could not be communicated in time for the SPC to arrange for a substitution. Fortunately, the speaker recovered safely and apologised to the Society for the communication problem that occurred.

#### **Prof. Carles Arús**

Chairperson of the Scientific Programme Committee

### 25 years ESMRMB meetings – Facts & Figures of Congress Development

With a little over 1,200 attendees and a record breaking number (30% increase) in abstract submission the 25<sup>th</sup> Annual Scientific Meeting was the biggest meeting in the history of the ESMRMB so far.

Over 1,000 professionals and almost 200 industry representatives attended the three-day meeting. This year most attendees came from Germany, France, Spain, United Kingdom, Switzerland, Italy, Belgium, Poland, the Netherlands, India, Russia and Turkey.

Looking back to previous scientific meetings continuously more participants also from China and India could be attracted. Due to the generous policy of ESMRMB 275 young scientists and clinicians took advantage of free registration and particularly enjoyed ESMRMB's renowned teaching programme.

In 2008 total 24 mini-categorical courses, 24 presentations during teaching sessions, 9 presentations during plenary sessions, a hot topic debate on Hybrid MR Systems as well as a round table discussion on the question 'Hyperpolarization or hype and polarization?' made sure that every delegate found topics relevant to his or her field of expertise. The most popular lecture was the Sir Peter Mansfield Lecture on 'Bioenergetic, Metabolic Control and Human Disease: New Insights through Magnetic Resonance Spectroscopy', held by Prof. Sir George Radda from Oxford/UK, with over 500 attendees.

The popular teaching sessions were once again accompanied by the traditional teaching quiz, which many doctors participated in. Dr. Carmen Soteras, a young radiologist from Madrid/ES, was the lucky winner.

Apart from the 556 digital posters available in the EPOS™ area, thirty authors per day were given the opportunity to exhibit their traditional paper posters in a designated area surrounding the 30 EPOS™ workstations. As always, selected electronic exhibits were presented during the EPOS™ Highlights Sessions.

Moreover, a brand new category for demonstration exhibits called Info-RESO has been introduced in addition to two scientific abstract categories. It demonstrated computer applications in information management of magnetic resonance data and focused mainly on non-commercial computer-based demonstrations of software programmes that manage magnetic resonance data. The group of Dr. Imma Boada, Ferran Prados, Alberto Prats, Gerard Blasco, Josep Puig and Salvador Pedraza was the first to win the Info-RESO award.

Like every year, there was a Young Investigator Award for young clinicians and scientists at undergraduate, graduate and postgraduate levels. Dr. Kilian Weiss won the first prize and was awarded with €1,000 by the ESMRMB! Dita Wagnerova and Marc Rea won the second prize, and were awarded €300 each.

ESMRMB 2008 was once again accompanied by an exceptional technical exhibition with some important improvements compared to 2006. More than twenty companies followed the call to Valencia to show the newest products and latest developments in medical equipment at their booths in the congress centre. GE decided to unveil a model of a real 3T MR scanner, which added tremendous value to ESMRMB's technical exhibition since the device was for the first time showcased in Europe.

Lunch symposia were organised by GE Healthcare, Guerbet, Philips and Siemens and as usual enjoyed great popularity due to the state-of-the-art lectures by top experts. We would like to thank the industry for their great contribution to our meeting!

The successful meeting was rounded off by the Farewell Party on the top floor of the attractive congress centre, spoiling delegates with the beautiful sunset over the roofs of Valencia and cava tasting, which made it even harder to bid farewell to the beautiful Mediterranean city!

### Past locations of congresses:

- 1<sup>st</sup> Scientific Meeting (1983): Geneva, CH
- 2<sup>nd</sup> Scientific Meeting (1985): Montreux, FR
- 3<sup>rd</sup> Scientific Meeting (1986): Aberdeen, GB
- 4<sup>th</sup> Scientific Meeting (1987): London, GB
- 5<sup>th</sup> Scientific Meeting (1988): Berlin, DE
- 6<sup>th</sup> Scientific Meeting (1989): Amsterdam, NL
- 7<sup>th</sup> Scientific Meeting (1990): Strasbourg, FR
- 8<sup>th</sup> Scientific Meeting (1991): Zürich, CH
- 9<sup>th</sup> Scientific Meeting (1992): Berlin, DE
- 10<sup>th</sup> Scientific Meeting (1993): Rome, IT
- 11<sup>th</sup> Scientific Meeting (1994): Vienna, AT
- 12<sup>th</sup> Scientific Meeting (1995): Nice, FR
- 13<sup>th</sup> Scientific Meeting (1996): Prague, CZ
- 14<sup>th</sup> Scientific Meeting (1997): Brussels, BE
- 15<sup>th</sup> Scientific Meeting (1998): Geneva, CH
- 16<sup>th</sup> Scientific Meeting (1999): Sevilla, ES
- 17<sup>th</sup> Scientific Meeting (2000): Paris, FR
- 18<sup>th</sup> Scientific Meeting (2001): Glasgow, UK
- 19<sup>th</sup> Scientific Meeting (2002): Cannes, FR
- 20<sup>th</sup> Scientific Meeting (2003): Rotterdam, NL
- 21<sup>st</sup> Scientific Meeting (2004): Copenhagen, DK
- 22<sup>nd</sup> Scientific Meeting (2005): Basle, CH
- 23<sup>rd</sup> Scientific Meeting (2006): Warsaw, PL
- 24<sup>th</sup> Scientific Meeting (2007): Berlin, DE
- 25<sup>th</sup> Scientific Meeting (2008): Valencia, ES

# ESMRMB 2009 October 1–3 Antalya/TR

SEE YOU  
THERE!

Vol. 6, 2008, November

Newsletter

European Multidisciplinarity

**ESMRMB 2009 Congress  
26<sup>th</sup> Annual Scientific Meeting  
October 1-3, 2009  
ANTALYA / TURKEY**

**PRESENTATION OF VENUE AND SURROUNDINGS**

The 26<sup>th</sup> Annual Scientific Meeting, ESMRMB 2009, will be held between October 1–3, 2009 in Belek / Antalya, Turkey.

We will be pleased to welcome you to Turkey, a country that bridges two continents and that for over ten thousand years has been the home of the great cultures and civilizations of the world!

**CONGRESS VENUE & HEADQUARTERS HOTEL**

The congress venue is Maritim Pine Beach in Belek, Antalya, a modern building in the Turkish Riviera, easily accessible from the airport and city Antalya. The main hall can accommodate up to 3000 people, there are number of smaller meeting rooms and ample space for exhibition areas.

The main congress hotel is Maritim Pine Beach Resort. There are a number of hotels in different categories close to the congress hotel and reservations can be made through **Topkon Congress Services**.

The 5-star Hotel, Maritim Pine Beach Resort has 386 well appointed guest rooms with bath/shower, air conditioning, minibar, terrace/balcony, room safe and non-smoking rooms. Maritim Pine Beach Resort is located 45km away from Antalya city center. The hotel has one of the biggest convention centres in region in terms of capacity and number of meeting rooms.

Pine Beach Resort is a 57,000 m<sup>2</sup> holiday heaven integrated into a forest of stone pines and orange trees in Belek, perfect for golfers and nature lovers.

You will find various delicious selections of Mediterranean, Turkish and World cuisines in the hotel's main restaurants as well as à la carte restaurants. The complex also boasts some impressive entertainment facilities and activities.

**Distance from airport: 33km**

**Transfer time: 25 min.**

**Distance from city centre: 45km Antalya**

**Taxis: There is a taxi stand in front of the hotel.**

**Beach: A 100m-long fine sand beach directly in front of the hotel.**

**CONGRESS CITY: ANTALYA**

Antalya is located in the west of the Mediterranean region. Today's Antalya is a highly modernised city with many facilities of European standards and a traditional and cheerful Mediterranean atmosphere. Sun-drenched beaches on the turquoise Mediterranean sea flanked by distinctive cliffs make up the unforgettable beauty bestowed upon the world famous Turkish Riviera. Antalya has one of the biggest seaports and the second biggest airport in Turkey.

The sun, sea, nature and history combine to form a very popular resort, highlighted by some of the cleanest beaches in the Mediterranean.

The climate of the province is typically Mediterranean: hot and dry in summer and temperate and rainy in winter. Sunshine is guaranteed from April to October and the winters are pleasantly mild. The humidity is a little high, about 64%, and the average water temperature is 21.5 °C. Antalya is really a heavenly place where the summer season is about 8-9 months long.

**Prof.Dr. Ahmet Muhtesem Agildere**

Chairperson of the Local Organising Committee 2009





**Prof. Bernard Van Beers**

## Scientific Programme 2009

The 26<sup>th</sup> Annual Scientific Meeting of the ESMRMB will be hosted in Antalya, Turkey, from October 1–3, 2009. The Scientific Programme Committee has started to build an exciting programme balanced between basic science and clinical applications in Magnetic Resonance.

This provisional programme includes the Sir Peter Mansfield lecture devoted to very high field MR, the popular hot topic debate about quantitative MRI, a roundtable discussion on clinical spectroscopy, plenary sessions devoted to aging and neurodegenerative diseases, novel endogenous contrast phenomena, and RF transmission methods. Four mini-categorical courses will be run in parallel about in vivo and ex vivo MR, cardiovascular MR, interventional MR, and clinical body imaging at 3T.

In addition to the teaching sessions, the scientific sessions and posters, a joint session between the ESMRMB and EFOMP (European Federation of Organisations for Medical Physics) will also be held next year. Information about multimodality imaging will be encouraged during the sessions.

For Turkish attendees, some parallel sessions will be held in the local language by the Turkish Society of Magnetic Resonance.

Antalya is ideally located on the southern coast of Turkey. It is easily reached by direct flights from most major cities in Europe.

The scientific meeting committee of the ESMRMB invites you to submit your scientific work on MR, and hopes to meet you in Antalya to share our latest results on biomedical and clinical MR in a relaxed atmosphere.

**Prof. Bernard Van Beers**

Chairperson of the Scientific Programme Committee 2009

## A Paediatric session of the School of MRI

A new School of MRI course ended successfully this November in Brussels, Belgium; its topic: Advanced MR Imaging in Paediatric Radiology. During two and a half days, ten lectures and repetition courses were delivered covering all fields of paediatric and foetal MR imaging. Lecturers with high expertise in paediatric MR imaging came from all over Europe to deliver their experience to 60 enthusiastic students.

The success of the course clearly highlights how much this course was needed and expected.

The initial idea to hold this course came through informal discussions about education in paediatric radiology between Nicholas Gourtsoyiannis, Wolfgang Steinbrich, Cathy Owens and Fred Avni. W. Steinbrich quickly asked F. Avni to structure a course devoted to paediatric MR imaging, and after looking for a location in various parts of Europe, it was decided that the first course would take place in Brussels. F. Avni was invited to attend an existing School of MRI course in Pisa in order to get used to the usual set up.

The structure of the course was designed according to the usual School of MRI course format: lectures followed by repetition courses on the same topics. Without heavy advertisement, the 60 available seats were soon occupied by students from all over Europe (mainly the north) and some Americans. There was even a waiting list for late registrants.

The course took place in a brand new building that is part of the Erasmus campus of the 'Université Libre de Bruxelles'.

Lecturers originating from several paediatric centres in Great Britain, France, Norway, Belgium, Switzerland and Italy were asked to deliver lectures on neuro (infections, malformations, tumours), skeletal, abdominal (uroMR, liver, biliary tract, digestive tract), cardio-vascular and foetal MR imaging.

The two and a half days went smoothly thanks to the course secretary and local organisation. The educational level of the courses and repetition sessions were excellent and highly appreciated, and the students expressed a high degree of overall satisfaction. They appreciated the location, the scientific level and the social events (food and beers were apparently well 'tolerated').

In the evaluation sheets, the students made various remarks and suggestions, which will be used to help improve subsequent courses. For instance, they suggest adding courses about the musculo-skeletal system or splitting neuro and non-neuro foetal MRI indications. These remarks will help us to render the course even better. In summary, for a first course, this was obviously a hit.

The next course will take place in Genoa, early July 2009; it will be hosted by Paolo Toma from Gaslini Children's Hospital in Italy.

Brussels, November 2008

## School of MRI 2009

### Advanced MR Imaging of the Abdomen

Dubai/UAE, March 26–28

### Applied MR Techniques, Basic Course

Iraklion/GR, April 23–25

### Advanced Cardiac MR Imaging

Leuven/BE, May 14–16

### Advanced Neuro Imaging: Diffusion, Perfusion, Spectroscopy

Budapest/HU, June 25–27

### Advanced MR Imaging in Paediatric Radiology

Genoa/IT, July 2–4

### Applied MR Techniques, Advanced Course

Gdansk/PL, July 9–11

### Advanced Breast & Pelvis MR Imaging

Lausanne/CH, September 24–26

### Advanced MR Imaging of the Musculoskeletal System

Paris/FR, September 24–26

### Advanced MR Imaging of the Abdomen

Coimbra/PT, October 8–10

### Clinical fMRI - Theory and Practice

Thessaloniki/GR, October 15–17

### Advanced MRI of the Chest - NEW!

Heidelberg/DE, October 29–31

### Advanced MR Imaging of the Musculoskeletal System - Spanish Language

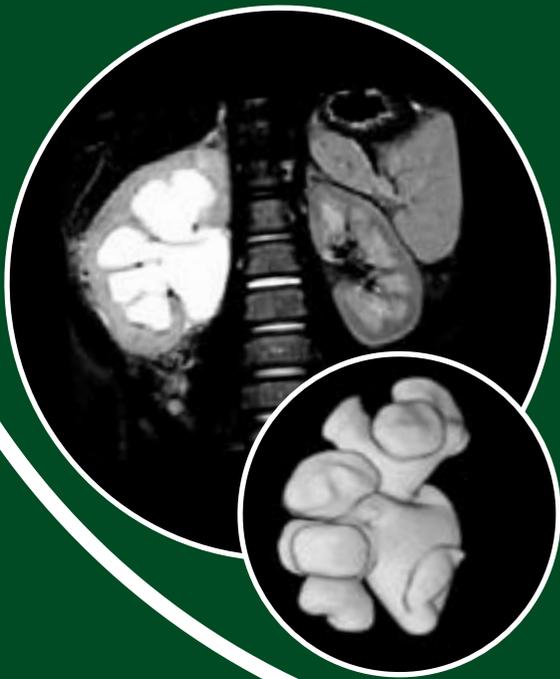
Santiago de Compostela/ES, November 12–14

### Advanced Head & Neck MR Imaging

Alicante/ES, date t.b.a.

### Advanced MR Imaging of the Vascular System

Dublin/IE, date t.b.a.



## 2009 Lectures on Magnetic Resonance

### Educational courses, exercises, and practical demonstrations on MR Physics and Spectroscopy

Since 2004 the Lectures on Magnetic Resonance course programme has become a steady part of the ESMRMB educational activities. The courses are especially designed to provide the physical fundamentals of MR imaging, diffusion, parallel imaging, flow and spectroscopy, as well as aspects of applications of these techniques in clinical and biomedical research and development. The courses are dedicated to the needs of physicists and other basic scientists working in clinical or research environment.

Thanks to the excellent organising committee with specialists from different fields of MR Physics, Biology and Chemistry as well as the contribution from the ESMRMB Education and Workshop Committee a high-standard programme has been set up year after year.

Each year, the Lectures on Magnetic Resonance programme introduces new courses. In 2008 the first course on "Small Animal MR Imaging" was organised in Marseille/FR with the kind support of Bruker BioSpin. The organisation of Prof. P. Cozzone as well as the excellent topic selection attracted delegates from Belgium, Denmark, Finland, Italy, Spain, Sweden, Switzerland, etc. The course covered the most relevant technical and methodological aspects of MR imaging of rodents (rats and mice, including transgenic species) and their application to the investigation of murine models of human pathologies and had a very good response from the participants as well as members of the faculty. Due to this success a similar course is planned to be organised once again in 2009 in Zurich/CH.

A completely new course on Parallel Imaging covering basic and advanced transmission and reception concepts was established under the guidance of Prof. D. Larkman and R Nunes from Imperial College London, and was held at the Instituto Superior Técnico in Lisbon/PT. With more than 37 participants, several well-known teachers from the field of parallel imaging and the possibility

for practical exercises on the provided computer facilities, this course represents a highlight within the Lectures on MR program. Based on its overwhelming positive feedback we plan to repeat this course in 2010.

Prof. M. Hájek from the Institute for Clinical and Experimental Medicine (IKEM) in Prague/CZ has set up a very well established course on "Proton MR Spectroscopy" with almost 40 participants in 2008. Examples of spectroscopic examination at 1.5T and 3T at the new MR centre of the Department of Diagnostic and Interventional Radiology of IKEM as well as some experiments at 4.7T were part of the course. Due to the success and excellent organisation of lectures and repetition in small groups the course will take place once more in 2009. The course will move to Marseille/FR and we are once more expecting a course with an excellent topic selection and well established faculty.

For 2009 further courses on Quantitative Perfusion Imaging, Rapid Imaging and RF coil design are planned. Dates and location will be announced soon on [www.esmrm.org](http://www.esmrm.org)

The Lectures on Magnetic Resonance program is accredited by the European Federation of Organisations for Medical Physics (EFOMP) and the European Accreditation Council for Continuing Medical Education (EACCME). A certificate of attendance will be delivered for the participants (scientists: EFOMP, physicians: EACCME) of the entire course.

We would like to thank our sponsors Siemens AG and Bruker BioSpin for their continuing support, without which the variety in our educational programme would not be possible.

# Hands-On MRI



Until now, European MRI training programmes have mainly focused on radiologists, whose main interest is in the interpretation of acquired data, and physicists, who are involved in the development of sequences or protocols. With the new Hands-On MRI Courses, the ESMRMB offers teaching courses that are especially designed for technologists, as well as physicians with a special interest in the field of MRI.

These professionals play an increasingly important role in MRI data-acquisition and post-processing of data, particularly in advanced MRI areas like fMRI, DTI, spectroscopy, MRA and Cardiac MRI. The ESMRMB feels that the time is right to introduce Hands-On courses dedicated to the continuing education of MRI technologists. Each Hands-On course will be performed on MRI equipment from a specific manufacturer.

## Three Hands-On MRI Courses will be held in 2009:

### MR Angiography on Siemens equipment

*Date: May 14–16*

*Location: University Hospital Basel, Switzerland*

**Course organiser: Dr. Deniz Bilecen**

### Cardiac MRI on Philips equipment

*Date: to be announced*

*Location: University of Bonn, Germany*

**Course organiser: Dr. Daniel Thomas**

### fMRI and DTI on GE equipment

*Date: November 5–7*

*Location: Erasmus MC – University Medical Center Rotterdam,  
The Netherlands*

**Course organiser: Dr. Marion Smits**

We expect that in 2010 and 2011 the same topics will be covered, but each course will be performed on MRI equipment from a different manufacturer than the 2009 course. We have started a discussion with Hitachi about the organisation of a course using their equipment.

All courses will have the same educational concept: In 2.5 days, lectures and hands-on training will be offered by experienced instructors. Hands-on training will cover at least 50% of the available time and will include data-acquisition as well as data post-processing. For this purpose extra workstations with dedicated software will be available from the manufacturers to ensure an effective training experience. We look forward to seeing your MRI technologists at one of the courses in 2009.

We would like to thank Bayer Schering Pharma AG for their support.

More details about the different courses will soon be available on the website [www.esmrmmb.org](http://www.esmrmmb.org).

### Prof. Aad van der Lugt

Director of the Hands-On MRI Course Programme

## Knowledge transfer from basic biomedical research to clinical application



**Prof. Arend Heerschap**

Often we may think that exciting new findings in basic biomedical research deserve a fast and efficient translation into a clinical application for the benefit of patient care. However, only in the very rare cases of killer applications is this translation a smooth process. The introduction of MR imaging in the medical world is of course an evident example of the deployment of the result of basic research into the clinic on a huge scale. The introduction of Gadolinium-based small contrast agents in the diagnosis of brain diseases and in oncology, and fMRI in neurocognition are other examples.

It is much more common that the apparent advantages of a new finding for patient care become rather subtle when the new approach is tested in a clinical environment. Then translation changes in a journey along a long and winding road. For example, research on animal models is usually an inevitable step in the development of a new contrast agent or the assessment of an imaging approach. These results may give very valuable insights and prospects, but also may be difficult or impossible to translate to humans for all kinds of reasons. And once tested in humans by single groups or institutions the findings or results of new imaging approaches are often presented with an optimistic view of their general clinical prospects, forgetting site-specific conditions for instance. Ultimately, the real clinical value has to be examined in a multi-site trial with proper statistical evaluation. And even if we find significant diagnostic advantages in such a trial, the new approaches have to beat existing imaging tools with respect to ease of use and safety balance. This final hurdle may involve critical assessment by governmental organisations, such as EMEA.

The whole translational process is facilitated by good communication between basic researchers and clinicians, both having an open mind towards the possibilities, limitations and needs of each other.

Another important role of basic research, besides initiating the development of new clinical tools, is to provide us with new biological concepts that may lead to different thinking in clinical practice. This also requires good transfer and evaluation of knowledge towards the clinic and vice versa.

Although it seems obvious that basic and clinical research groups in medicine should work in close contact for the purpose of optimal translation, this is not always the case, even if both are located at the same institution or department. The ESMRMB is an organisation that strives to assist in bridging the gap in translation from basic research to clinical application by providing platforms where basic and clinical researchers can meet and learn, such as conferences, specific clinical and research teaching courses and a website. The 2008 Annual Scientific Meeting in Valencia was a good example of this approach, with specific scientific and clinical sessions next to teaching and categorical sessions in which clinicians and basic researchers covered similar topics in a complementary way.

### **Prof. Arend Heerschap**

Chairperson of the Education and Workshop Programme Committee

## Expert Opinion: New Horizons in Magnetic Resonance: Hyperpolarised MRI/MRS



Prof. Freddy Stahlberg

The fact that the thermal equilibrium polarisation increases proportionally with the magnetic field has motivated the development of MRI systems with increasing field strengths. Accordingly, instruments operating at 7T and beyond have been introduced for human imaging and ultra-high field imaging was recently the topic of a special issue of MAGMA (1).

A conceptually different method to increase the polarisation is to create an artificial, non-equilibrium distribution of the nuclei: the 'hyperpolarised' state, where the population difference  $N^+ - N^-$  is increased by several orders of magnitude compared with the thermal equilibrium, and independently of the magnetic field strength of the MR imager. The hyperpolarised nuclei generate the signal themselves rather than moderating the signal from surrounding protons. Hence, background signal is lacking and the signal strength and the SNR are linear functions of the concentration and the polarisation level of the hyperpolarised agent, contrary to the case for conventional paramagnetic contrast agents for example (2).

Nuclei that are feasible for hyperpolarisation include  $^3\text{He}$ ,  $^{13}\text{C}$ ,  $^{129}\text{Xe}$  and  $^{15}\text{N}$ . The hyperpolarised state of an imaging agent can be created by an external device, followed by rapid administration of the agent to the subject to be imaged. Using optical pumping techniques, it has been possible to hyperpolarise noble gases ( $^3\text{He}$  and  $^{129}\text{Xe}$ ) to an extent that allows for MRI of the airspaces of the lungs. Hyperpolarisation of a wide range of organic molecules containing  $^{13}\text{C}$  can be made by either parahydrogen-induced polarisation (3) or DNP hyperpolarisation (4). In both methods the polarisation is enhanced by a factor of  $\sim 100\,000$  or more, compared with the thermal equilibrium polarisation level (at 1.5 T).

It should be noted that the hyperpolarised state has a limited lifetime; once the hyperpolarisation has been created, the polarisation will strive to return to the thermal equilibrium level, at a rate governed by the  $T_1$  relaxation time.  $T_1$  strongly depends on the chemical structure and environment of the hyperpolarised compound (for  $^{13}\text{C}$  it can vary from seconds to minutes).

Two imaging strategies are primarily chosen for hyperpolarised studies: either the object is excited with a rapid train of low flip-angle RF pulses, each one destroying only a very small fraction of the available longitudinal magnetisation, or the complete image is generated in a single shot (either after one large RF excitation or by using a train of refocusing RF pulses, which re-uses the transverse magnetisation). The low flip-angle approach has commonly been used for hyperpolarised gas imaging, where the rapid diffusion of the nuclei causes a quick loss of phase coherence (short  $T_2^*$ ) and hence makes it impractical to reuse the magnetisation from one phase-encoding step to the next.

With the much longer  $T_2$  relaxation (seconds) of hyperpolarised  $^{13}\text{C}$ , it is feasible to use single-shot sequences based on trueFISP, RARE, or EPI.

The impact of hyperpolarised gases on the clinical diagnosis of the lung has recently been reviewed by Fain et al (5) among others, and during the last few years several interesting applications of the  $^{13}\text{C}$  technique have also been proposed, as described below. In 2004, Johansson et al indicated the possible use of  $^{13}\text{C}$ -labelled hydroxyethylacrylate for determination of tissue perfusion without influence of arterial delay and dispersion (6).

Golman et al in 2006 showed exciting data revealing in vivo skeletal muscle metabolism of  $^{13}\text{C}$ -labelled pyruvate in rats and pigs, and the transition from pyruvate to lactate and alanine was demonstrated in skeletal muscle (7). The same group also recently demonstrated cardiac metabolism in a pig model and showed cellular damage as well as reduced mitochondrial energy production by monitoring the pyruvate metabolites alanine and bicarbonate after occlusion of a circumflex artery (8).

Regarding tumour studies, Day et al used the flux of a  $^{13}\text{C}$  marker from pyruvate to lactate to monitor effects of chemotherapy in mouse lymphoma, and showed a reduced flux after drug-induced cell-death (9). Furthermore, in tumours extracellular pH is lower than in normal tissue and pH can be correlated with prognosis and response to treatment. Taking this promising fact into consideration, Gallagher et al measured tissue pH in vivo by determination of the concentration ratio between  $^{13}\text{C}$  hyperpolarised bicarbonate and carbon dioxide (10).

The number of proposed topics for hyperpolarised investigations are hence successively increasing and it can be concluded that once matured and more widely available, hyperpolarised techniques will provide significant added value in a broad range of clinical applications.

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## Update on MR Safety



Prof. Dr. Peter Reimer

After the Safety Committee Meeting in March at the ECR in Vienna, the MR Safety Committee 2008 decided updating the website on Nephrogenic Systemic Fibrosis (NSF) and performing a survey on the incidence of NSF in order to set up a database of cases in Europe. Prof. Weissaupt suggested a survey which was subsequently modified and mailed to all ESMRMB members in good standing in April 2008.

A total number of 25 institutions completed the survey and among 83,115 patients receiving seven different gadolinium chelates.

Prof. Thomsen volunteered for updating the website on Safety issues which is on-line since end of June 2008 and structured into the following topics: EFM Directive, NSF and MR compatibility of 3rd party devices.

### Update on EMF Directive

As you will be aware, the EU Physical Agents Directive 2004/40/EC (EMF) has been postponed by four years until April 2012, largely due to the unwavering commitment of the Alliance for MRI. However, this is only a first step in the right direction, as the Directive remains in existence and may be implemented by EU member states at their discretion. An EU Commission study into exposure to electromagnetic fields from MRI concluded that exposure limits in the Directive are breached in a variety of real-world MRI situations, that staff should be trained to minimise peak exposure and that research is required into hazards at the frequencies used in MRI, as current limits are based on different frequency ranges and include extra safety margins to account for 'unknowns'. There is discussion of an 'exemption framework' to allow exposure perhaps as high as that of the patient, supposedly only for interventional procedures. The Alliance for MRI, launched by ESR as a coalition of European Parliamentarians, patient groups, leading European scientists and the medical community, continues to aim at achieving a derogation for MRI from the Directive and is eager to participate in the upcoming socio-economic impact assessment study and public consultation on the proposal for a revision of the Directive (planned for mid 2009). ESMRMB has joined the Alliance for MRI as a supporting member. Currently, the Alliance is exploring the possibility of a social dialogue agreement and seeking contact with the labour unions.

The International Commission on Non-Ionizing Radiation Protection, ICNIRP, is expected to publish its revised guidelines on time-varying fields in early 2009, which the European Commission is likely to take as guidance for the revision of the EMF Directive. However, it is possible that the revised ICNIRP Guidelines on time-varying fields will set limits which will restrict many applications of MRI; notably for interventional and research applications, assisting or caring for patients during imaging, as well as some forms of functional imaging.

In addition, it is unlikely that any amendment to the Directive will be adopted and implemented by April 2012 due to inter-institutional procedures. As a result, the current Directive, which severely curtails the use of MRI, will remain in force.

As a next step in its campaign, the Alliance for MRI will meet with Commissioner Vladimir Spidla on December 10 in order to express its concerns with regard to the revision of the Directive.

The work of the committee will diversify next year with small groups for three topics each – safety of contrast agents, safety tips for setting up MR installations and EU issues. We are open for further suggestions and support is more than welcome. Specific suggestions for 2009 will be presented to the Executive Board at the end of January.

### In 2009 two more colleagues will join the Safety Committee while composition of the committee remaining the same as in 2008:

- P. Reimer, DE (Chairperson)
- G. Bongartz, CH
- H. Engels, NL
- S. Keevil, UK
- D. Norris, NL
- H. Thomsen, DK
- New: Prof. Olivier Clément (Contrast Agent)
- New: Prof. Dr. Rolf Vosshenrich (Safety Tips)

**Prof. Dr. Peter Reimer**  
Chairperson of the Safety Committee

## ESMRMB Affiliated Members

### A warm welcome to our new member organisations.

Dear Colleagues,

Within the scope of the past ESMRMB Annual Scientific Meeting, 12 Affiliated Members of ESMRMB had the chance to gather in Valencia early October at the dedicated annual Affiliated Members Committee Meeting. This annual meeting has been launched in order to provide a forum for exchange.

During the meeting different options for closer cooperation and strategies to create mutual benefits have been discussed. Prof. Schick, chairperson of the Affiliated Members Committee Meeting, encourages all Affiliated Members to promote the optional Associate Membership for their members offered by ESMRMB.

#### ESMRMB welcomes all National MR organisations to become Affiliated Members and offers the following benefits:

- An annual exchange of member lists (including full address details and E-mail address)
- Reciprocal advertisement of each other's events (on each other's websites, electronical mailings, post mailings etc.)
- Information about all ESMRMB educational activities such as School of MRI, Lecture on MR and Hands-On Courses (see pages 11, 12, 13 and 14)
- Reciprocal complimentary exhibition space and/or other promotion opportunities at scientific meeting

#### As an Affiliated Society of ESMRMB, your members will have the possibility to become Associate Members of ESMRMB. At the moment there are two different options of becoming an Associate Member:

- Free Associate Membership, including access to all information related to the activities of ESMRMB
- Associate Membership including online access to the official journal of ESMRMB, MAGMA in addition to the other services indicated above. In order to benefit from this service, an annual associate membership fee of EUR 10,- will become applicable for each individual wishing to have online access to MAGMA, payable directly to ESMRMB.

During the meeting it has also been proposed to include Affiliated Members in selection process of destinations for the School of MRI courses. The courses for 2009 have already been fixed but for 2010 Affiliated Members are welcome to propose local organisers and host one of the School of MRI courses in their own country.

Besides this also a dedicated newsletter for Affiliated Societies informing about recent developments should be developed. Therefore we kindly ask our Affiliated Members to inform us about latest news regarding their society.

#### Current Affiliated Members:

- Belarusian Society of Radiology/ Belarus
- Contact Group on Multidisciplinary Magnetic Resonance/ Belgium
- Scientific Research Community on Advanced NMR Applications in material, chemical and biomedical science/ Belgium
- Cyprus Association of Medical Physics and Biomedical Engineering (CAMPBE)/ Cyprus
- Czech Radiological Society, MR Section/ Czech Republic
- Danish MR Society/ Denmark
- Groupe de Recherche sur les Applications du Magnétisme en Médecine (GRAMM)/ France
- German Chapter of ISMRM/ Germany
- Associazione Italiana di Fisica Medica (AIFM)/ Italy
- Managerial Counsel of Magnetic Resonance Section of SIRM/ Italy
- Escuela Superior de Resonancia Magnética Clínica/ Spain
- Turkish MR Society/ Turkey

#### In Progress:

- Norwegian Society for Medical Physics/ Norway
- Institute of Physics and Engineering in Medicine (IPEM)/United Kingdom

A short presentation about the Danish Society for Magnetic Resonance in Medicine and Biology (DSMMR) and the Italian Managerial Counsel of Magnetic Resonance Section of SIRM can be found on the next page.

If you are a representative of a national MR organisation and would like to apply for Affiliated Membership of your organisation, please send an E-mail to [office@esmrm.org](mailto:office@esmrm.org).

We will be pleased to send you further information as the application form.

**Affiliated Membership is free of charge!**

### Presentation of SIRM

Ten years ago the Italian Society of Medical Radiology (SIRM) established various subgroups dedicated to specific imaging techniques and anatomic regions. The MR section of SIRM is a subgroup of SIRM that is dedicated to MR imaging, with 1,500 members among the 8,000 members of SIRM.

The elected president of the MR section during the biennium 2008-10 is Dott. Alfonso Ragozzino.

The section of MR studies is mainly focused on educational activities.

The activity is carried out for members through numerous educational courses.

Educational courses are organised throughout the whole of Italy and are held in the Italian language.

Our courses are focused on the basic principles of MRI as well as on advanced MR imaging of different regions, with special attention to liver imaging and MRCP, contrast-medium research, MR-angiography and female MR imaging. Even more courses for radiologists, some of which are dedicated to residents and junior radiologists, are organised using interactive educational methods.

Each year the section produces a book on specific issues in MR imaging.

The section of MR has a particular interest in recent developments of body-MRI, such as DWI, MR-perfusion, MR-spectroscopy and whole-body-MRI; these issues will be some of the topics covered by workshops and symposia at the section's next national meeting.

The MR section of SIRM has a mailing list in order to disseminate information to SIRM's members.

The mailing list represents an effective tool for promoting events among the Italian radiological community.

Moreover, the section of MRI studies has its own website, which is also available in the English language ([www.risonanzamagnetica.org](http://www.risonanzamagnetica.org)).

Members of the ESMRMB, owing to the affiliation between the societies, will be able to log in to the members area of the website. ESMRMB members need only to register to the website on the login page, by simply clicking on the ESMRMB button

or sending an email to: [webmaster@risonanzamagnetica.org](mailto:webmaster@risonanzamagnetica.org) including their full name, birth date and the ESMRMB member status in the subject line.

The website provides information on the activities of the society, as well as a survey of MRI protocols.

Furthermore, ESMRMB members can participate in an online contest for junior radiologists (under 35 years old), based on MR quiz cases.

The council of the MR section very much appreciates the international relationship with the ESMRMB and promotes Italian participation in the ESMRMB, since the sharing of experience, expertise and knowledge is considered a key issue for the growth of the MR community.

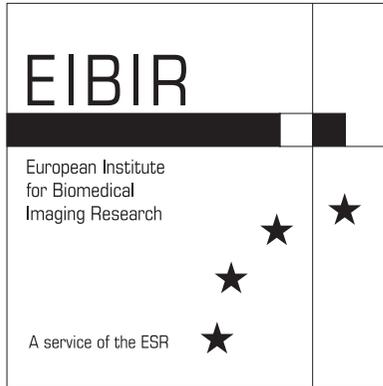
### Presentation of DSMMR

The Danish Society for Magnetic Resonance in Medicine, DSMMR (Dansk Selskab for Medicinsk Magnetisk Resonans) is the national Danish MRI Society. The approximately 240 members are radiologists, radiographers and physicists working with or promoting MRI. The aim of the society is to promote MRI education and research in Denmark, and the society is also a referral body regarding MRI questions from the National Board of Health and other health authorities and societies.

The next MRI course arranged by DSMMR is an Advanced MRI course at Hvidovre Hospital, Copenhagen, January 26–29, 2009. The lectures and workshops will be presented in Scandinavian languages and participants from the Scandinavian countries are welcome, for further information please see [www.dsmmr.dk](http://www.dsmmr.dk)

The annual meeting 2009 will take place in Ebeltoft on March 18 and includes educational sessions with the topic MRI safety, see [www.dsmmr.dk](http://www.dsmmr.dk)

Information regarding membership application can also be found on our website.



## News from EIBIR

**As ESMRMB is co-shareholder of EIBIR you might be interested to read about what has been going on within this young dynamic network of biomedical research institutions.**

Another highly busy and successful year for EIBIR draws to a close. The EIBIR Annual Scientific Report is currently being prepared, with a thorough review of this year's activities and research projects as well as detailed information on planned future activities of EIBIR. This is just a brief update on EIBIR's current projects and initiatives. If you would like to receive the EIBIR Scientific Report or the EIBIR Newsletter, simply send an email to [office@EIBIR.org](mailto:office@EIBIR.org) and you will be added to our dissemination list.

### **HAMAM project strives to improve sensitivity and specificity of breast cancer detection and diagnosis**

The three-year project HAMAM (Highly Accurate Breast Cancer Diagnosis through Integration of Biological Knowledge, Novel Imaging Modalities, and Modelling) with eight project partners from seven countries is coordinated by EIBIR and started on September 1, 2008. The kick-off event in Bremen/DE on October 20-21, 2008 was very productive and enabled the laying out of a detailed work plan for the first project year.

HAMAM is a successor of the very successful EU-projects SCREEN and SCREEN-TRIAL. These projects brought major advances in European breast cancer diagnosis, meaning that today Europe is the world leader in diagnostic systems for digital mammography. With HAMAM, Europe has the potential to strengthen its leadership in the whole area of image-based breast cancer diagnoses.

### **ENCITE project plans to launch competitive call for additional expertise in cell imaging and tracking**

After just half a year since the official start of the FP7 project ENCITE (European Network for Cell Imaging and Tracking Expertise) its scientific activities are now in full swing. The project aims at developing novel imaging tools that will lead to a better understanding of how cell therapy works, the possibility of response monitoring in patients and sufficient safety of the treatment.



**ENCITE project partners at Kick-Off Meeting in June**

In order to complement the expertise represented by the 21 project partners, ENCITE will seek additional partners to provide input to certain work packages and specific issues related to cell imaging and cell tracking to be addressed by the project.

To this end, a competitive call will be published early next year. If you would like to be informed as soon as the competitive call is published and have not yet expressed your interest, please send an email to [office@eibir.org](mailto:office@eibir.org).

### **EIBIR gears up for submission of two research project proposals on Dec. 3**

Together with two consortia of Europe's top expertise in the relevant fields, the European Institute for Biomedical Imaging Research EIBIR is currently leading the development of two proposals within the EU FP7 programme HEALTH call.

One project deals with the development of **smart agents** that provide maps of values of physico-chemical parameters such as pH and pO<sub>2</sub> or of specific enzymatic activities. The obtained maps will be fused with anatomical images to provide completely new information content that has up to now not been accessible via imaging methods.

The second project focuses on nuclear medicine and consists in a literature survey on **dosimetry and health effects of diagnostic applications of radiopharmaceuticals**. The major aim of the project is to provide a comprehensive report on the short-term and long-term safety of nuclear medicine diagnostic procedures and to drive scientific and technological innovation to improve patient healthcare in medical imaging.

Visit [www.eibir.org](http://www.eibir.org) for more detailed information!



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