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Special Issue "12th International Bologna Conference on Magnetic Resonance in Porous Media (MRPM12)", February 9th to 13th, 2014, Wellington, New Zealand

Editorial

This special edition of the online journal Diffusion Fundamentals features the proceedings of poster presentations made at the twelfth International Bologna Conference on Magnetic Resonance in Porous Media (MRPM12) as a Groupement Ampere event that was held at the Faculty of Sciences of the Victoria University of Wellington in Wellington, New Zealand, from 9th to 13th of February 2014. This is the second time MRPM was organised outside of Europe and the first time in the south hemisphere. The 14th Colloquium on Mobile Magnetic Resonance (CMMR 14) was also part of the conference. The conference was organised by a local committee (chairman Petrik Galvosas) in close collaboration with the International Scientific Advisory Committee of the MRPM conference series and "Conferences & Events". For the first time an NMR-school was organised preceding the conference, starting on the 8th and being concluded on the 9th of February.

Held in Wellington, MRPM12 has attracted 136 delegates from 19 countries, less than usual, possibly due to the costs involved while travelling to New Zealand. Compared to previous meetings, the number of attendees from Australia, New Zealand and Asia has increased significantly, totaling to 46. The Americas were represented by 27 delegates while 63 delegates came from Europe. These meetings traditionally have a multi-disciplinary aspect and attract an audience from both academia and industry and MRPM12 was not different. Furthermore, 38 students have attended the meeting and their enthusiasm, while discussing the results of their research, clearly presents a promising perspective for future conferences.

The NMR-school was organised in four lectures of 90 minutes covering the following themes: low field and portable NMR (Bernhard Blümich); NMR diffusometry (Bill Price); MRI and compressed sensing methods (Andrew Sederman) and NMR in microporous and mesoporous materials (Frank Stallmach).

Following the tradition, the meeting started with three extended invited tutorial lectures, which were presented by Bill Price, Michael Johns and Dagmar van Dusschoten. They gave an overview of magnetic resonance in its variants as diffusometry, velocimetry or MRI applied to various areas such as chemical engineering or environmental science. The remainder of the meeting comprised ten further invited talks presented by: Melanie Britton, N. Jon Shah, Matthias Appel, Lizhi Xiao, Pellegrino Conte, Frank Stallmach, Ernesto Danieli, David Johnson, Rodolfo Acosta and Robin Dykstra. Additionally, 53 talks and 79 posters were presented during the conference.

Nuclear magnetic resonance in porous materials has become an important tool to many applications in civil engineering, petrophysics, biology, medicine, food sciences, soft matter and many others. At MRP12 the presentations were divided in ten different themes, which categorized the sessions: Connected porous systems, Multidimensional NMR approaches and Petrophysics; Bio-Materials, Pharmaceuticals, Medicine and Food; Advances in Methodology and Novel Techniques; Plant and Soil Environmental Sciences; MRI and PFG NMR; Micro and Nanostructured Materials; Chemical Engineering; Energy and Related Materials; DNP and Hyperpolarization; Hardware Development. New developments for mobile technologies and applications took place in the CMMR, which was incorporated as one session of the conference program.

The Giulio Cesare Borgia prize is presented at MRPM meetings to an emerging researcher who shows the greatest promise for future scientific leadership. The Prize is established in memory of the late Professor Borgia's contribution to the development of Magnetic Resonance in Porous Media, his encouragement of young people setting out into this area of research and his work in establishing the conference series. The prize is sponsored by the Dipartimento di Ingegneria Civile, Chimica, Ambientale e dei Materiali (DICAM) of the University of Bologna. In 2014, the prize of Euro 3000 was awarded to Jeffery Paulsen (Schlumberger-Doll Research, Boston, USA) "for his contributions to the understanding of multidimensional NMR diffusion experiments and its wider contributions to NMR in porous media".

Differently from previous years, three Poster prizes (books donated by Bernhard Blümich and Eiichi Fukushima) were awarded at MRPM12. The winners were: Pim Donkers (Eindhoven University of Technology, The Netherlands), Patrick Vogel (Magnetic Resonance Bavaria e.V., Germany) and Huabing Liu (Victoria University of Wellington, New Zealand).

The organisers would like to acknowledge the 13 meeting sponsors: Magritek Ltd; Bruker BioSpin GmbH; MR Solutions Ltd; Oxford Instruments; Schlumberger-Doll Research; Stelar Srl; HTS-110; Pure Devices; Shell; Tecmag; The MacDiarmid Institute; University of Bologna and University of Wellington. Several of these companies had registered delegates in the meeting and exposed their products during the conference.

The academic sessions were accompanied by a social programme that included an excursion to Zealanda, a groundbreaking, community-driven eco-restoration project. This excursion also included a speech from Nancy McIntosh-Ward, former CEO of Zealanda and close friend of the late Sir Paul Callaghan. She shared her memories about Paul's passionate involvement regarding the Zealanda vision with the conference delegates. The conference dinner was held in the function centre of Macs Brewery.

During the MRPM General Assembly it was agreed that the next meeting would be hosted by the University of Bologna, Italy, from 4th-8th September 2016. Members of the division steering committee Christoph Arns (Chair), Frank Stallmach (Vice Chair), Petrik Galvosas (Current Meeting Organiser), Peter McDonald (Past Meeting Organiser), Villiam Bortolotti (Future Meeting Organiser) and Paola Fantazzini (ex-officio) were elected along with 8 new members of the scientific advisory committee to replace those stepping down after 4 or more years of service. Finally, 24 students and 50 full delegates joined Groupement Ampere as a result of attending the meeting.

Original papers for these proceedings were submitted in follow up to the poster presentations at the meeting. A separate volume of Oral Proceedings is being published in parallel with this edition of Diffusion Fundamentals in the Elsevier journal Microporous and Mesoporous Materials (<http://www.journals.elsevier.com/microporous-and-mesoporous-materials/>).

Guest Editor

Marcel Nogueira d'Eurydice

School of Petroleum Engineering

UNSW Australia

mrcl@unsw.edu.au