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Preface

Editorial: The Fourteenth International Bologna Conference on Magnetic Resonance in Porous Media (MRPM14)

The 14th International Bologna Conference on Magnetic Resonance in Porous Media (MRPM14) convened from February 18–22, 2018 in the Reitz Union Conference Center on the campus of the University of Florida, Gainesville. It was the second time in the history of the conference that it was held in the western hemisphere. Approximately 120 attendees from 13 countries (Australia, Brazil, Canada, China, Denmark, Finland, France, Germany, Italy, New Zealand, Norway, UK, USA) participated in a stimulating and dynamic scientific program. Session topics included magnetic resonance methodology and hardware development for porous media studies, applications to plants, soil and the environment, nanoporous materials, petrophysics, diffusion and flow, hyperpolarization, low field spectroscopy, biomedicine, biophysics, and imaging. The program opened with plenary lectures by Jeff Reimer (UC Berkeley) and Jörg Kärger (Leipzig University), followed by a welcome party at the Florida Museum of Natural History. The conference was preceded by the two-day MRPM NMR School, which was attended by about forty students. Expert tutorials were presented by Jörg Kärger, Jeff Reimer, Fredrick Mentink-Vigier (National High Magnetic Field Lab, Tallahassee), Shin Utsuzawa (Schlumberger-Doll Research), and Bernhard Blümich (RWTH Aachen University).

The MRPM conference series concerns the application of advanced magnetic resonance techniques to questions concerning the structure, interactions and dynamics in natural and synthetic porous materials. A particular focus of MRPM14 was given to the development and application of novel magnetic resonance techniques including portable low field NMR and advanced multi-dimensional correlation spectroscopy and imaging employing sparse sampling for accelerated analysis of pore structure. Applications of magnetic resonance techniques to a broad range of porous media, including metal-organic frameworks, nanoporous catalysts, pharmaceuticals, rocks and minerals, polymers and polymer composites, cements, foodstuffs, and biological tissues were also presented at the meeting. The MRPM14 conference attracted researchers from both academia and industry. The diverse mix of the attendees made for stimulating discussions of ideas and research results. Scientific disciplines represented at the meeting ranged from biophysics to petro chemistry. A hallmark of the MRPM is that it provides unique opportunities for cross-fertilization of ideas and problem-solving strategies using the same underlying NMR methodologies, which unifies the community.

The MRPM conference series was founded by Professor Giulio Cesare Borgia and Professor Paola Fantazzini at the University of Bologna in Bologna, Italy, with the first meeting being held in 1990. Prior to MRPM14 in Florida, the MRPM conference had returned to its original venue of Bologna in 2016. Over the years, the vitality and breadth of research of the MRPM community have grown considerably. Following MRPM7, the conference series joined the “Groupment Ampere” as the MRPM Division, and since then, the conferences have been organized under its auspices. The MRPM steering committee is responsible for managing the formal structure of the conference subject matter and organization with the aim of preserving its continuity and high quality. The members of the MRPM14 steering committee were Dr. Yiqiao Song (Chair), Prof. Villiam Bortolotti, Prof. Clifford Russell Bowers, Prof. Paola Fantazzini, Prof. Petrik Galvosas, Dr. Sabina Haber-Pohlmeier and Prof. Sergey Vasenkov.

The conference attendees enjoyed an unseasonably warm and sunny afternoon of discovery and sightseeing at the Kanapaha Botanical Gardens, and the conference banquet was held that evening in the University of Florida's Harn Museum of Art. Tours of the National High Magnetic Field Laboratory's Advanced Magnetic Resonance Imaging and Spectroscopy (AMRIS) facility were also provided.

At the end of the technical program, an award ceremony was held to present the Giulio Cesare Borgia Prize for Young Researchers and Student Poster Competition Prizes. The Giulio Cesare Borgia Prize is awarded for the best oral presentation by a young researcher at the Bologna MRPM conference. This prize memorializes the contribution made by Dr. Borgia to the development of magnetic resonance in porous media and the attention he always paid to the enthusiasm, passion, and courage of young people who undertook the difficult and adventurous path of scientific investigation in this fascinating area of research. The 2018 prize went to Dr. Stefan A. Hertel (Shell Technology Center, Houston) for his innovative approach to spatial mapping of fluid types in porous media using fast, spatially resolved CPMG T_2 measurements. The prize committee was comprised of four previous Borgia Prize awardees plus the conference co-Chair. There were twenty high-quality entries in the student poster competition. Members of the International Advisory Committee judged the posters. Awards were presented to Evan M. Forman (University of Florida, 1st place), Artur Lozovoi (Technische Universität Ilmenau, 2nd place), and Yong Du (University of Florida, 3rd place).

During MRPM14, the International Advisory Committee met to consider several informal proposals for future venues for MRPM conferences, and it was unanimously agreed that the next MRPM conference (MRPM15) will be chaired by Kate Washburn (Nofima) in the city of Tromsø, Norway, a major cultural hub located North of the Arctic Circle.

Financial support for MRPM14 was provided through the generosity of the following corporate sponsors: Niumag, Bruker Pure Devices, Oxford Instruments, Tecmag, Magritek, Stelar, Schlumberger, Serengeo S.R.L, and the Alachua County Florida Office of Tourism. Funding was also provided by the following academic institutions: The National High

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