

Advancements in Magnetic Resonance in Porous Media

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Abstract

This is a brief summary of the Fourteenth International Bologna Conference on Magnetic Resonance in Porous Media (MRPM14).

Keywords

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The Fourteenth International Bologna Conference on Magnetic Resonance in Porous Media (MRPM14) was held February 18-22, 2018 in Gainesville, Florida, USA. The conference was preceded by a two-day NMR school for young scientists, held February 17-18, 2018. The conference and school venue was held on the beautiful campus of the University of Florida (UF), home of the National High Magnetic Field Laboratory's Advanced Magnetic Resonance Imaging and Spectroscopy (AMRIS) facility. The co-organizers and co-chairs were Prof. Russ Bowers (Chemistry Department, UF) and Prof. Sergey Vasenkov (Chemical Engineering Department, UF).

The first MRPM meeting was held at the University of Bologna in Bologna, Italy in 1990. This meeting was organized by Prof. Giulio Cesare Borgia and Prof. Paola Fantazzini (University of Bologna). They became the founders of the MRPM conference series. Before coming to Gainesville in 2018, the MRPM conference had returned to Bologna in 2016. The MRPM community, which covers all continents, has grown considerably over the years. After MRPM7 was held, the conference organization joined the "Groupment Ampere" as the MRPM Division, and the conferences are now Ampere-sponsored events. An appointed steering committee is responsible for giving the MRPM community a formal structure with the aim to preserve the continuity, vitality and quality of the future meetings. The members of the MRPM14 steering committee were Dr. Yiqiao Song (Chair), Prof. Villiam Bortolotti, Prof. C. Russell Bowers, Prof. Paola Fantazzini, Prof. Petrik Galvosas, Dr. Sabina Haber-Pohlmeier and Prof. Sergey Vasenkov.

As in previous MRPM conferences, MRPM14 addressed questions concerning the structure, interactions and dynamics in natural and synthetic porous materials. A particular



focus of MRPM14 was given to emerging advancements in NMR techniques, including portable low field NMR, multi-dimensional correlation spectroscopy and imaging employing sparse sampling for accelerated analysis of pore structure. It facilitated exchange of ideas and research results related to the application of magnetic resonance spectroscopy to a wide range of porous materials, including metal-organic frameworks, nanoporous catalysts, pharmaceuticals, rocks and minerals, polymers and polymer composites, cements, foodstuffs, and biological tissues. The diversity of the systems discussed at the conference allowed researches representing areas as diverse as biophysics and petro chemistry exchange new ideas related to studies of these systems by NMR.

MRPM14 was a very productive and stimulating event with around 120 delegates from 13 countries (Australia, Brazil, Canada, China, Denmark, Finland, France, Germany, Italy, New Zealand, Norway, UK, USA). Majority of the delegates (59%) came from outside the US. A large fraction of the participants (around 30%) were students who were encouraged to participate and were offered a reduced conference fee. A wide variety of new techniques, experimental data, theoretical ideas, and theoretical work were presented in 2 keynote lectures, 10 invited lectures, 42 contributed lectures and 50 poster presentations. The keynote lectures were given by Prof. Jeff Reimer (UC Berkeley) and Prof. Jörg Kärger (Leipzig University).

At a ceremony that followed the closing of the technical program, the Giulio Cesare Borgia Prize for Young Researchers and three Student Poster Competition Prizes were awarded. The Giulio Cesare Borgia Prize (around \$3500) was awarded to Dr. Stefan A. Hertel based on his lecture "Fast spatially-resolved T2 measurements with constant gradient CPMG". The Giulio Cesare Borgia Prize Committee was composed of Dr. Dan Benjamini, Prof. Clifford Russell Bowers, Prof. Petrik Galvosas, Prof. Rustem Valiullin, and Dr. Kate Washburn. The Student Poster Competition Prizes were awarded to Evan M. Forman (University of Florida, 1st place), Artur Lozovoi (Technische Universität Ilmenau, 2nd place), and Yong Du (University of Florida, 3rd place). The members of the Student Poster Competition Committee were Dr. Peter Basser, Prof. Brad Chmelka, Prof. Hanne Christine Bertram, Dr. Igor Shikhov, and Prof. Phil Zhe Sun.

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The next MRPM conference (MRPM15) will be held in Tromsø, Norway, a major cultural hub located North of the Arctic Circle. MRPM15 will be organized and chaired by Dr. Kate Washburn (Nofima), a well-known member of the MRPM community. Further details, when they become available, will be posted on the MRPM website: www.mrpm.org.