Editorial for the special issue “FOA-13” in “adsorption”

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This special issue of adsorption presents selected papers from the 13th International Conference on the Fundamentals of Adsorption (FOA13) which was held in Cairns, Australia, May 26–31, 2019. The International Conference on the Fundamentals of Adsorption (FOA) is the premier international conference in the field of Adsorption. The conference is held every 3 years under the auspices of the International Adsorption Society (IAS). Up until 2019, the conference had been held in the northern hemisphere, cycling between USA, Europe, and Japan. For the first time, therefore, the conference came to the southern hemisphere, in particular, sunny Cairns, a popular and delightful vacation destination in Australia.

FOA13 was chaired by Paul A. Webley (Monash University, Australia) and co-chaired by Chris Jones (Georgia Institute of Technology, USA) and Gang Li (University of Melbourne, Australia). Conference management services was provided by Leishman Associates who worked closely with the organising committee to ensure a successful organisation and outcome. An organising committee was assembled from noted adsorption Scientists in Australia, particularly The University of Queensland (Duong Do, Suresh Bhatia), The University of Adelaide (Christian Doonan), Monash University (Alan Chaffee), Murdoch University (Piotr Kowalczyk), and The University of Sydney (Deanna D'Alessandro).

FOA13 received 320 attendees from 26 countries around the world, with large delegations from the European Union (104), The United States (45), Japan (43), China (42), and Australia (39) with additional representation from South America, South East China, the Middle East, and the Russian Federation. Four keynotes, 15 plenary, 24 invited talks and 113 technical presentations were delivered over 4½ days with 239 posters presented in 2 evening sessions. Keynotes covered themes of adsorption thermodynamics (Andreas Seidel-Morgenstern), adsorbent deformation

(Alex Neimark), calorimetry (Diana Azavedo) and adsorbent synthesis (Shin Mukai). As before, these technical sessions covered topical areas in adsorption science and technology including

- Adsorption fundamentals
- Adsorbent characterisation
- Special sessions on metal organic frameworks
- Molecular modelling and physical chemistry
- Materials and experimental methods
- Materials and applications for CO₂ capture
- Liquid/Gas adsorption
- Process applications
- Energy & Environmental applications
- Biosorption

Especially pleasing at FOA13 was the large participation by industry, with presentations by 15 different companies representing major industrial gas companies, materials vendors, and equipment manufacturers. Rather than specific industry sessions, industry talks were woven into thematic sessions and well attended by all present.

Inspired by the success of tutorials introduced at FOA12, three workshops were offered on Sunday afternoon before the start of the conference: a tutorial on “Advances in characterisation of adsorbent materials” by Alex Neimark, a tutorial on “Fundamentals of adsorption from molecules to MOF’s” by Stefan Kaskel, and a process tutorial on “Pressure Swing Adsorption” by Joachim Guderian and Pascaline Pre.

In addition to a full technical program, exciting excursions were offered to the Great Barrier Reef at Green island, the Kuranda Skyrail and Tjapukai Aboriginal Cultural Park, or the Cairns Aquarium. Ample free time was provided to allow participants to enjoy the relaxing environment of Cairns. The conference gala dinner was held at the Cairns Botanical Gardens with a memorable performance by Australian Aboriginal Tjapukai dancers and awarding of PhD awards, and IAS fellows.

No conference can operate without the generous support of industrial sponsors. FOA13 is extremely grateful for

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financial support through industry sponsor and exhibitors. Sponsors included:

- Luoyang Jianlong
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- Anton Parr
- Tosoh Corporation
- Osaka Gas Chemicals
- novoMOF
- Inventys
- PSE Enterprise

- Rubolab
- L&C Science and Technology

In addition, generous contributions by the US NSF allowed subsidised travel to the conference for many US PhD students, and support for Australian students was provided through their respective universities.

The conference chairman is grateful to the organising committee for assistance with program development and implementation, and to the outstanding work of the organisers, Leishman Associates. As before, the IAS Scientific committee provided indispensable help in review of the submitted abstracts to ensure high quality presentations.

This special issue of *Adsorption* contains submissions in fundamentals of adsorption, adsorbent synthesis, applications to CO₂ capture, and advanced process systems. The editors greatly appreciate the efforts of the authors and the reviewers who contributed to this issue in a timely way.

The adsorption community looks forward to the next Fundamentals of Adsorption Conference, FOA14, which will be held in Colorado in the USA in 2022.

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