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RESEARCH FRONT

Aust. J. Chem. **2016**, *69*, 361–362
http://dx.doi.org/10.1071/CHv69n4_FO

Foreword

The 5th Molecular Materials Meeting (M3) @ Singapore

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M3@Singapore is 5 years old! In this short but fruitful journey of half a decade, many people have witnessed the rapid growth of the Molecular Materials Meeting (M3) @ Singapore, an international conference on molecular materials launched in 2010. We are thankful to many of you for joining us on this enjoyable and unforgettable journey. We are grateful to Professor Curt Wentrup, former Editor-in-Chief of the *Australian Journal of Chemistry*, who has kindly helped create four commemorative editions [*Aust. J. Chem.* **2011**, *64(9);* **2012**, *65(9);* **2013**, *66(9);* **2014**, *67(10)*], which featured representative works from the four previous conferences. We provided synopses as forewords in every thematic issue over four years.[1–4]

The 5th M3@Singapore was held on 3–5 August 2015 at the popular Resorts World Sentosa Convention Center, Singapore. It was held in a special year for Singapore, which celebrated its golden jubilee of independence. About 480 scientists and students from 28 countries joined us in this commemorative meeting and took the opportunity to exchange ideas and share the latest findings in molecular materials research. For plenary talks, Professor Paul Alivisatos (University of California, Berkeley, USA) gave a detailed account on nanocrystals as fundamental building blocks of nanoscience and nanotechnologies; Professor Timothy Swager (Massachusetts Institute of Technology, USA) revealed unusual dynamic morphologies at interfaces and in droplets; Professor Freddy Boey (Nanyang Technological University, Singapore) shared his perspective on how to move research from laboratory to start-ups, citing his own experiences and giving insights and advice on promotion of entrepreneurship; Professor Moungi Bawendi (Massachusetts Institute of Technology, USA) gave a holistic account on the science and technology of quantum dots, from fundamentals to biological and optoelectronic applications, and transition to market acceptance; Professor Zhenan Bao (Stanford University, USA) showed how one can learn from skin to fabricate cutting-edge smart flexible electronics based on novel organic and carbon nanomaterials; Professor Dongyuan Zhao (Fudan University, China) presented some sophisticated synthetic strategies and approaches to produce functional mesoporous materials for bio-applications. The keynote, invited talks, and oral contributions addressed various pressing issues at different levels using molecular materials approaches. Apart from the scientific talks, the program included an industrial session and a CTO (Chief Technology Officer) panel discussion on open innovation, and two editorial talks were delivered by Dr Elisa De Ranieri, Senior Editor of *Nature Nanotechnology*, and Professor Curt Wentrup, former Editor-in-Chief of the *Australia Journal of Chemistry*. Asia Nano Forum 2015 and A*STAR-RIKEN Joint Symposium were also held as satellite events. The

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diverse program reflected the deep interest in molecular materials and the rich opportunities therein.

In this issue of *Aust. J. Chem.*, we have put together ten peer-reviewed submissions on various topics from the work presented at the 5th M3@Singapore. Bai et al. (Institute of Materials Research and Engineering, Singapore) present the formation of plate crystals by two Cu^{II} complexes with triazole ligand. The anisotropic growth was ascribed to hydrogen bond-driven assembly with preferred directions.[5] Xu (Nanjing University of Post and Telecommunications, China) with co-workers at Nanjing Tech, China, report an efficient intramolecular silylation method using a metal-free radical catalyst, which enables facile synthesis of all-aryl phenazasilines for optoelectronic applications.[6] Shi et al. (Institute of Materials Research and Engineering, Singapore) synthesised a group of solution-processible low-bandgap conjugated polymers in the structure of diketopyrrolopyrroles with siloxane and thienyl side chains and tested them as potential high performance electronic materials.[7] In the biomedical research area, Liu et al. (Institute of Materials Research and Engineering, Singapore) demonstrate the utility of polyhedral oliomeric silsesquioxandes (POSS)–based cationic micelles in gene transfection applications[8]; Chee et al. (Institute of Materials Research and Engineering, Singapore) show how a double network system can be used as a platform to synthesise injectable gels for cell delivery[9]; Yang et al. (National University of Singapore) used a molecular dynamics approach to study platinum-DNA intra-strand crosslink adducts, which helps evaluate Pt anti-tumour drugs.[10] In energy and environmental research, Rutkowska (University of Warsaw, Poland) reports the use of noble metal nanoparticle-decorated zirconia-supported phosphotungstate as a catalyst to facilitate smooth conversion of formic acid fuel in polymer electrolyte membrane fuel cells (PEMFCs)[11]; Seta et al. (University of Warsaw, Poland) demonstrate the enhancement of electroreduction of carbon dioxide (CO_2) using platinum nanoparticles embedded in an active matrix of bacterial biofilms on a polyaniline support[12]; Moakhar (Sharif University of Technology, Iran) with co-workers in Singapore and USA present an Au-Pd bimetallic nanoparticle electrode which can be directly used as a sensor for the detection of Cr^{VI}, a dreadful pollutant in water systems.[13] Of notable interest to both bio- and non-bio-applications is the work on surface wettability, which is difficult to fully quantify using the prevailing contact angle concept. Based on data collected from a large number of well-designed samples, Wong et al. (Institute of Materials Research and Engineering, Singapore) have formulated empirical formulae that enable the drop shape and contact angle to be correlated, thus providing valuable and better-defined surface wettability information.[14] We trust that the readers will find these diverse contributions helpful and inspirational while searching for the next big idea in their work.

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