

RACI Research Awards 2014

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Thanks to an agreement with the Royal Australian Chemical Institute (RACI) to highlight the recipients of RACI research awards and draw attention to their work, *Aust. J. Chem.* started publishing original accounts, reviews, and papers by RACI awardees late last year. The current issue contains several contributions from the RACI award winners announced in Adelaide in December 2014.

Dave Winkler, winner of the Adrien Albert Award for medicinal chemistry, reports on computational chemistry in the design of biologically active compounds and the development of quantitative models for predicting the properties of molecules and materials for use in therapeutic and regenerative medicine.^[1]

Martin Banwell, winner of the H. G. Smith Medal, reports on intramolecular Alder-ene reactions catalysed by Pd^{II} in the synthesis of carbo- and hetero-cyclic compounds, including the alkaloids hamayne and galanthamine.^[2]

Jeff Reimers, winner of the Physical Chemistry Award, presents an insightful review highlighting the importance of considering not just the well known concept of reaction coordinates, but also the *other* motions that accompany those occurring along the reaction coordinate and the effects that each have on spectral and kinetics properties.^[3]

Andreas Stasch, winner of the Organometallic Award, reviews well-defined, soluble, stable but reactive alkali metal hydride complexes stabilised by bulky ligands capable of coordinating to several metal ions; for example, L₄Li₈H₄, where L = 2,6-*i*Pr₂C₆H₃. These novel hydride complexes feature high reactivities different from those of conventional ionic compounds such as NaH and LiH.^[4]

David Lewis, winner of the Applied Research Award, describes the effect of surface roughness of super-hydrophobic films on the contact and sliding angles of water droplets. Such films are of much interest due to their self-cleaning, anti-fouling, stain-resistant, and ice-repellent abilities. It is found that the

water contact angle increases from 105° for a smooth surface to 140° for a nanoparticle-roughened surface.^[5]

Chris McErlean, winner of the Athel Beckwith Lectureship, reports on strigolactones, which are seed-germinating agents, phytohormones, and mediators of critical plant–fungi interactions. Because they occur in extremely small quantities, analogues are needed. A mimic called (±)-GR24 is commonly used in plant-based assays in racemic form. McErlean and co-workers have now completed an enantioselective synthesis of the (+) enantiomer.^[6]

Anthony O'Mullane, the recipient of an RACI Citation, details how copper electrodes are restructured by means of a repetitive potential-cycling protocol, resulting in a nanostructured Cu surface with enhanced performance in the electrocatalytic reduction of nitrate, and offering a practical way to fabricate nanostructured electrode surfaces.^[7]

This author, winner of the Arthur Birch Medal, reports on an efficient synthesis of acetylenes, including ethynylphenols, from aldehydes via flash vacuum pyrolysis of isoxazalone derivatives.^[8]

References

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Curt Wentrup FAA is Professor Emeritus at the University of Queensland and has been Editor-in-Chief of the Australian Journal of Chemistry since 2008. He is a recipient of the 2003 Centenary Medal of the Australian Commonwealth for research in organic and physical chemistry, the 2014 David Craig Medal of the Academy of Science for his chemistry research, the 2014 Arthur Birch Medal of the Royal Australian Chemical Institute for excellence in organic chemistry, and a doctor honoris causa from the Université de Pau, France, in 2014.