

12th Engineering Mathematics and Applications Conference 2015

University of South Australia
6–9 December 2015

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The 12th Engineering Mathematics and Applications Conference (EMAC2015, 6–9 December 2015), directed by Bronwyn Hajek, was held at the City West Campus of the University of South Australia in the centre of Adelaide’s major arts, culture and entertainment precinct. The conference opened on Sunday 6 December with a welcome reception on campus. The formal conference program began on Monday morning, with a Welcome to Country and a welcome from UniSA’s DVC:Research and Innovation, Tanya Monro.



Bill Blyth and Peter Johnston with the winner of the William Finlay Blyth Prize, Dilan Pathirana, and with David Harman who received one of two honourable mentions.

There were 77 registered delegates (including invited speakers): 69 from Australia (including eight from Defence Science and Technology Group), two each from New Zealand, Japan, and Taiwan, one each from the Oman and Saudi Arabia. A

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presentation by Andrew Metcalfe (University of Adelaide, joint work with Julia Piotto and John Turner) caught the attention of Adelaide's Advertiser and was mentioned in Scott Walsh's column on Saturday 12 December. The subject of the talk? A replacement for the Duckworth-Lewis method (used in rain interrupted one-day cricket matches).

There were five plenary speakers:

- Kylie Catchpole (College of Engineering and Computer Science, ANU), The bright future of solar energy
- Christine Mangelsdorf (School of Mathematics and Statistics, University of Melbourne), Lessons learned in teaching engineering mathematics
- Martyn Nash (Auckland Bioengineering Institute, and Department of Engineering Science, University of Auckland), Multi-scale modelling of cardiac electro-mechanics, arrhythmias and heart failure
- Darryn Reid (Defence Science and Technology Group), The imperative of mathematical uncertainty
- Ben Rubinstein (Department of Computing and Information Systems, University of Melbourne), Data integration through the lens of statistical learning

Many thanks to the invited speakers committee, chaired by Phil Broadbridge (La Trobe University), for recommending sterling plenary speakers. There was an additional one-hour presentation sponsored by Australian Scientific and Engineering Solutions. There were 65 contributed presentations, 29 of which were student talks. There were 22 sessions during the two-and-a-half days of the conference.

Through the ANZIAM/CSIRO Student Support Scheme, the Commonwealth Scientific and Industrial Research Organisation (CSIRO) and ANZIAM contributed to the conference costs of 13 students, enabling them to attend the conference. As at EMAC 2011 and EMAC 2013, the best student prize was determined by a dedicated committee. The committee was chaired by Yvonne Stokes (University of Adelaide). The William Finlay Blyth Prize for the best student talk was awarded to Dilan Pathirana (Griffith University), with David Harman (Griffith University) and Muhammad Ilyas (University of Newcastle) being highly commended. The winner received \$500, whilst the highly-commended students received \$100. All three students received a certificate. For the first time, Australian Scientific and Engineering Solutions (ASES) offered a prize for the best student talk which had involved the use of Maple. This prize was judged by Bill Blyth (RMIT and ASES) and was awarded to Bushra Hasan (Swinburne University of Technology). The Maple winner received the Maple Advanced Engineering Bundle – 2015, consisting of the Maple Student Edition and the Advanced Engineering Mathematics with Maple e-book with solutions, and a certificate. As is with the case for the student prize at ANZIAM, there is no requirement for the winning students to be a member of ANZIAM.

The conference dinner was held in one of Adelaide's most iconic attractions: the Adelaide Zoo. No zoo animals were harmed during the preparation or consumption



Mark Nelson with one of the dinner guests—a barn owl.

of the conference dinner, however three animals did attend during the pre-dinner drinks — a corn snake, a barn owl and a quokka. This provided some great entertainment, especially for the international attendees.

Following the formal end to the conference, Australian Scientific and Engineering Solutions sponsored a two-hour Maple workshop.

Finally, EMAC2015 was the first EMAC conference to have a twitter tag, #emac2015 — though this tag has been shared with other conferences so named!

I'd like to thank the organising committee for their tireless work leading up to the conference: Amie Albrecht (UniSA), Eric Charrault (UniSA), Brandon Pincombe (Defence Science and Technology Group), Romeo Marian (UniSA), Sarthok Sircar (University of Adelaide), Bill Blyth (RMIT and ASES), Charisse Farr (QUT) and Elyse Perin (UniSA).