



Editorial

At the time of writing this editorial, the Australian Federal Treasurer has just delivered his Budget speech and signalled significant change to university and school funding. It will be interesting to see how this affects the Australian higher education system over the next decade. The Treasurer also signalled a big increase in medical research funding, but no similar increase in research support outside medicine, which is very disappointing. In particular, once again the importance of basic research has not been recognized. The Treasurer referred to the fact that no Australian university is in the top 20 universities worldwide. But no university can move into the top 20 universities worldwide based solely on its medical research achievements. In his President's Column this issue, Peter Forrester asked: 'Is there a market for a purely teaching university in Australia, and if so, what would it look like with respect to the mathematical sciences?' Perhaps the deregulation of universities announced in the Federal Budget brings us one step closer to this reality and answering Peter's question.

Congratulations to Alan Carey, Matthew England, Hanna Kokko, Ivan Marusic, and George Willis on their election as Fellows of the Australian Academy of Science

In this issue we have two interesting, some might say important, articles. They are 'Flipping the maths tutorial: a tale of n departments' by Katherine A. Seaton, Deborah M. King and Carolyn E. Sandison and 'Factors affecting success in CHEM101 at UOW' by Becky Armstrong, Mark Fielding, Stephen Kirk and Jacqui Ramage. One might think that we all know what constitutes a mathematics tutorial. However, in the first of these two articles, there is a full description of how these can be, and indeed are, managed differently at three Australian universities. In the words of the authors: 'This style of class truly flips the chalk-and-talk responsibilities in a tutorial and replaces the 'sage on the stage' with a 'guide on the side'. Its sustained use and its adoption in a number of Australian university mathematics departments, which we discuss, speaks to its effectiveness.' This article should be read because the innovation reported on is not simply innovation for innovation's sake but rather a thoroughly tested approach over 40 years at three universities which is refreshingly different from that used at other universities. Forgive the pun, but they deserve a standing ovation. The second article reports on a rather surprising observation at the University of Wollongong: 'the level of mathematics studied for the Higher School Certificate (HSC) is a better predictor of performance in CHEM101 than either the HSC Chemistry mark or the student's Australian Tertiary Admission Rank.'

In this issue of the *Gazette*, Nalini Joshi, Chair, National Committee for Mathematical Sciences, reports on a proposal to develop 'M.A.G.I.C. (Mathematical Games and Interactive Course)' which the National Committee for Mathematical Sciences is currently discussing. M.A.G.I.C. would be aimed at Year 7 to 10 students.

As usual we have reviews of a number of books, this time the books are titled 'Oxford Figures', 'Origins of Mathematical Words: A Comprehensive Dictionary

of Latin, Greek and Arabic Roots’ , and ‘A History of the Central Limit Theorem: From Classical to Modern Probability Theory’.

Geoff Prince, Director of AMSI, says: “It is no longer a secret that the theme of this year’s AMSI Winter School at sunny Brisbane’s University of Queensland is Contemporary Aspects of Cryptography. In fact the only secret about the pivotal role of mathematics in cryptography and cybersecurity in particular are the mathematicians’ salaries. The School will be attractive to postgraduates and postdocs who want to learn about, for example, post-quantum cryptography (in a pre-quantum computing world!) from Australian and international experts The speaker list includes, amongst others, Professor Tanja Lange of Technische Universiteit Eindhoven. Tanja has published more than 50 research papers bridging the gaps between algebraic geometry, theoretical cryptography, and real-world information protection Tanja will also be speaking at the Women in Maths networking event at the Winter School on 16 July.”

AustMS News invites nominations for various Medals and for Vice-President and Council Members of the Society.

This issue also includes Ivan Guo’s Puzzle Corner #37.

David and I hope that you will enjoy reading this issue.

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Sid Morris retired after 40 years as an academic. He received BSc (Hons) from UQ in 1969 and PhD from Flinders in 1970. He held positions of Professor, Department Head, Dean, Deputy Vice-Chancellor, CAO and CEO. He was employed by the universities: Adelaide, Ballarat, Flinders, Florida, La Trobe, UNE, UNSW, UQ, UniSA, Tel-Aviv, Tulane, Wales, and Wollongong. He was Editor of *Bull. AustMS* and *J. Research and Practice in IT*, and founding Editor-in-Chief of *AustMS Lecture Series*. He was on the Council of AustMS for 20 years and its Vice-President. He received the Lester R. Ford Award from the Math. Assoc. America. He has published 140 journal papers and 4 books for undergrads, postgrads and researchers, plus an online book, supplemented by YouTube and Youku videos, and translated into 6 languages. The third edition of the 900-page book *The Structure of Compact Groups* by Karl H. Hofmann and Sid was published in 2013 by Water De Gruyter GmbH, Berlin/Boston.