



**Philip Broadbridge\***

## **Recent AMSI involvement in special events**

AMSI continues to enhance the activities of the mathematical sciences in research, industry collaboration and education.

Throughout July, AMSI organised a very successful lecture tour by the AMSI Distinguished Lecturer, Professor Linda Petzold of the University of California Santa Barbara. Linda offered three lectures on topics ranging from numerical algorithms for multi-scale systems to circadian clocks in animals. Linda is an enthusiastic ambassador for computational mathematics, generating interest wherever she appears. For her own part, Linda says that she thoroughly enjoyed her visit and will be back in July 2009 as invited speaker at the first Pacific Rim Mathematical Association (PRIMA) Congress, to be hosted by the University of New South Wales on 6–9 July 2009.

The founding institutional members of PRIMA include AMSI, MASCOS (the Centre of Excellence for Mathematics and Statistics of Complex Systems) and the University of New South Wales. This prompted the suggestions to run the first PRIMA Congress in Australia. This congress has grand plans to become the second most important mathematics congress after the International Congress of Mathematics of the IMU. In the week immediately afterwards (13–17 July 2009) in Cairns, Australia will be hosting the joint 18th World IMACS Congress and MODSIM09 International Congress on Modelling and Simulation. In order to succeed both of these international meetings require large numbers of registrants, so please start planning now to attend one or both of them. Closer on the horizon is the 22nd International Congress of Theoretical and Applied Mechanics, to be hosted at the University of Adelaide on 24–29 August 2008. All three of these major events are partly sponsored by AMSI and the promise of such sponsorship was helpful in bids to host them here.

We are grateful to the Department of Education, Employment and Workplace Relations (DEEWR) for funding this year's AMSI industry theme *Mathematics for Environmental and Resource Management*. From early July at the University of Queensland, postgraduate students attended the AMSI Graduate Theme School *Statistics for Resource Management and Environmental Science*. They were privileged to attend courses given by two great lecturers, Professor Peter Guttorp of the University of Washington and Professor Vijay Nair of the University of Michigan. At Surfers Paradise in mid-July, AMSI, MASCOS and the International Centre of Excellence in Water Resource Management (ICE-WaRM) jointly hosted

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an Industry Short Course on the mathematics of water supply and pricing. This covered an interesting variety of topics in civil engineering, environmental monitoring and applied mathematical modelling. Short courses were given by Barbara Lence (University of British Columbia), Shahbaz Khan (UNESCO, Paris) and David Fox (University of Melbourne). Additional invited lectures were given by Quentin Grafton (Australian National University), Graeme Dandy (University of Adelaide) and Mohammed Dore (Brock University).

In June, four Australian students were funded by AMSI to attend the Pacific Institute for the Mathematical Sciences Graduate Industrial Mathematics Modelling Camp held in Saskatchewan. We also partly supported one academic from the University of Western Australia to attend as a facilitator. Several informal accounts indicate that they benefited greatly from the experience.

Following our interesting and vigorous 2007 AMSI-MASCOS theme program, *Concepts of Entropy and their Applications*, Tony Guttmann, Doug Gray and I are guest editors for a special issue of the Zurich-based journal *Entropy*.

Finally, I can report that professional mathematicians have been very much involved in preliminary discussions with the National Curriculum Board. By 2010, the NCB must finalise a national K–12 curriculum in English, Mathematics, Science and History. At the first NCB Forum held late in June, I represented AMSI, Michael Evans represented the International Centre of Excellence for Education in Mathematics, Frank Barrington represented the Australian Mathematical Society and Greg Taylor represented the Australian Mathematics Trust. At that forum, there were widely varying opinions expressed but it became clearer that the government requires specific curriculum content to be set down and that it wants to improve our rankings in international comparisons. Judging by recent meetings and discussions, academic educationists and mathematicians are cooperating better. The national curriculum will be a very important development for mathematics education in Australia and it is vital that we reinforce school mathematics throughout our country.



Director of AMSI since 2005, Phil Broadbridge was previously a professor of applied mathematics for 14 years, including a total of eight years as department chair at University of Wollongong and at University of Delaware.

His PhD was in mathematical physics (University of Adelaide). He has an unusually broad range of research interests, including mathematical physics, applied nonlinear partial differential equations, hydrology, heat and mass transport and population genetics. He has published two books and 100 refereed papers, including one with over 150 ISI citations. He is a member of the editorial boards of four journals and one book series.