



AMSI News

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Being positive within a harsh reality

This is the last opportunity I have to write before the release of the 2007 Federal Budget. Therefore I will make some comments on the state of the mathematical sciences. I have formed an impression by visiting many AMSI member institutions.

Notwithstanding the serious effects of severe drought, shortages in water supply and possible ongoing induced climate modification, we have recently experienced a time of relative national prosperity. We have the opportunity to invest in public infrastructure and services that will shore up our future wellbeing. Unfortunately, for the mathematical sciences, lean times are already upon us. I am aware of four university mathematics departments that downsized last year. Four other universities have drafted letters of redundancy to mathematics staff this year.

In the May 2006 issue of the Gazette, Grant Cairns said, 'I do think Mathematics is in trouble'. After a full investigation, The National Strategic Review of Mathematical Sciences Research, reporting in December 2006, noted, 'The nation's capacity to support research, research training and advanced education in mathematics and statistics is diminishing rapidly' (<http://www.review.ms.unimelb.edu.au>).

It is all too easy to dismiss the authors as being negative. Yet individually each of them has made very positive contributions to research and education. They deserve to be heard. Future generations of young Australians deserve the opportunity to participate in a vibrant intellectual environment. Those of us who have been well rewarded for our mathematical achievements yet who have failed in our obligations to the system beyond our own little empire, are culpable if that system decays.

The report of the Strategic Review contains specific recommendations to reverse the downward spiral. I urge you to read the report and to alert your political representatives to those recommendations that will require deliberate yet modest expenditure within a favourable budget.

Mathematical research is part of a long cultural tradition of intellectual inquiry. In an ideal advanced civilisation, that tradition should be well supported. In reality, material investment is stimulated by the promise of material returns. Investment in the mathematical sciences is a very positive step towards social harmony and material prosperity by way of enhanced capability in problem-solving, analytical reasoning, rational decision-making and product design. AMSI is working positively to build bridges to other disciplines and to industry. This is a way of broadening public support. For example, many employees from

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the energy sector have registered for the workshop and short course, 'Mathematics of Electricity Supply and Pricing'. In 2008, we hope to run a similar event on mathematics of water resources, involving not only AMSI and ICE-EM (International Centre of Excellence for Education in Mathematics) but also the International Centre of Excellence in Water Resources Management.

We are fortunate to have seen the simultaneous operations of AMSI, ICE-EM and MAS-COS (Centre of Excellence for Mathematical and Statistics of Complex Systems). Similar centres can be supported in the future provided we continue to communicate forcefully with members of the broad community and with its elected political leadership.



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 is 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 more than 80 refereed papers, including one with 147 ISI citations. He is a member of the editorial boards of three journals and one book series.