



AMSI News

From the new AMSI Director

The Australian Mathematical Sciences Institute is a formal collaboration of eight universities as joint venture partners as well as 21 associate members including 18 other universities, CSIRO, Australian Bureau of Statistics and the Australian Mathematics Trust. The institute was first funded for three years by a Science Technology and Innovation grant from the Victorian Government. For two years, it received additional support from the federal Department of Education, Science and Training. The University of Melbourne generously supplies office space and administrative support for human resources.

It is a powerful selling point to have a single national agency that can call on at least 80% of the nation's expertise in both mathematics and statistics. This continues to generate strong interest among potential new supporters, within both government and private industry. Consequently AMSI has provided new opportunities for the mathematical sciences discipline. AMSI is a partner in the ARC Centre of Excellence for *Mathematics and Statistics of Complex Systems*, whose central office is located on Barry Street Carlton, near AMSI. AMSI manages the DEST-funded *International Centre of Excellence for Education in Mathematics*, which is housed in the same suite of offices. These are three different types of organizations with different but mutually supportive priorities, often providing joint sponsorship for enrichment activities in the mathematical sciences. All three are working to improve support for the mathematical sciences. AMSI has sponsored a large number of research workshops, distinguished visitors, undergraduate summer research scholarships and vacation schools for early-career researchers. Undergraduate vacation scholarships are offered to all of our member institutions. We are grateful to CSIRO for inviting our vacation scholars to join theirs at next year's Big Day Out, to be held in Sydney.

The range of activities hosted by AMSI is about to expand.

Over the next year, ICE-EM is sharing in the costs of setting up access grid rooms at six institutions, plus the AMSI head office.

Beginning this year, we have started to cover the biennial Australian Mathematical Society Mahler Lecturer's accommodation expenses at member institutions. As well as the Mahler Lecturer, beginning this year, there will be an annual distinguished AMSI Lecturer, whose field of interest will alternate between statistics and applied and industrial mathematics.

AMSI, MASCOS and the Canadian-based MITACS network have recently signed an agreement of cooperation. There will be joint Canada-Australia workshops and AMSI is looking for ways to subsidise Australians to attend these. AMSI is in the process of joining PRIMA, a recently formed Pacific Rim Mathematics Association. As part of our membership obligations, we are already offering free accommodation and meals to a small number of overseas Pacific Rim postgraduate students to attend the annual ICE-EM /AMSI summer school. Students at AMSI member institutions will have reciprocal rights to attend summer schools around the Pacific Rim. This level of national and international exposure has the side benefit of showcasing our hosting joint venture institutions to potential students.

The level of influence of the mathematical sciences is on the rise. Over the last year, the entire field of mathematical sciences has been listed as one of three priority areas by the

United States National Science Foundation. Most of us are well aware of the rise of mathematical finance and mathematical biology over the last decade. Now we are experiencing a rising demand for expertise in mathematical risk analysis. This may be applied to such areas as finance, ecology, emergency response and public health. In 2005, the Federal Department of Agriculture, Fisheries and Forestry has shortlisted three applications for funding as the Australian Centre of Excellence in Risk Analysis. Interestingly, DAFF expects outputs to be mathematically-based decision support tools. AMSI has contributed a significant investment to one of the shortlisted applicants. If that application is successful, then the guaranteed returns will be 150% on top of the investment. This will be distributed to our member institutions for workshops, post doctoral salaries and postgraduate scholarship top-ups to support risk analysis. I have been told that other federal departments such as Department of Health and Ageing are building similar funds to support their own related applications of risk analysis. We are building our capability in these areas so that we are at the front of the line. In February, there was a very successful MASCOS/AMSI joint workshop *Decision Making for Complex problems in Conservation*. Some significant and well-known problems in ecology were solved right there. In November, there is a MASCOS/AMSI Financial Risk Breakfast. Next March in Melbourne, there will be an AMSI/MASCOS industry forum on mathematical sciences in public health. The emphasis will be on emerging opportunities in patient care and drug delivery, hospital logistics and community health, rather than the established mathematical areas of medical imaging, epidemiology, tumour growth and organ physiology. Of course, these areas are still relevant, and may be integrated in the overall logistics of healthcare.

AMSI intends to be aggressive in connecting mathematical scientists to potential users and supporters. When we can see a potential large return on an AMSI members' institutional grant application that will stimulate activity in the mathematical sciences, then we will support the grant proposal financially, provided there is an understanding that we may redistribute the income to other full and associate members in any Australian state. We have recently introduced industrial sponsors to academic institutions with relevant expertise. We are close to receiving funding to employ industrial post-doctoral fellows on-site at AMSI. Finally, I must point out that I still see value in intrinsically interesting pure research that has no obvious immediate application. Historically, civilisation has been enriched by the possibility of unfettered thought. Good proposals for our members' scientific workshops will generally be funded, especially when there is a high involvement by early-career researchers.

Philip Broadbridge

AMSI Director

For current events and developments, see the websites <http://www.amsi.org.au> and <http://www.ice-em.org.au>.