

CARMA Advancement and Outreach Committee

Background

The University of Newcastle's Priority Research Centre (PRC) for Computer-Assisted Research Mathematics and its Applications (CARMA) was formed to further research mathematics in Australia by exploiting advances in ICT (Information and Communication Technology). CARMA provides facilities, unique in Australia and with few peers globally, that enable researchers to apply sophisticated computer-assisted techniques and tools across a range of mathematical disciplines, enabling new and deeper insights into mathematical questions and advances in computational processes that are critical to the sciences, engineering, and management. CARMA's impressive research record to date, achieved in collaboration with the School of Mathematical and Physical Sciences and with other research bodies within and beyond the University of Newcastle, has earned it an enviable reputation among the global mathematical community and continues to enhance the university's standing as a centre of technology-enabled research. It should be noted, however, that in order to maintain that reputation CARMA will need to attract sustained levels of support from its existing sources and to expand that base of support so that it reaches into the wider community.

Beyond the ongoing viability of CARMA itself there remains a fundamental disparity between the mathematical skills that play within such a centre and those that can be expected to mature from the current primary and secondary school enrolment in Australia. Various studies point on the one hand to the critical importance of mathematical skills to the growth of this country and to its international competitiveness, and on the other to the diminishing number of enrolments in mathematics at high-school and university levels. While CARMA has demonstrably achieved critical mass, the present parlous state of primary and secondary mathematics seriously threatens the supply of Australian mathematical researchers, while also creating an opportunity — and a need — to address that problem. In that context the mutual and widely recognized benefits of collaboration and interaction between tertiary and pre-tertiary institutions suggest an important ancillary role for CARMA.

Purpose

The **CARMA Advancement and Outreach Committee** has been formed to promote CARMA to the wider community. This community focus entails two complementary aspects:

- *Advancement*: CARMA needs to develop and maintain a wider base of support for its ongoing operation and sustainment, especially given the exigencies of funding that obtain in the contemporary academic environment in Australia.
- *Outreach*: CARMA needs to respond to targeted areas of mathematical need within the community, recognizing that mutual benefits accrue when an organization uses its unique capabilities to support the community within which it operates.

Objectives

The Committee is tasked with the following objectives:

1. Increase the awareness and appreciation in the community of the importance of mathematical research to Australia's future and in particular of CARMA's contribution to that work.

2. Catalyse the growth of mathematical interest and competence among Australian school students.
3. Expand CARMA's stakeholder base and thereby the resources available for its operational needs.
4. Forge closer ties with the Hunter region that reflect the custodial responsibility of CARMA members with respect to the discipline of mathematics.

Activities

The Committee will employ a range of activities in support of its objectives, including:

1. Running events that showcase the work of CARMA and its importance to mathematics in Australia
2. Reaching out to high schools, including parents, teachers, and students, through such programs as the MathsHunter Q&A site, school visits (inbound and outbound), field trips, etc.
3. Exploring, identifying, and engaging additional sources of sponsorship and other tangible forms of support, as well as energizing and renewing existing sources
4. Engaging with regional organizations on projects of mutual benefit

Membership and Process

The Committee is chaired by a member of the CARMA external advisory committee and comprises at least four members of CARMA including the Director, who sits *ex officio*. The committee members serve one-year renewable terms.

For 2012 the membership comprises Dr. Gerard Joseph (Chair), Dr. Jon Borwein (Director), Dr. Judy-anne Osborn, Dr. Masoud Talebian, and Dr. Malcolm Roberts.

The committee meets physically at least once a semester. The committee reports annually to the CARMA steering committee.