



# AMSI News

**Geoff Prince\***

## **The shape of a national research centre**

This is an edited excerpt from AMSI management's submission to the decadal plan. The full submission can be viewed at <http://www.amsi.org.au/multimedia/pdfs/AMSLDP.pdf>.

For the last 11 years, AMSI's national programs have supported research and research training in the mathematical sciences. We have sponsored more than 200 workshops and the visits of more than 250 foreign mathematical scientists. While the Summer & Winter Schools, BioInfoSummer, Vacation Research Scholarships and AGRs have been largely government funded, we have not had similar funding for the Workshop or Theme programs and this has hampered AMSI's development as a full-blown national research institute. The 2010 AMSI Review indicated that there is a strong desire amongst the membership for such an institute and in the second half of 2010 AMSI and its membership developed a proposal, invited by the ARC, for a co-funded centre. This failed to materialise because of the disinterest of DEEWR at that time. Decadal Plan Committee 6 has been given access to all the documentation for this 2010 bid; a summary document can be found in the resources link below.

A national research centre in the mathematical sciences remains at the very top of AMSI's agenda (along with a five-year public awareness campaign for the discipline). Planning for this centre is currently underway under the auspices of our Research and Higher Education Committee.

There are three basic models for a national research centre:

- A distributed centre with activities carried out at one or more nodes.
- A centre with a mix of node-based activities and activities carried out at a research station like the Banff Research Station.
- A single site research centre like MSRI in San Francisco.

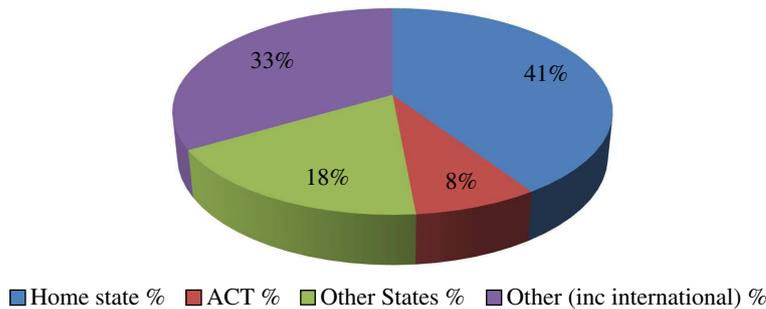
The 2010 bid was for a centre of the first type and it had the overwhelming support of the AMSI membership. The bid document makes a detailed case for such a model which I won't repeat here. There was at that time interest in a research station, but it could not be supported in the business case without partnership with at least one other discipline. Given the tight time frame we didn't pursue this option. A research station in Australia would raise our engagement with the

---

\*Australian Mathematical Sciences Institute, Building 161, c/- The University of Melbourne, VIC 3010, Australia. Email: [director@amsi.org.au](mailto:director@amsi.org.au)

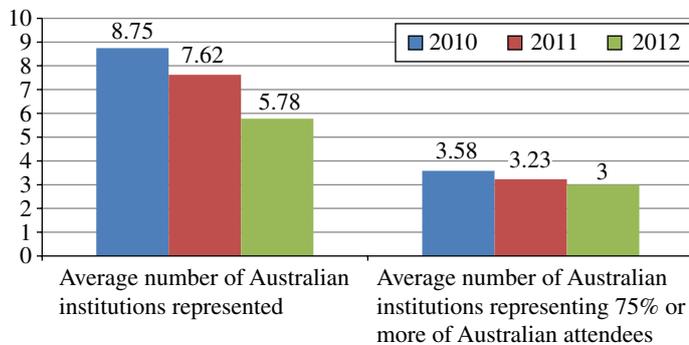
discipline in the Asia-Pacific region as well as providing a local retreat for the Australian community. Nonetheless a business case must be made and it will almost certainly involve partnerships. Moreover, it is not at all clear that the majority of the 15–20 or so workshops that take place each year would migrate to the research station because of the increased travel and accommodation costs. Such a station would probably not be able to accommodate the AMSI Summer School or BioInfoSummer, but this is not a deal breaker. And it certainly would not be able to host an extended theme program although it would undoubtedly be involved in the delivery of embedded workshops. This chart identifies the characteristics of AMSI sponsored workshops over the last three years and indicates the predominance of home state participants.

AMSI workshop participation 2010–2012: Origin of participants over a three-year period



This is almost certainly because of the highly non-uniform distribution of research interests in Australia across the AMSI membership. For example, a successful mathematical relativity workshop will attract most of its attendees from only three or four institutions with most participants coming from the host department where the research strength is high, certainly high enough to attract strong international interest from significant figures in the field. Clearly in this case the cost of local hosting is less than at a research station. A business case for a research station will require some work.

AMSI Workshop participation 2010–2012:  
Australian institutions represented



These arguments can be extended directly to the single site idea which, along with other considerations, in my view rules it out. First of all there is the problem

with long-term theme programs; it is impractical in the Australian context to hold these at a single site because the major players in a particular theme will suffer considerable logistic, strategic and financial difficulties in migrating their operations to that site for periods of months. A single site would have to be located in a metropolitan area in order to be able to accommodate the significant numbers involved in a major theme and this will immediately be perceived as advantaging the major mathematical sciences departments in that city and disadvantaging others elsewhere (it also makes the retreat aspect less viable). AMSI itself has suffered because of the perception that it is Melbourne-centric and AMSI is an administrative hub and not an academic one! There will also be concerns that a single site will make it difficult for the discipline to obtain Centres of Excellence and may skew the distribution of other ARC grants and fellowships. Finally, a single site will make it difficult for the government agencies to be involved in theme programs because their operating models make extended absences difficult for researchers.

In summary, I favour a distributed research centre wiring up the various hotspots in the mathematical sciences scene, simultaneously strengthening our ability to raise national funding and also strengthening the position of the local hotspots. A national research station would certainly raise our international profile and be attractive to local students and researchers but a business case has to be made which would overcome the problem of increased travel and accommodation costs. A single site national institute really doesn't work because of the non-uniform distribution of research interests and the difficulties in servicing such a geographically dispersed discipline.



I was a Monash undergraduate and took out a La Trobe PhD in 1981 in geometric mechanics and Lie groups. This was followed by a postdoc at the Institute for Advanced Study in Dublin. I've enjoyed teaching at RMIT, UNE and La Trobe. My research interests lie mainly in differential equations, differential geometry and the calculus of variations. I'm a proud Fellow of the Society, currently a Council and Steering Committee Member. I became AMSI director in September 2009.