

Rules for the Gordon Preston Prize

The following rules apply

1. This Prize is awarded for the most outstanding talk presented by a student at the Australian Algebra Conference.
2. Student will mean a person studying either full-time or part-time, without age limit. Furthermore the student may be either postgraduate or undergraduate. A graduate student who has submitted a thesis for examination is regarded as a student until such time as a final decision is made on the thesis.
3. The Prize is to be at a value as determined from time to time at the AGM of the Australian Algebra Group and a certificate suitable for framing will be presented.
4. The Prize will be awarded at the annual dinner, which is held in conjunction with the annual Australian Algebra Conference.
5. All student talks should be scheduled before the annual dinner so that the Prize Committee can have proper discussion.
6. The president of the Australian Algebra Group will appoint the Prize Committee after consultation with the conference organizer.
7. The existence of the Gordon Preston Prize will be well publicised on the conference web site and in announcements about the conference.
8. If there are too few student speakers or, in the opinion of the Prize Committee, there are no candidates of sufficient merit, then no Prize will be awarded.
9. A student can win the Gordon Preston Prize at most two times.

Criteria – Gordon Preston Prize

The criteria that the judging panel will use for the award of the Gordon Preston Prize are:

1. the motivation and setting of the general context,
2. the methods used to present the material,
3. the organisation and structure of the lecture,
4. the originality of the substance of the lecture, and
5. the rapport with the audience.

Advice for Gordon Preston Prize Talks

The following report, written by the judging panel for the B.H. Neumann Prize in 1993, provides valuable advice for all speakers at conferences – not just students! The advice given here will also be valuable for students speaking at the Australian Algebra Conference and competing for the Gordon Preston Prize.

At each Annual Meeting of the Australian Mathematical Society, students compete for the B.H. Neumann prize for the best student talk presented at the Meeting.

As the judging panel for the 1993 Meeting at the University of Wollongong we believe that we should set out the criteria we used for our decision and offer some guidance for future competitors. Although future judging panels need not be formally bound by our ideas, we would expect them to take a similar view. Our judgement was based on three main criteria: presentation, content and rapport with the audience.

Talks are about communication and with mathematics, even amongst mathematicians, this is a formidable task. The speaker has to keep in mind that diverse mathematical interests are represented in the audience. So the introduction can afford to be relatively long. Effort has to be made to get as many as possible motivated by a clear simple statement of the problem area.

We have to be realistic about what can be covered and what an audience can absorb in a half-hour talk. Very often we get excited about the solution to a problem and we want to tell about this to the last detail. But be careful, sometimes great discoveries in the complexity of a polished generalisation. The audience has a better chance of catching the excitement of the discovery and valuing it if they can appreciate the first elemental insights which led to the completed work. If you catch the audience's interest then afterwards they will ask for your paper to pursue the details.

Of course it is important that the talk be well prepared. If overhead transparencies are used they should be written with an eye to presentation. There is a problem with the use of overhead transparencies; they do detract from the immediacy that a blackboard presentation can give. Overhead transparencies should have restricted use as an aid. Spontaneity is not lost if the speaker spends time talking directly to the audience or using the blackboard for diagrams, or sketching on the overhead transparencies. As a rule, no more than six transparencies should be used for a short talk; these should not contain densely packed material and, as far as possible, they should not refer back to statements or equations in previous transparencies.

Care should be taken to consider how much formal proof material can reasonably be presented in a half-hour talk. Perhaps the proof of one key result can be presented towards the end of the talk. Preferably such a proof should be given by outline showing how main ideas interact. Remember, the talk is to communicate and create interest in the material. The talk is not successful if the

speaker overwhelms the audience with a mass of detail that they could not possible follow even given a much longer time.

Mostly the speaker's concern is with the mathematical content; after all, wrestling with a problem and organizing its solution has been a consuming occupation. The judging panel is concerned about the originality of the material and the speaker's contribution to the solution. It is important for the speaker, when setting the problem in context, to list those on whose work they are building and to explain the role the speaker played and to mention collaborators. An assessment of the weight of the contribution and an outline of the problems which remain are also of value and help the audience gain some perspective on the depth and relevance of the work. It is useful to illustrate the material with examples because this makes the argument more convincing and is often a point of contact with the audience.

The speaker should try to gauge whether the audience is following the presentation. Of course, it is difficult to present complex material in a restricted time and have concern for audience understanding. Nevertheless, a successful talk depends on it. Audience interest often shows itself in questioning during or at the end of the talk. The judging panel is interested to see how the speaker handles questions. One of the most fruitful outcomes of any talk is the building of research contacts.

Finally, all students preparing to give talks should do a "dry run" at their home university well before the conference to a friendly audience containing an experienced speaker and someone not directly in the field. From such a preliminary presentation the amount of material can be checked. This will help to highlight the key points which should be the focus of the talk. Often there will be the discovery that many non-essential side issues will need to be excised to give a clearer presentation in the short time. Practice is essential in handling transparencies and necessary revisions can be made. A home audience is likely to be more openly critical and will play a crucial role in advising about polishing the presentation.

There is a valuable paper written by the master expositor, Paul Halmos, which should be essential reading for all postgraduate students. The reference is "How to talk mathematics" *Notices Amer. Math. Soc.* 21 (1974), 155-168.

B.H. Neumann Prize judging panel, 1993.

- * John Giles (Newcastle) (Committee Chair)
- * Bob Bryce (ANU)
- * Mike Englefield (Monash)
- * Mike Newman (ANU)