

The SFI Mathematics Initiative

Dr Russell Higgs, President of the Irish Mathematical Society and Dr Gary Crawley of the SFI met on 5th July 2007 in Wilton Park House to discuss this year's round of the Mathematics Initiative.

Here are the main points that respondents made about the recent round of the SFI Mathematics Initiative with responses made by Dr Crawley of the SFI. The points were made mostly by people who had not apparently applied under the current round and are arranged in decreasing order of popularity.

1. Many people have not applied to the Initiative because their research has no connection with industry and cannot be exploited for commercial gain. They believe that funding of fundamental research is essential for mathematics to thrive in Ireland.

RESPONSE: To obtain a large grant, the research must have strategic (this means economic) significance to Ireland; this also applies to such grant applications in Biotechnology and ICT. This follows from the Irish Government's strategy of moving to a knowledge-based economy and justifies the large increase in spending on R&D undertaken by the Government in recent years. Smaller grants, which do not have this requirement of strategic significance, are available under the RFP programme, in which applications in the 'Mathematics' area have one of the highest success rate (e.g. 34% for Mathematics compared with an overall success rate of 24% for the RFP2007 competition. Biomedicine for instance had a success rate of 16% only).

2. Many believe that the scale of grants is incorrect, particularly in the first round last year. They thought a larger number of smaller grants are needed and that these would be more beneficial in the long run.

RESPONSE: The grants awarded last year are still comparatively small compared to Principal Investigator or CSET awards in the BIO and ICT Directorates. However, the SFI has recognised the need for smaller grants this year in the Mathematics Initiative and has scaled the typical grant size back to €1 million over 4 years.

3. Leading on from number 2, it was felt that the SFI Mathematics Initiative is effectively 'squeezing' existing smaller grant opportunities for mathematicians. This squeeze manifests itself either as fewer grants being awarded to mathematicians, or that when such grants are awarded they are smaller in value than in previous years.

RESPONSE: The RFP programme provides a good opportunity for those in mathematics to obtain funding; more people need to apply (see success rates under 1). An average three-year direct award under this programme (all subjects) was around €157,000 for RFP2007, with a maximum of about €220,000. The average Mathematics award for RFP2007 was €132,000. There were only 47 pre-proposal submissions in Mathematics to the RFP2007 programme.

4. In some universities, Mathematics Schools or Departments are being (partially) assessed, as successful or not, by the value of grants obtained. Thus in some universities the Mathematics Initiative is actually harming rather than promoting mathematics in Ireland. One suggested simple solution to this was to change the name of the Mathematics Initiative to the Industrial Mathematics Initiative.

RESPONSE: The size of research grants obtained is an easy measure for universities to adopt for science subjects. Those in mathematics need to demonstrate to their administrators that research grants in this area are generally smaller than in other science subjects. Nor should grant funding be the only criterion for quality of research in any field but especially in mathematics. For the Mathematics Initiative, a grant will only be awarded if the research has or potentially has strategic (economic) significance.

The name of the Initiative is meant to indicate an inclusion of all aspects of mathematics. The SFI would consider a future name change if a new title acceptable to them could be reached by consensus among the mathematical community.

5. Continuing the theme of number 4, a small number of respondents felt that the Initiative has been divisive between the Mathematics Departments/Schools in Ireland and has divided the mathematical community into ‘haves’ and ‘have nots’.

RESPONSE: There was little sympathy for this view; it is just a consequence of a competitive grant application system.

Only one or two people made the following points:

6. The previous review panel had no expertise in some of the mathematical areas in which applications were received.

RESPONSE: In last year’s two-stage process it was necessary to have a wide-ranging panel to filter the original applications. This year there is only a one-stage process and so the reviewers can be chosen as a best

fit to the subject matter of the applications. All reviewers this year will receive all the applications and they will meet at a future date to collectively discuss their findings.

7. Mathematical physics is not being funded under the Initiative, which is skewed towards “applicable” mathematics.

RESPONSE: The Advisory Committee recommended that mathematical physics not be funded under the Mathematics Initiative, but instead that research proposals in this area should be classified under physics. University administrators of Departments of Mathematical Physics should be made aware of this when assessing such Departments or indeed individuals.

8. Mathematics education is not regarded as a serious topic or research area under the Initiative.

RESPONSE: The SFI does not have a remit to fund research in education, although an education component is one of the criteria for success in the Initiative. Generally, the Review Panel rejected projects that mainly focussed on mathematics education.

9. The Advisory Committee this year had too strong a representation from University College Dublin.

RESPONSE: The members of the Mathematics Advisory committee are not expected to operate as representatives of particular institutions. However, there is an attempt made to provide broad institutional coverage on the committee. It was agreed that broader coverage will be sought in future possibly by having more representation from the IoT sector.

10. There is a (perceived) bias against non-Irish mathematicians.

RESPONSE: All Mathematics Initiative proposals were reviewed by panels of international reviewers. None of the SFI staff who sat in on the panel discussions ever reported detecting any such bias. It is difficult to counter perceptions, but the SFI will consider adding a sentence regarding equality of opportunity independent of religion, race, sex etc. in its documentation concerning the Initiative.

The future: The SFI is likely to see an expansion of its remit in the future and mathematics could fare well. The success of the existing five or six projects (two existing, three or four new ones this year) will be vital if the

Mathematics Initiative is to continue on a long-term basis. It is unclear at the moment whether there will be an Initiative next year.

Dr Crawley offered to attend a future meeting of the Irish Mathematical Society to discuss the status of the Mathematics Initiative and the support for mathematics from the SFI.

Russell Higgs
President of the Irish Mathematical Society
5th July 2007