

# European Mathematical Society

From the President, Ari Laptev

EU Commissioner for Research Máire Geoghegan-Quinn

May 20, 2010

Dear Commissioner,

On behalf of the European Mathematical Society I would like to express our deep concern regarding investment in European Mathematics which is grossly inadequate to fulfil the needs of European Science and Technology.

USA and also China, Canada and Brazil have recently made substantial increases in the funding of research in many areas of Mathematics over the last decade. For example, the total budget dedicated to mathematics in USA from all funding organizations has increased from US\$ 380M in 2005 to US\$ 540M in 2010. Within this budget, the funding of the National Science Foundation's Division of Mathematical Sciences has more than doubled from US\$ 110M in 2000 to US\$ 241M in 2010. It is interesting to note that, in strong contrast to the situation in Europe, the NSF funding for Physics is equivalent to that of Mathematics with US\$ 290M for 2010.

From our perspective mathematical research will continue to be of crucial importance for the future of European Industry and Innovation. Mobile phones, internet, credit cards, digital TV and Google are only a few examples of the numerous innovations that have revolutionized everyday life in the past thirty years. Several areas such as optimization of structures in airplanes and more generally in industrial processes can also be cited. Their success and development depend heavily on Mathematics.

On April 24-25 a Consensus Conference in Madrid of the ESF Forward Look Project "Mathematics & Industry" was held in Madrid under the auspices of the Spanish EU presidency. Representatives from funding organizations, scientific communities and large international companies gave their views on the situation of Mathematics and Innovation in Europe. Many of these companies have their origin or a high level of activity in Europe and award very substantial grants to professional mathematicians who are also often of European origin but have emigrated to US and Canada due to the lack of adequate funding or the scientific environment in Europe.

The recent creation of the European Research Council is of course very positive and will definitely have a beneficial effect on European Innovation. However, we believe that the funding of European Mathematics requires restructuring in order to meet the demands of European Industry and Innovation.

The development of new technologies related to problems in telecommunication, car and oil industries, climate change and the search for new energy sources, etc, requires a centralized reference forum where European industrialists would be able to access mathematical expertise.

Modern Mathematics is a diverse field that brings together mathematicians who deal with abstract theories and those who work with application driven research. The complexity of most of the problems met in industry demands a close collaboration with "industrial mathematicians" and also with those mathematicians who are familiar with the latest advances in contemporary Mathematics.

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This is especially important when new ideas are requested that lead to real innovation. Indeed some of the most powerful new ideas in Mathematics that come to fruition are enormously complex and require radically new knowledge transfer.

There is a tendency to consider Mathematics as a discipline that merely provides support for other fields of research and innovation. This attitude is inappropriate and damaging. Most modern technological developments have recent and highly sophisticated mathematics at their core and there is a distinct danger that, by not giving Mathematics its deserved status, Europe might find itself on the fringe of modern technological development. The fact that Mathematics is one of the scientific disciplines where Europe still plays a leading role worldwide must be fully acknowledged.

We would therefore strongly encourage the Member States and the European Commission in creating a virtual European Institute of Mathematics and Innovation. Such an Institute would be responsible for identifying and conducting research projects related to the challenges encountered by industry and innovation as well as providing a direct link to all Mathematics Departments of European Universities and Mathematical research institutes. It would also establish a co-operation between both fundamental and application driven mathematicians and their industrial partners.

An attempt to build a mathematical infrastructure in Europe was recently made by the European Mathematical Society and the European Science Foundation with the proposal of their joint project MATHEI, in the framework of the Programme “Capacities” – Call ID “FR7-Infrastructures 2010-1” Proposal N 262248.

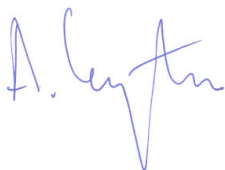
Unfortunately this project was not approved. I myself and all my fellow colleagues with whom I have spoken, fail to understand how the aim of a project that sought to unite major institutions of European Mathematics, could be ignored in favour of minor details - “weaknesses” - which were given as a justification of the project’s rejection.

We are concerned that the failure of our proposal could be related to the lack of recognition of the rather different nature of mathematical research compared with research in other scientific communities. Major breakthroughs are made in Mathematics by individuals who are supported by groups of specialists in the field and who do not necessarily need to be physically in one place. The key investment is to be made in groups, the members of which often belong to different Departments. Regular meetings, research visits, exchange of students, etc, are of prime importance to stimulate the research and bring it to the highest level. In general, it requires a very different approach that, sadly, does not seem to comply with the European Commission’s present vision of how mathematical research should be managed.

Enviably, the situation of the American mathematical research community is well understood by the NSF of which the Division of Mathematical Science has a high level of funding, enabling it to award grants to a large community of mathematicians with a success rate of about 30%.

In conclusion I should like to express my deep hope that the policy of the European Commission for Research, Innovation and Science will be flexible enough to meet the particular needs of European Mathematics and recognise the importance of its impact on future European Innovation. In order to regain international competitiveness, adequate funding of Mathematical research in Europe and the establishment of a European infrastructure for Mathematics is imperative.

Yours respectfully,



Ari Laptev