



UNIVERSITY OF  
CAMBRIDGE

Department of Pure Mathematics and  
Mathematical Statistics

Burt Totaro FRS  
*Lowndean Professor of Astronomy and Geometry*

24 October 2011

Professor David Delpy FRS FREng FMedSci  
Chief Executive  
Engineering and Physical Sciences Research Council  
North Star Avenue  
Swindon SN2 1ET

Dear Professor Delpy,

Thank you for your response to our letter to the Prime Minister regarding the future of the Mathematical Sciences in the UK.

We are glad that you would like more communication between EPSRC and the mathematical community. Until now, communication has consisted of EPSRC briefing us on your decisions, rather than letting us have input and establishing a dialogue.

The EPSRC maths team is now visiting UK maths departments to talk about your fellowship decisions and Shaping Capability. We are told at these meetings that we cannot discuss the statistics decision, as it has already been made, and we cannot discuss future decisions about other subjects in the mathematical sciences, because they have not yet been made.

Nevertheless, the first topic that we must discuss with EPSRC is your July decision to limit fellowships in the mathematical sciences to statistics and applied probability. Statistics is an important mathematical science in which UK universities have had trouble maintaining their current strength. Mathematical scientists would like to help EPSRC address this issue. But your restriction on fellowships is the wrong approach. All the UK's learned societies in the mathematical sciences, as well as the International Review of the Mathematical Sciences panel, have written to you to criticise EPSRC's fellowship decision.

You say that you have limited fellowships to statistics and applied probability only 'in the first instance' and that you have not yet made your final decision. But by delaying further decisions until the end of 2011, you have effectively ruled out fellowships for most of this year's cohort of young mathematical scientists, since the international mathematics job market closes around that time. Only those left without a position in the rest of the world will be able to apply for EPSRC fellowships. The additional 'flexibility' you mention may be useful in the future, but does not solve the problems caused this year.

You mention that EPSRC research grants can be used to fund postdocs, but the truly world-leading people we want to retain and attract for the UK need their independence and their own fellowship to pursue their great ideas. The best young mathematicians do not want to work to someone else's research plans. They are free to go to the world's best universities instead. It is essential to the fabric of UK mathematics that we can compete in this market. The lifeblood of mathematics is exceptional individuals, not heavily managed groups.

More generally, our experience with EPSRC has been that the organisation consistently fails to understand how mathematics works, and how it can contribute to society at large. EPSRC cannot grasp the opportunities that mathematics offers unless it listens to mathematicians.

Recent changes at EPSRC have emphasised fewer, bigger grants and more centralised control. Mathematicians have told EPSRC over and over that these approaches do not suit mathematics, but we are told that these are top-down EPSRC-wide policies and therefore not up for discussion. You are converting a science that is, by its very nature, distributed, innovative and highly adaptive into one that is centralised, prescriptive and bureaucratic.

We are glad that you mention the importance of EPSRC's contacts with 'potential grant holders'. But EPSRC often measures the quality of an area of mathematical research, or of an individual researcher, by the amount of EPSRC funding it has received. Combined with EPSRC's preference for large grants, in which EPSRC staff play a major role in early discussions, there is a real risk of unfairly directing funding to those who have received EPSRC funding in the past, compared to those who have received funding from the EU, or for that matter those who have done brilliant work without outside funding.

You say that you are not trying to 'pick winners'. Unfortunately, this is precisely what you are doing. You say that you are 'focusing the research base around areas where the UK is an acknowledged leader in order to protect our international reputation'. But, as the International Review panel and other organisations have told you, the way to protect the UK's international reputation in the mathematical sciences is to fund the best research across all the mathematical sciences. It is a waste of public money not to fund the best research.

Your staff, who by EPSRC policy can have no training in mathematics whatsoever, are being forced to decide the level of funding to areas of mathematics whose names they can hardly understand. This farcical and damaging state of affairs is no reflection on them, and indeed must make their working conditions difficult, but rather is an indictment of EPSRC policy.

Our perception is that EPSRC views mathematical scientists as self-interested opportunists who need to be managed centrally and who cannot be trusted to choose strategic priorities and imperatives. In fact, mathematical scientists want what is best for their science. There is considerable evidence that scientists can work effectively to make the best use of the funds available. In the U.S. National Science Foundation, the mathematical sciences programme is run with outstanding success by mathematical scientists who have had an academic career.

We welcome your request to have better communications with mathematical scientists. We want the planning of research funding to draw on the best scientific advice available. EPSRC will naturally draw on other sources of advice, such as the many businesses that rely on mathematical sciences graduates. But EPSRC must allow the UK's leading mathematical scientists and learned societies to play a central part in planning research funding in the mathematical sciences. If that happens, we can make much better use of public money.

Yours sincerely,

Arieh Iserles  
University of Cambridge

Richard Thomas  
Imperial College London

Burt Totaro FRS  
University of Cambridge