analysis

Trail of ineptitude

The revolt among physicists over funding cuts rages on, in spite of threats about its consequences. As parliament prepares to report on the turmoil, **Paul Crowther** pieces together a trail of misinformation that runs counter to the ambitions of a government that claims to set great store by the economic value of research.

"Is anxiety over the fate of the Jodrell Bank Observatory symbolic of wholesale betrayal of pure science in Britain?" This question heralded an investigation on BBC Television earlier this month in the wake of a tense National Astronomy Meeting in Belfast that was dominated by the crisis in fundamental physics in the UK. The film highlighted fears over the future of Jodrell Bank and Daresbury Laboratory, two icons of innovative research. It also noted damage to the UK's international reputation in science, which Martin Rees, president of the Royal Society, Astronomer Royal and master of Trinity College, Cambridge, blamed squarely on the organisation at the centre of the storm, the Science and Technology Facilities Council. "Certainly, there was poor management and poor planning," said Rees. "Our high reputation…has been damaged by this ineptitude."

This was merely the latest blow in an ongoing battle over fundamental science funding that followed the STFC's sudden announcement of swingeing cuts in December. At the heart of the crisis is the continuing fall-out from the rushed merger of the Particle Physics and Astronomy Research Council, which supported cutting edge research into fundamental physics, and the Council for the Central Laboratory of the Research Councils, which ran laboratories serving other needs.

The resulting STFC, which emerged last April, was to be a sure-fire winner, providing more economic value from the technologies developed through its scientific programmes. So just how could the good news story of a record investment in UK science, formally unveiled by Innovation Secretary John Denham only last December, have unravelled so quickly?

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The outcry from physicists has prompted others to scrutinise the STFC and its decisions. An inquiry into the science budget by the Innovations, Universities, Science and Skills select committee, chaired by Phil Willis, is due to report imminently. Research Councils UK has commissioned a review of physics from Bill Wakeham, vice-chancellor of the University of Southampton. There have also been a number of Early Day Motions in Parliament, and an e-petition to the Prime Minister attracted 17,500 signatories, including Stephen Hawking, Lucasian Professor of Mathematics at Cambridge.

The Prime Minister's office responded to the e-petition earlier this month, arguing that claimed reductions in funding were simply unfulfilled "aspirations". This was unwelcome 'spin' for the hundreds of scientists and engineers at the STFC's laboratories who had been offered redundancy, and for the users of new facilities that faced the prospect of immediate closure.

Scientists are growing all too accustomed to spin. Take this example from an STFC press release in February, which noted that "funding for physics exploitation grants would remain broadly level in the next financial year [2008-09]". The announcement led many observers to believe that there had been a U-turn over the planned reduction in grants of 25 per cent, which is part of the package of cuts. But it was nothing of the kind [*RF 20/2/08, p18*]. In fact, the release coincided, insensitively, with the announcement of STFC's annual astronomy grants round. Principal investigators received two spreadsheets: the first included planned allocations before STFC's settlement, the second adjusted allocations for the cut of 25 per cent. The result was a dramatic reduction in the number of post-docs and a frank admission, from Mike Cruise, chairman of the STFC's Astronomy Grants Panel, that severe damage had been done to "STFC's ability to deliver its mission".

In contrast, the STFC's chief executive, Keith Mason, favoured a 'glass half-full' vision when, at the Belfast meeting, he faced an audience of astronomy students, post-docs and academics for the first time since the crisis struck. After the STFC's science programme director, John Womersley, warned the audience to stop complaining publicly, Mason brushed off accusations that STFC had been "flip-flopping" over its membership of the Gemini Observatory. He does not accept that the UK was very publicly thrown out of the club by the Gemini Board in January, and then reinstated in the international partnership the following month only after the STFC had

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compromised [*RF 20/2/08, p16*]. He told the assembled crowd that "you were all 'had' by the Gemini Board". Such remarks are unlikely to endear the UK to Gemini's executive agency, the US National Science Foundation, or do much to help restore its international credibility.

More puzzling still, Mason re-iterated his claim that there had been "a large increase in the number of university researchers in astronomy...those numbers have gone up by 40 per cent in two years, from 500 to 700". However, as the STFC's own statistics illustrate (*see graph*), the number of astronomy academics was broadly static between 2005 and 2007, rising by just 4 per cent from 524 to 545.

So, why the factor of 10 difference? It seems that the figure of 40 per cent was taken out of context from a letter to astronomers from Cruise. The letter records that "the academic staff in the groups reviewed [for 'rolling grant' applications in 2007] has increased by 37 per cent since the last grant round for these groups." This is not an illustration of an unsustainable increase in the number of astonomers, as Mason implied. The figure simply reflects a shift, among less than one third of astronomers nationally, towards bids for long-term 'rolling' grants instead of short-term responsive ones.

Using the ratio of post-docs to academics as a measure of research support, the graph highlights an increase after a call by the 2005 International Review Panel of UK Physics and Astronomy Research, co-sponsored by the STFC's predecessor, PPARC, to "maintain a healthy balance between the large investments in facilities, and funds spent nationally to exploit these opportunities".

But astronomers do live in the real world, and a 10 per cent decrease over the spending review period, rather than the reduction of 25 per cent imposed by the STFC, would have been far more manageable. Meanwhile, the STFC intends to withdraw previously peer-reviewed (and awarded) grants to universities. The action has provoked further loss of trust in the council.

Faced with such choices, it is little wonder that "outraged" members of the STFC's advisory panel, the Particle Physics, Astronomy and Nuclear Physics Science Committee, considered a mass resignation in protest at the funding cuts, as PPAN's chairman, Walter Gear, reconfirmed at the Belfast meeting.

The suddenness and the depth of the cuts to astronomy and particle physics have been the main causes of the outcry from scientists. And the consequences could be dire if the brightest young scientists head off overseas. Secrecy and spin have worsened the crisis.

So, where do we go from here? Particle physics and astronomy do attract talented students into physics, which is a government priority. Training of students through access to cutting-edge technologies enhance a range of skills and analysis highly desirable to many sectors of the economy, and successful UK universities attract global investment in science and innovation. But will such arguments convince the Treasury?

The Wakeham Review will consider whether the current funding structure across physics is optimal, or if astronomy, nuclear and/or particle physics grants would be best administered in the long-term through the Engineering and Physical Sciences Research Council.

Intense scrutiny of the STFC's management has led to some positive steps towards openness. Other criticisms over the lack of community involvement in the peer-review process have been addressed with an intention to devise specialist advisory panels. There has also been a welcome, albeit brief, consultation exercise over where the cuts will fall on dozens of individual programmes across the STFC's scientific remit. Ten ad-hoc panels are now digesting 1,400 items of feedback.

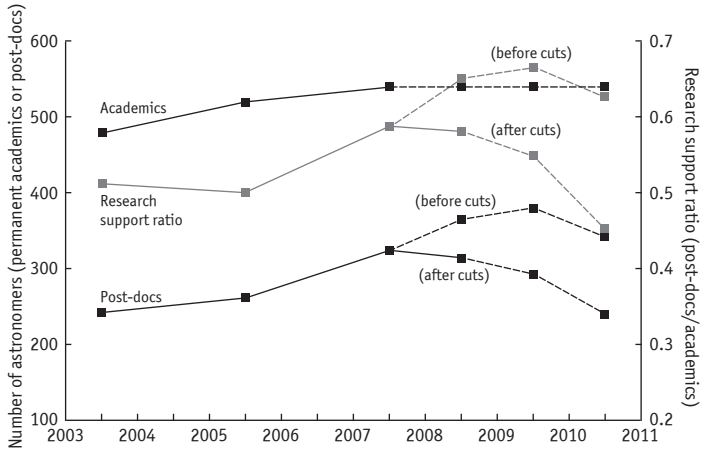
Panel members are uneasy about this topsy-turvy approach to decisions over scientific priorities but, without any alternative, they feel obliged to embrace any opportunity to reshuffle the rankings for projects within their area of expertise. Their challenge is to strike the right balance between UK-led projects that are currently delivering first-class science, or are just about to, and longer-term, speculative though potentially high-impact, international projects.

Small steps, maybe, but signs that the government and the STFC's management are at last responding to concerns that could begin to rebuild confidence, at home and overseas. A strengthened STFC council, more independent of its executive, would help address questions over accountability. Please, though, no more spin.

More to say? Email: comment@ResearchResearch.com

Space-time warp

Claims by Keith Mason that there had been "a large increase" in the number of astronomy academics are not borne out by the STFC's own figures. However, subsequent cuts in the number of post-docs have prompted a large decrease in support for fundamental research (as measured by the ratio of post-docs to permanent staff)



Source STFC