



News from Science Board

Science Board met on the 7th and 8th December 2009 at the Rutherford Appleton Laboratory, Harwell. The main item on the agenda was the completion of the prioritisation exercise. This included the development of recommendations on the programme following presentations from PPAN and PALS.

Science Board welcomed the input from the Advisory Panels that report to PPAN and PALS and the Ground-Based Facilities Review of Astronomy. Science Board thanked the Advisory Panels for the exceptional job they had done in gaining input from their communities and prioritising their respective areas but recognised that it was not possible to take forward all of the high priority projects within the current funding envelope.

Science Board also thanked PPAN and PALS for their hard work during what has been a very difficult task. Science Board acknowledged the high level of transparency of the process.

Science Board noted that STFC currently has a highly efficient and world-leading science programme recognised by the international community as being exceptional value for money. Given the current funding situation, it was with great regret that Science Board was unable to recommend a programme that allows the UK to pursue all of the opportunities considered within the prioritisation exercise. All the projects that were considered are expected to provide excellent and inspirational science opportunities with impact in the future. It was very clear that in many cases, future creativity would have to be sacrificed for financial probity.

In its deliberations Science Board recognised that the only solution to current funding levels was **a major restructuring and re-alignment of the programme** in order to fund a smaller number of projects optimally.

Science Board acknowledged that this restructuring of the programme will have a deep impact on physics departments with UK universities.

Science Board noted that whilst projects and facilities were ranked based on their scientific excellence, economic impact, societal impact, leadership and synergies; the majority of those ranked $\alpha 5$ and $\alpha 4$ took advantage of the international subscriptions to CERN, ESA, ESO, ESRF and ILL. In light of this outcome, Science Board re-affirmed its commitment to these international subscriptions recognising the opportunities to the world-leading science that they bring.

Prioritisation Process

After extensive consultation over the summer the Advisory Panels to PPAN and PALS presented their findings at their meetings on the 28th and 29th September 2009 and 15th and 16th September 2009 respectively. The Advisory Panels were asked to consider the scientific priorities for their areas of science and to develop roadmaps for the facilities needed to address these priorities. In addition PPAN received an interim report from the Ground Based Facilities Review of Astronomy.

Both PPAN and PALS welcomed the input from the Advisory Panels and found their draft reports useful in their deliberations. They thanked the Advisory Panels for the hard work they had done.

At their meetings, both PPAN and PALS had tested the criteria used for the prioritisation. Building on those developed for the strategy consultation, these criteria were developed by STFC with a cross-PPAN / PALS working group and in consultation with the Economic Impact Advisory Board (EIAB). The EIAB were satisfied that economic impact would be considered within the prioritisation process as defined. The criteria fall under the broad headings of excellence, economic impact, societal impact, leadership and synergies. PPAN and PALS used these criteria to rank the projects and facilities under consideration.

At its meeting on the 19th and 20th October 2009, Science Board discussed the guidance from Council and the preliminary findings of PPAN and PALS and provided both committees with strategic guidance and a funding envelope within which the committees were to develop a programme.

Further meetings of PPAN and PALS were held on the 30th November and 1st December 2009 and the 23rd and 24th November 2009 respectively. During these meetings, both PPAN and PALS considered the funding envelopes given and developed programmes to fit within those funding envelopes. These were presented to Science Board at its meeting in December.

On the 7th and 8th December, Science Board met to finalise its recommendations on the programme based on the input from PPAN and PALS. Science Board endorsed the recommendations of PPAN and PALS. Summaries of these recommendations are described in <http://www.stfc.ac.uk/resources/pdf/PPANNews161209.pdf> and <http://www.stfc.ac.uk/resources/pdf/PALSNews161209.pdf>. Any differences in the programme as recommended by Science Board are described below.

Recommendations for the STFC Programme

Science Board discussed in detail the opportunities that would arise if funding was moved between PPAN and PALS. Science Board found that the negative consequences of such changes in the funding profiles did not outweigh the opportunities. Therefore Science Board recommended baseline recommendations presented by PPAN and PALS as summarised in

<http://www.stfc.ac.uk/resources/pdf/PPANNews161209.pdf>

and <http://www.stfc.ac.uk/resources/pdf/PALSNews161209.pdf>.

Science Board recommended that if any further money was available it be applied to managing the withdrawal from all the projects that have been earmarked for such and for delivering the programme as PPAN has outlined.

Science Board discussed a number of strategically important issues in both the PPAN and PALS areas and these are highlighted below.

New Light Source

At its meeting in November, PALS reviewed the Science Case and Outline Technical Design for the New Light Source (NLS). International panel experts including representatives from the Accelerator Science and Technology Advisory Board and Science Board were present during the panel meeting together with an extensive external peer review.

Science Board noted PALS prioritisation of the NLS and the excellent science potential of the facility,

“The NLS project would have very high impact. It would have a major lead in both a national and international context. It would be a unique, world leading facility in the area of biological imaging and would open up exciting new research areas and develop new communities.”

However, Science Board agreed with PALS recommendation that given the budget available, at this time they could not recommend funding of £20M for the requested R&D over the next two years. Even assuming that Large Facilities Capital Funding could be obtained for construction costs (which was thought to be highly unlikely in the short term), it was thought unlikely that the potential running costs could be accommodated within a flat cash budget without closing other major facilities.

Science Board therefore recommended no further funding for NLS development at this time. However Science Board recommended that STFC re-assess the NLS project in 3-5 years time in order to ensure that STFC considers future user needs. In the mean time, it was hoped that the manpower would be reassigned to other accelerator R&D.

Science Board recommended that STFC should maintain expertise in accelerator R&D during this period. In particular, it was enthusiastic about the opportunity for restructuring the accelerator R&D funding to make the programme more cohesive. Science Board noted the small financial impact on the rest of the science

programme and recommended that STFC maintains core competencies for this area.

HiPER

The STFC Executive explained to Science Board the current plan to continue funding the technical R&D for HiPER at £2M per year, in support of the EU funding received, until the completion of the fusion review and a technical review in 2010. Science Board noted that whilst inertial confinement fusion was not STFC's core business, STFC has expertise in key technology to assist in the future development of the production of energy from inertial confinement fusion. Science Board recommended that the HiPER project should be considered by an appropriate energy review.

XFEL

Science Board endorsed the recommendations of PALS not to be involved in XFEL at the current time and noted that the UK had access to a Free Electron Laser through peer-reviewed access to LCLS in the US.

Diamond Phase 3

Within the PALS baseline recommendations, operating costs for Diamond Phase III beam lines had not been included. Science Board had already given guidance to PALS that Diamond must be fully exploited. Therefore Science Board recommended that STFC goes forward to the Large Facilities Capital Fund with the proposal to build 10 new beamlines for Diamond. In the event that STFC cannot find alternative operating costs, Science Board recommended a reduction in the ESRF subscription to fund Diamond Phase 3 operating costs from 2016 onwards.

ISIS Target Station 2 Phase 2

Science Board discussed the operating costs on the proposed ISIS TS2 Phase 2 and recommended that these be found within the existing ISIS operating costs through the sun-setting of existing stations.

Aurora

Science Board endorsed the $\alpha 4$ ranking of Aurora and ExoMars but expressed concern that the Aurora subscription was being held at previous levels when projects of higher priority were under severe financial pressure. Science Board recognised the sensitivity in reducing commitment but thought that this should be possible within some constraints.

Science Board strongly recommended that the annual spend on the optional Aurora subscription be reduced by £1M in order to ease the pressure on the delivery all the top priority items.

Should the length of time over which the subscriptions are paid be fixed, Science Board understood that this would lead to a reduction in the overall level in the Aurora

subscription and recommended that this be the case. Should the length of time over which the subscriptions are paid be flexible, Science Board recommended that the UK pay the subscription at the lower level for a longer period.

Exploitation Grants

Science Board endorsed the PPAN recommendation that support be withdrawn for exploitation grants of those projects not recommended for funding. Moreover, Science Board endorsed the PPAN recommendation that all funded exploitation grant lines should be cut by an additional 10%.

Studentships and Fellowships

Science Board noted that the facility studentships would cease following the expiration of current commitments. In addition, Science Board endorsed the PPAN proposal of 25% reduction in studentships and fellowships noting that this was still a smaller reduction than that received by grants.

Nuclear Physics

Science Board noted that Nuclear Physics had been tensioned project by project by PPAN against other projects in the PPAN remit. PPAN identified NUSTAR as $\alpha 4$ and recommended only a 10% cut to this project to ensure viability of NUSTAR given that it was a construction project. Science Board agreed that STFC should continue to fund Nuclear Physics at this level; supported through a construction project and a grant line.

Particle Astrophysics

Science Board noted that Particle Astrophysics projects had been tensioned by PPAN with the rest of the programme. Science Board noted the historical reasons for STFC endeavouring to develop a strategic programme in this area but endorsed the recommendations of PPAN to fund only the most the highly ranked Particle Astrophysics project.

Further Information

Summaries of the programmes as recommended by PPAN and PALS are available at <http://www.stfc.ac.uk/resources/pdf/PPANNews161209.pdf> and <http://www.stfc.ac.uk/resources/pdf/PALSNews161209.pdf> respectively. Further information will be available at the beginning of 2010.