



**Science & Technology
Facilities Council**

SCIENCE BOARD

Minutes of the Thirty Fifth Meeting
CR12&13, Rutherford Appleton laboratory
12th – 13th December 2012

- Present:**
- Professor Matt Griffin (**Chair**) – Cardiff University
 - Professor Jon Butterworth – University College London
 - Dr Olwyn Byron – University of Glasgow
 - Dr Alison Davenport (**Deputy Chair**) – University of Birmingham
 - Professor Julian Eastoe – University of Bristol
 - Professor Sean Freeman – University of Manchester (Day One only)
 - Professor Alan Heavens – University of Cambridge
 - Professor Anthony Lasenby - University of Cambridge
 - Professor Ken Long - Imperial College London
 - Professor Des McMorrow – University College London
 - Professor Bob Newport – University of Kent
 - Professor Simon Redfern – University of Cambridge
 - Professor Justin Wark – University of Oxford
 - Professor Alfons Weber – University of Oxford and STFC RAL (Day One only)
- In Attendance:**
- Professor Michael Bode (Chair, APPE) (Item 7) via teleconference
 - Dr Paula Chadwick (Deputy Chair, PPRP) (Item 6b and 6c)
 - Professor Mark Thomson (Chair, PPRP) (Item 6a)
- STFC:**
- Professor Grahame Blair – Executive Director, Programmes
 - Dr Robin Clegg – Head, Public Engagement (Item 7)
 - Jenny Hiscock (Item 6a, 6b, 6c,)
 - Ms Lisa Kehoe
 - Dr Janet Seed
 - Dr Victoria Wright
- Apologies:**
- Ms Jane Tirard
 - Professor Martin Dove – Queen Mary, University of London
 - Professor Robert Warwick – University of Leicester

Item 1 – Welcome and Introductions (Verbal)

1. The Chair welcomed everyone to the meeting and noted apologies from Ms Tirard, Professor Dove and Professor Warwick. All members introduced themselves for the benefit of the new members.

Item 2 – Minutes and Actions (SB.12.33 and SB.12.35)

2. The minutes of the September 2012 meeting were approved subject to the following amendments:
 - a. Define acronyms for JUICE instruments.
3. The need for a neutron and photon strategy was raised by the Large Facilities Sub-Group (LFS) and was noted as a future agenda item for Science Board.
4. It was agreed that links to historical financial information from the 2009 Prioritisation would be sent to Science Board for information.
5. Actions from previous Science Board meetings were reviewed, and a summary is attached to these minutes.

Item 3 – Update from Council (Verbal)

6. The chair gave a verbal report on the STFC Council meeting held on 25th September.
7. The Minister for Universities and Science, David Willets MP and MP for Oxford West and Abingdon, Nicola Blackwood attended the early part of the Council meeting. The minister had noted that he was very conscious of the Haldane Principle, and would not be involved in any funding decisions at Council. He congratulated STFC and its communities on the cutting edge science that they were carrying out, and on their important work in public engagement. Council discussed the operation of ISIS which for financial reasons had been unable to run for a sufficient number of days to support demand.
8. The Science Board Chair presented a report on the September Science Board meeting, including the outcome of Science Board's self-review and a selection of recent scientific highlights from the STF programme. Council indicated that it would be pleased to receive similar science highlights at future meetings.
9. Science Board's dissatisfaction with the Large Facilities Funding Model (LFFM) was also noted and discussed by Council. The future of the LHC was discussed in the light of the discovery of the Higgs-like Boson.
10. At the meeting on the 27th November it was noted that BIS was beginning to work with SSC, and the potential impact of this on existing SSC customers was discussed. The Science Board Chair had given an overview of the ESA Science Programme. Council was performing a review of Public Engagement, as recommended by Science Board, which would report early in 2013.

Item 4 - Introduction from Professor Grahame Blair, STFC Director of Programmes (Verbal)

11. Professor Blair introduced himself. He was previously Head of Department at Royal Holloway University London's (RHUL) Department of Physics where he managed the RHUL Centre for Particle Physics, and was Deputy Director of the John Adams Institute for accelerator science, in collaboration with Oxford University and Imperial College London. Professor Blair had been part time at STFC since October and would be full time from January 2013.

Item 5 - Director's Report (SB.12.35.01) SOME REFERENCES IN THIS SECTION HAVE BEEN REDACTED AS PROTECT: MANAGEMENT

12. The STFC Director of Programmes presented the Director's Report, and Science Board noted the following points:

13. The RCUK Capital Investment Framework document had been published and £484M new capital for the Research Councils had since been announced in the autumn statement. This would be dedicated to the eight Science Themes:

- Advanced Materials
- Synthetic biology
- Regenerative medicine
- Campuses
- Autonomous robotics
- State of the art instrumentation/infrastructure
- Big data/ energy efficient computing
- Energy storage

14. The Cross-Council Research Group had discussed the use of allocated capital in the period up to the next Comprehensive Spending Review (CSR). STFC was developing its business cases for Big Data and Energy Efficient Computing, campuses and state of the art instrumentation. The Spending Review framework for 15/16 would be announced in March. The Triennial Review was still expected to be completed by June.

15. As BIS had begun to use the SSC there was concern that there may be a decline in the grants service provided to the Research Councils, as these are the only SSC users with a grant function.

16. The proposal for STFC to join the Living With Environmental Change (LWEC) Cross-Council programme had been accepted.

17. The UKIRT announcement of opportunity had been made and several proposals had been received. The solution was expected to be cost-neutral to STFC. It was noted that the JCMT had been included in the Programmatic Review by the Astronomy Advisory Panel and would need to be considered by the Particle Physics, Astronomy and Nuclear Physics Sub-Group (PPAN-SG).

18. The Rutherford Appleton Laboratory Particle Physics Department (RAL PPD) steering committee had been set up to oversee the department's role and

operation and to ensure that it was responsive to and met the needs of the UK particle physics research programme. Its first meeting had taken place on the 16th November.

19. The Executive had approved the funding for the Dark Matter consortia following submission of a revised proposal by the UK Dark Matter collaboration to a Sub-Group of the Projects Peer Review Panel (PPRP).
20. The associate membership agreement for the Facility for Antiproton and Ion Research (FAIR) had been agreed but not yet signed.
21. The Astroparticle Physics European Coordination (APPEC) had met on the 29th November. Stavros Katsanevas had been elected as Chair and Thomas Berghoefler had been elected as the General Secretary. Nominations for the Scientific committee would be sought. STFC would be hosting a meeting in Durham during the week of 17th December 2012.
22. The MICE step IV installation schedule had been revised in early September 2012 in the light of continued delays to the delivery of the spectrometer solenoids and the Electron-Muon Ranger (EMR). Initial indications were that it would be possible to complete the integration of Step IV in the first quarter of calendar year 2014. The UK and the US would work closely to develop a resource-loaded schedule through to Step VI that would take into account the current UK and US funding plans.
23. The beta-system for the Gateway to Research funded grants website would be launched before the end of the year and would be developed further over the next few years to include additional areas of funding.
24. It was noted that the European Strategy for Particle Physics and Astro-Particle Physics was not discussed in the Director's Report. Professor Butterworth was the UK representative for the European Strategy for Particle Physics and would be expected to report on UK plans, and give some indication as to whether the UK would sign off on the recommendations. Science Board agreed that Professor Butterworth should make it clear to the group that the UK has not yet formulated its strategy, so no clear commitments can be made at this time. STFC's position would be based on the outcome of the Programmatic Review.

Item 6a – Projects Peer Review Panel report on SuperNEMO commissioning and sensitivity demonstration (SB.12.35.02) SOME REFERENCES IN THIS SECTION HAVE BEEN REDACTED AS PROTECT: PEER REVIEW

25. Science Board reviewed and endorsed the PPRP recommendations, contingent upon confirmation of the balance of funding needed in France for the demonstrator calorimeter hardware. It was considered that this option would preserve the UK's leading role in the tracker and make SuperNEMO competitive both in the short and in the longer term, subject to funding being agreed for future UK participation in the full experiment.

Tour of RAL Space

26. Professor Richard Holdaway gave a presentation on RAL Space and Science Board took a tour of the department. Science Board thanked Professor Holdaway for hosting the tour which provided a valuable and enjoyable opportunity for Science Board to see first-hand some of the interesting work being undertaken in the department.

Item 6b – PPRP report on ATLAS and CMS (SB.12.35.03) SOME REFERENCES IN THIS SECTION HAVE BEEN REDACTED AS PROTECT: PEER REVIEW

27. Science Board endorsed the recommendations of the PPRP, noting that it provided the teams with viable, though not by any means comfortable, funding support for Phase I, and at the same time would free up some funding headroom in FY14-19 for other particle physics experiments.

Item 7 – STFC Advisory Panel for Public Engagement (SB.12.35.04) SOME REFERENCES IN THIS SECTION HAVE BEEN REDACTED AS PROTECT: MANAGEMENT

28. The Chair of the Advisory Panel for Public Engagement APPE joined the meeting via Skype to present the APPE's annual report to Science Board. Science Board was invited to comment on STFC's Public Engagement (PE) work and on the selection of themes and campaigns, and to consider whether it wished to have a future workshop with the APPE to explore any areas in more detail.

29. The Strategic Theme for the year was 'Inspire and Involve'. In addition to its work on the formal PE programme (worth £1.6M pa) the report discussed the work done by Communications Department, Lab staff, and other Labs such as Diamond, CERN, etc.

30. The four main objectives of the PE programme were: to stimulate and respond to public interest in research and the outcomes/applications; to link STFC's Science and Technology with young people directly and via teachers, schools, etc; to encourage researchers' PE work; and to have excellent PE programmes from STFC Laboratories. Key participants were young people and their influencers, science-attentive public, and where possible new audiences, especially from groups under-represented in Science, Technology, Engineering, and Mathematics (STEM) subjects.

31. The Public Engagement Programmes aimed to focus on timely science or technology themes and timely events to marry major investments with topics of interest to audiences and stakeholders, for example:

- "Big Telescopes": ALMA, SKA, E-ELT;
- major anniversaries e.g. X-Ray Crystallography 2013;
- the Dark Skies programme.

32. The directions of travel were summarised; the goals would be to achieve a fuller return, build stronger partnerships and promote engagement opportunities across STFC.
33. The APPE would be keen to engage with Science Board in a Public Engagement Workshop. It was agreed that this idea would be re-visited following the publication of the report on Public Engagement commissioned by Council.
34. Some important recent achievements resulting from the RCUK scheme were highlighted:
- Awarding of £100K pa ‘Catalyst’ Grants to 8 research-intensive Universities for embedding Public Engagement at top institutional level.
 - Awarding of £50K pa ‘University-School Partnership Grants’ to 10 research-intensive Universities.
 - Continued funding for the National Coordinating Centre for Public Engagement.
 - Ongoing support for programmes of teacher Continued Professional Development and the Nuffield Science Bursaries.
 - Continued ‘single point of contact’ and policy influence, e.g with the Department of Education, BIS and Parliament.
35. Progress had been made in embedding PE through working in areas of public concern. Although there were few issues of major public concern within the STFC portfolio some work was being undertaken in SpaceWeather with advice from ScienceWise and other stakeholders including NERC, UKSA, GO-Science, RAS, RAL-Space, and an insurance company.
36. The Small Award and Large Award funding schemes for PE projects had continued to be oversubscribed. In the last year 30 Small Award PE projects had been funded with a total value of £207k (average award £7K). Three Large Awards with a total value of £230k (average value £76K) had been funded.
37. Science Board recommended that the Panel and STFC work to particularly encourage applications and consider activities in underrepresented areas such as Nuclear Physics.
38. Science Board thanked the panel and the APPE Chair for their work.

Item 8 – Programmatic Review Update (SB.12.35.05 and SB.12.35.06) SOME REFERENCES IN THIS SECTION HAVE BEEN REDACTED AS PROTECT: MANAGEMENT/PEER REVIEW

39. An overview of the currently planned future financial landscape for each area within the Programmatic Review was presented by the Office. It would be the remit of the Sub-Group to review the financial information available and make recommendations within the budget.
40. Science Board noted the recent decline in the size of the Astronomy programme, and that detailed consideration of this would be part of the PPAN Sub-Group’s

work. It was also noted that it would be useful for Science Board to see historical financial information for context.

41. Science Board received brief updates from each of the Sub-Groups.

PPAN Sub-Group

42. The PPAN Sub-Group had met a number of times and agreed it would produce a contextualised report for Science Board that covered each science area.

43. Alpha rankings would be formulated for construction projects but not for exploitation. Statements would be made about exploitation programmes and whether grants panels would be expected to award funds.

44. This would set out the current research portfolio within that area, which would be supported by an alpha-ranking, the future important areas of research, potential projects in each area where known, and key decision points for future investment.

Large Facilities Sub-Group (LFS)

45. The Large Facilities Sub-Group had met with members of the advisory panels twice during July. These meetings had been challenging but the respective communities had been well engaged with the process. The Sub-Group had met again during November to develop the options analysis for the Large Facilities Funding Model (LFFM).

46. Two strands of activity had been undertaken – feeding into the LFFM options analysis and undertaking the Programmatic Review. Focus had been on the LFFM options analysis to date but it was considered that there would be sufficient time to finalise the group's output and undertake the Programmatic review activities in the New Year.

47. Two advisory panel reports had been received and feedback had been given to request additional information. These reports would be made public once finalised.

Technology Sub-Group (TSG)

48. The Technology Sub-Group had met during October to discuss the group's remit and output. Additional expertise had been identified and expert witnesses would be called upon as required. Two elements had been identified for the review – departments and projects, to be dealt with in two phases.

Impact Sub-Group

49. In the absence of the Impact Sub-Group chair, the Office reported on the activities of the Impact Sub-Group. It had met once during October to discuss the group's remit and receive presentations from programme managers. The remaining programme managers would be invited to present at a future meeting. It would assess whether the range of activities within the Impact Portfolio, taken as a whole, defined an effective and well balanced programme.

Guidance for the Sub-Groups

50. The financial scenarios the Sub-Group would be asked to present to Science Board were discussed. Balanced programmes for the following four scenarios were requested:

- The optimal option
- Flat cash
- Plus 10%
- Minus 10%

51. It was noted that this would not be feasible for the Facilities where the minimum option would be more than flat cash.

52. The report template provided in paper SB.12.35.05 was agreed subject to the addition of a statement concerning the budget envelope.

53. The process by which Science Board would address the balance of the programme and the information it would need to do this was discussed. The process outlined in the paper SB.12.35.05 was agreed subject to some minor clarifications.

54. It was noted that the final Science Board recommendations would be reported to the Executive and Council and the final outcome of the Programmatic Review would be a public document.

Item 9 – Large Facilities Funding Model options

55. The Chair of the Large Facilities Sub-Group reported on the development of large facilities options by the LFS.

56. Science Board had no additional comments to add to the report. It was agreed that lessons learned would be addressed at a future meeting.

Item 10 – Statement of Interest: Monopole and Exotics Detector at the LHC (MoEDAL) SOME REFERENCES IN THIS SECTION HAVE BEEN REDACTED AS PROTECT: PEER REVIEW

57. Science Board recommended that an application for this proposal be included in the Particle Physics Theory Grants round which had opened on the 1st December 2012 and would close on the 6th February 2013.

Item 11 – Statement of Interest: Search for Oscillation at very short distance with Lithium-6 Detectors (SOLiD) SOME REFERENCES IN THIS SECTION HAVE BEEN REDACTED AS PROTECT: MANAGEMENT/PEER REVIEW

58. Science Board recommended that the project be submitted to the PPRP after the conclusion of the Programmatic Review. However it was noted that funding was being sought from April 2013 to begin design of the detector and fit with the planned shutdown of the ILL. If a decision on funding was required sooner than December 2013, the project could be submitted to the PPRP and considered in

parallel with the Programmatic Review. This would allow funding to be made available at the earliest opportunity dependent on the recommendation of PPRP and the priority assigned by the Programmatic Review.

Item 12 – Open Access SOME REFERENCES IN THIS SECTION HAVE BEEN REDACTED AS PROTECT: MANAGEMENT

59. Science Board received an update from STFC Executive on the Research Councils' plans for funding open access publishing.
60. Current funding for open access publication costs was through a mixture of direct and indirect costs on grants. However, direct costs could only be used when the expenditure fell within the grant period.
61. The Finch report encouraged Research Councils to inject specific funding to catalyse a transition to open access publication. Accordingly, the Councils had decided in principle to provide block grant funding to support gold open access for the years 2013/14 – 2017/18, subject to a review in 2014 of the level of uptake and in light of the CSR.
62. Science Board expressed a preference for strengthening and maintaining the strong culture of green access in STFC's communities. The importance of data archiving with effective means of future access to the data was also stressed. Potential complications with research being part-funded by other agencies and industry were also noted.

Item 13 – Astronomy Grants Panel Report

63. Science Board discussed the process and procedures involved in the recent Astronomy grants round, the outcome of which had previously been endorsed by Science Board at a teleconference meeting on the 24th October 2012. The quality of research funded was very high and some world-class proposals were not funded due to budget constraints. Science Board noted the strong belief of the Astronomy Grants Panel (AGP) that the overall funding for Astronomy would need to be increased in order to sustain long term quality within the community.
64. Whilst Science Board respects the autonomy of the grants panels, some concerns were expressed about various issues including:
- the different approaches to the funding of core posts and the allocation of academic fEC funding adopted by the Particle Physics panel and the Astronomy panel;
 - the policy of the AGP to assess institute applications project by project, with no consideration of thematic coherence;
 - the imbalance of applications across the three year cycle.
65. It was noted that there would be a review of the Consolidated Grant scheme once all research institutes had been incorporated into the scheme.

Item 14 - Any Other Business (SB.12.35.15)

66. Science Board discussed the UK's access to Free Electron Lasers (FELs). It was noted that some current international opportunities for involvement with FEL programmes were not well-timed with respect to the Programmatic Review. It was agreed that the LFS would consider FEL access at its next meeting and make an interim recommendation to the Executive regarding the UK's re-engagement.
67. The meeting minutes from academic year 2012/13 would be published on the web with redaction as necessary to protect Peer Review and commercially sensitive information.
68. A report from the Accelerator Strategy Board was received summarising its continuing activities (SB.12.35.15). This included reviews of ASTeC and the Cockcroft Institute and continued work on the STFC Accelerator roadmap.
69. It was agreed that the office would propose an earlier date for the July meeting in order to allow additional time for reporting on the Programmatic Review to Council.