

STFC Response to Gravitational Waves Strategic Review 2025 Recommendations

Introduction

In 2024, STFC convened a panel of experts to review the UK Gravitational Wave (GW) landscape. In consultation with the wider gravitational wave research community, this panel produced a wide-ranging report entitled the [Gravitational Waves Strategic Review 2025](#).

The review addresses the entirety of the GW landscape, spanning ground-based and spaced-based activities, covering the period leading up to the start of operations of the next generation GW facilities in the mid-2030s. It summarises the current state of the art (noting key contributions from UK-based researchers), identifies the importance of this rapidly expanding science field, and provides a set of ten recommendations (including estimates of the likely financial cost implications) that if implemented should ensure that the UK is able to leverage its current expertise in the next phase of GW development.

Since the production of this report, the UKRI funding landscape has evolved, with UKRI receiving its four-year budget from the Department of Science Innovation and Technology in October 2025. To manage a sustainable level of funding over the spending review period (financial years 26/27 through to 29/30), Science and Technology Facilities Council (STFC) will need to focus its efforts on a more concentrated set of priorities, funded at a level that can be maintained over time.

The review provides a realistic and appropriate appraisal of the support needed to maintain, as well as the opportunities for growth of, the UK GW landscape. Within this document STFC reflects on the constrained budget and provides a response to the recommendations set out in the review.

List of the Strategic Review recommendations

The recommendations are divided into four categories: Key, Ground-based, Space-based and Community:

Key: Investment required to maintain UK GW leadership (ground and space based)

Ground-based A: UK participation in Advanced LIGO upgrades

Ground-based B: Funding commitments to bridge towards next generation facilities

Ground-based C: Infrastructure Fund bid to secure leadership roles in next generation facilities

Ground-based D: Review mechanisms and scope of GW consolidated grants

Spaced-based A: Investment required for LISA science exploitation

Spaced-based B: Establish a joint STFC/UKSA GW advisory panel

Community based A: Review STFC panel membership to ensure GW representation and expertise

Community based B: Monitor and review support for other GW technologies

Community based C: Establish a GW:UK interest group

STFCs responses to the recommendations

Each of the review's recommendations (and project costs) are listed below, along with STFC's response. It should be noted that in the current constrained funding situation, together with STFC's ongoing science prioritisation exercise, it is not possible to provide funding commitments at this time. STFC does, though, remain committed to investing in GW

research as a strategic priority, and will ensure that the review's suggestions are taken into consideration when allocating available funding in the future.

Summarising the responses below, the following represents a list of what STFC will do:

- STFC will seek to identify and explore opportunities arising within STFC and throughout UKRI to further support capital investment in the A+ and A# programmes.
- STFC will explore available options to support the UK collaboration, where possible within constrained funding environment, working towards next generation facilities.
- Subject to the outcome of ongoing internal prioritisation exercises and when there is clarity regarding the timing and availability of UKRI Infrastructure Fund (IF) funds, STFC will support the community efforts in the development of a full-stage proposal for the IF.
- STFC will review the landscape of funding opportunities provided by STFC to support gravitational wave research considering any gaps and assessing the form and function of the grants mechanisms.
- Within the context of the transition from ongoing support to LIGO to next-generation observatories, STFC will undertake a thorough review of the current form of the consolidated grant model, to ensure that it remains the most effective way to deliver funding to the GW community.
- STFC will continue to work closely with UKSA as it moves into DSIT.
- STFC will continue actively review current and future panel membership and suitable funding mechanisms to identify the best solutions to support the future of GW research in the UK.

Key Recommendation

Key: Funding required to maintain UK GW leadership (ground and space based)

'Recognising the vital role that researchers in the UK have played in the rapid advances in Gravitational Wave (GW) research, it is essential that GW research and development is funded at a level necessary to maintain UK leadership in current and next generation GW observatories, both ground and space based.'

STFC response:

STFC acknowledges that an appropriate level of funding is required for UK-based researchers to maintain and expand their leadership roles within both ground-based and space-based GW research programmes. To date, the GW community has received STFC core funding through the consolidated grant (CG) mechanism and has also been successful in winning central UKRI funds, including through the UKRI Infrastructure Fund and Fund for International Collaboration. STFC will continue to deploy its available budget to most effectively support GW research within the UK, tensioning investments in line with the ongoing prioritisation, and seek central UKRI funding where relevant.

Ground Based Recommendations

Ground-based recommendations A: UK participation in Advanced LIGO upgrades

'In order to ensure the maximum scientific return to the UK, funding is required to underpin UK participation in the Advanced LIGO upgrades (post A+, A#) programme, as an essential pre-requisite in preparation for the next leap in GW facilities with ET/CE. This is through consolidated group funding and capital contributions to specific development.

Investment at the ~£12.5M /year is envisaged.'

STFC response:

The 2024 round of GW consolidated grants will deliver £7M of funding to groups contributing to advanced LIGO related research and development, exploitation and operations, despite a constrained funding environment for STFC and UKRI. STFC recognises the key role that the LIGO A+ and A# programmes will play both in delivering ground-breaking science and transitioning to the next generation of GW detectors. STFC will seek to identify and explore opportunities arising within STFC and throughout UKRI to further support capital investment in the A+ and A# programmes.

Ground-based recommendation B: Funding commitments to bridge towards next generation facilities

'Funding commitments will be required in the near future to support the UK community through until a major investment decision. This will help secure UK leadership in one, or both, of the next generation GW ground facilities: either Einstein Telescope (ET) or Cosmic Explorer (CE).

Investment at the ~£4M /year is envisaged for initial investment in ET and/or CE.'

STFC response:

It is anticipated the GW consolidated grant will continue to provide the primary source of funding to the UK community, however the remit limitation on the consolidated grant inhibits focused activities on next generation programmes. STFC will explore available options to

support the UK collaboration, where possible within constrained funding environment, working towards next generation facilities.

Ground-based recommendation C: Infrastructure Fund bid to secure leadership roles in next generation facilities

‘A major funding investment in infrastructure and people at the ~£200M level will be required to secure a significant leadership role in CE or ET. This will require support through a specific UK Gov funding line, e.g. the UKRI Infrastructure Fund (IF). Preparatory funding should be provided to enable the generation of the IF proposal (presuming that STFC ‘have’ prioritised a GW IF bid for submission).

Investment at the ~£200M level is envisaged for the UK contribution to the next generation facility, this over the construction phase. Preparatory funding at the £100K/yr level in advance of construction for IF bid generation activities such as community workshops and a proposal writing team retreat.’

STFC response:

The UK community is currently delivering a preliminary IF project, £8m, scheduled for completion in October 2026. Subject to the outcome of ongoing internal prioritisation exercises and when there is clarity regarding the timing and availability of UKRI IF funds, STFC will support the community efforts in the development of a full-stage proposal for the IF. However at this point, the next round of funding has not been confirmed.

Ground-based recommendation D: Review mechanism and scope of GW consolidated grants

‘STFC should change the scope and process of its current consolidated grant funding mechanism for Gravitational Wave research such that it supports all aspects of ground-based gravitational-wave observations, including instrumentation development, detector characterisation, data analysis and relevant theoretical modelling, for current and future generations of instruments. Specific updates to the funding mechanism should be defined by STFC taking into account detailed community feedback.

No additional financial commitment requested.’

STFC response:

Having recently completed the first Gravitational Wave CG round since implementing the 2023 [clarification of STFC support for gravitational waves research](#) and in light of this recommendation, STFC will review the landscape of funding opportunities provided by STFC to support gravitational wave research considering any gaps and assessing the form and function of the grants mechanisms.

Within the context of the transition from ongoing support to LIGO to next-generation observatories, STFC will undertake a thorough review of the current form of the consolidated grant model, to ensure that it remains the most effective way to deliver funding to the GW community.

[Space-based Recommendations](#)

Space-based A: Investment required for LISA science exploitation

‘LISA science exploitation investment will be required from UKRI in order to ensure full UK science exploitation of the UKSA/ESA investment in the construction and operation of LISA.

UKRI funding, to supplement that from UKSA, required at the ~£2.5M/ year level pre-launch of LISA.'

STFC response:

STFC recognise the role of LISA within the wider GW research landscape, and where feasible and appropriate will ensure that there are opportunities to support the exploitation of the project within STFC's astronomy portfolio.

Given the current constrained funding environment, and our commitment to open competitive funding processes based on scientific excellence, no specific level of funding can be guaranteed. However, STFC will continue to monitor the situation to better understand the anticipated level of demand and impact of LISA on UK GW research.

Space-based B: Establish a joint STFC/UK Space Agency GW advisory panel

'Improve cross council coordination by convening a UKRI-STFC/UKSA GW advisory panel.

No additional financial commitment requested.'

STFC response:

STFC recognises the benefits of improved coordination, and in principle supports the proposal to establish a joint STFC/UK Space Agency (UKSA) Gravitational Waves advisory panel. STFC will continue to work closely with UKSA as it moves into DSIT and will consider this proposal within this changing context. The joint UKSA/STFC Space Frontiers 2035 programme is a new pilot programme in which STFC and UKSA is working together to define the UK's long-term vision for space science and STFC encourage the community to engage fully with this process.

[Community-based Recommendations](#)

Community A: Review STFC grant review panel membership to ensure GW representation and expertise

'It is essential that membership of STFC grant review panels (e.g. AGP) includes expertise in the GW data/theory area for both ground and space-based applications.

No additional financial commitment requested.'

STFC response:

STFC acknowledges the necessity of ensuring that the breadth of gravitational wave research is proportionately represented on the relevant grant and advisory panels. We are actively reviewing current and future panel membership and will continue to explore this matter – alongside the review of suitable funding mechanisms (see recommendation 'Ground-based D') – to identify the best solutions to support the future of GW research in the UK.

Community B: Monitor and review support for other GW technologies

'Support for other GW technologies should be kept under review (e.g. IPTA participation, Quantum technologies), with initial involvement that can expand in response to demonstrated technology advances.

Funding required at the ~£1M/ year level to support translational activity.'

STFC response:

STFC acknowledges the importance of novel technologies that will impact the GW field, and we commit to keeping a watching brief. We anticipate new novel technologies will be highlighted through the [Particle Astrophysics Advisory Panel \(PAAP\) roadmap](#). STFC will continue to keep this under review, whilst exploring other funding opportunities across UKRI as they develop. As with other recommendations from the review, no financial commitments can be made at this point.

Community C: Establish a GW:UK interest group

'Building a strong UK GW science community through the formation of a GW:UK interest group.'

Funding at the £100K/ year level.'

STFC response:

The establishment of a GW:UK interest group may help strengthen the wider UK gravitational wave research community. STFC encourages the community to explore utilisation of existing opportunities (both within outside of STFC), to secure funding for conferences, workshops, meetings and other related networking events. STFC cannot make any specific commitment to financially support the establishment of a GW:UK interest group.

Conclusion

STFC welcomes the report and broadly supports the recommendations, noting that many will be informed by ongoing activities and that the level of funding will be determined by the outcomes of:

- the STFC PPAN prioritisation exercise.
- The UK Spending review and the implications that this will have on UKRI and STFC budgets, therefore the availability of funding to commit to any of the recommendations above.