



Science and  
Technology  
Facilities Council

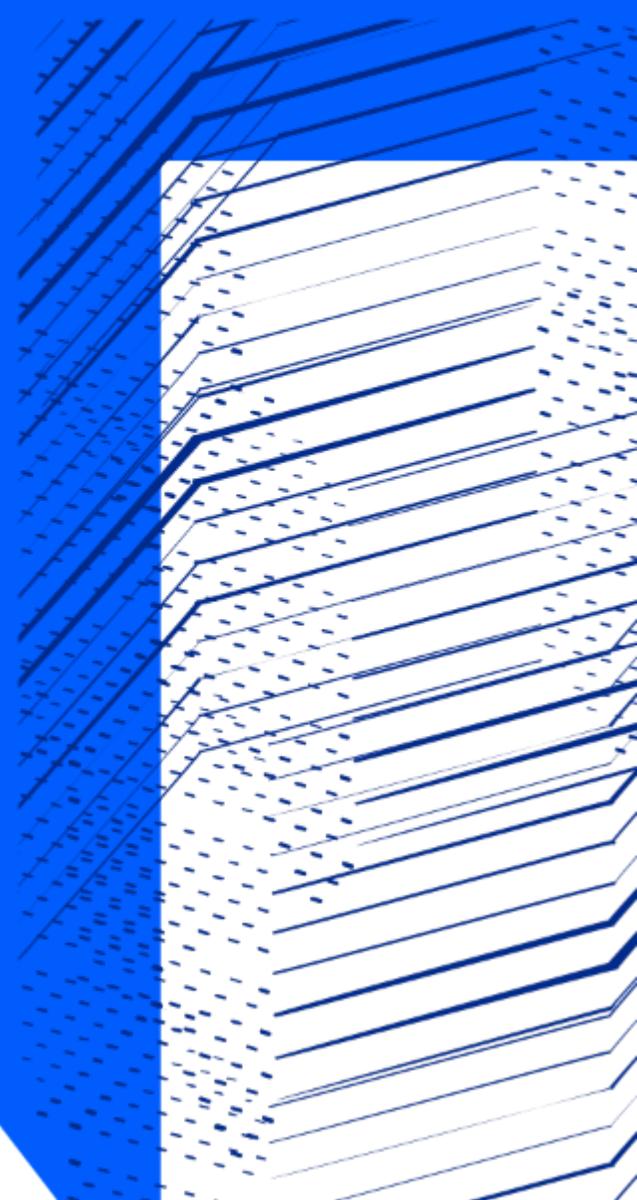
# STFC Programmes Directorate Update December 2022

**Professor Grahame Blair**

STFC Executive Director Programmes

**Karen Clifford**

Head of Particle Physics Programme



# Strategic Delivery Plan

STFC's new Strategic Delivery Plan was published, alongside other Council Delivery Plans, on 2<sup>nd</sup> September

- Sets out STFC's exciting plans for the next three-year spending period
- **Many new activities and investments across all STFC areas**
- Explains the role STFC will play in delivering UKRI's wider mission/vision
- Structured around the six objectives of the UKRI Strategy
- Links to updated STFC Strategy Map



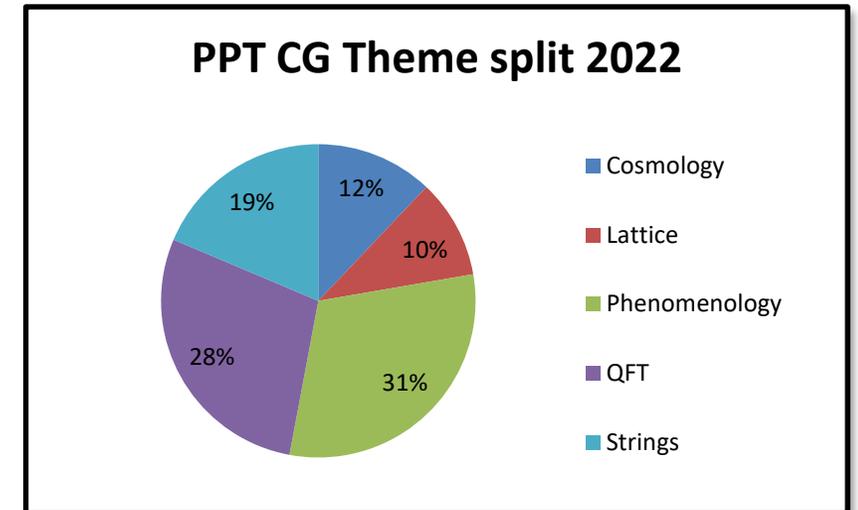
# Our ambitious plan: Ideas and Places

## Major investment and activity across STFC, examples include

- **An increase of £19 million** over the next three years for STFC-supported frontier research programmes
- **New “blue-skies” R&D funding** rising to £2.5m by FY24/25
- **Enhancing UK scientific links globally**, initially targeting new scientific collaborations with India, Japan and the US. Initially this will include funding the Hyper-Kamiokande neutrino experiment in Japan and the US Simons Observatory (located in Chile) and **longer term invest in LHCb 2030+**
- **Delivery of a portfolio of infrastructure projects (~£600m)** to provide the capability to enable the UK’s thriving research and innovation communities to address the most pressing industrial and societal challenges

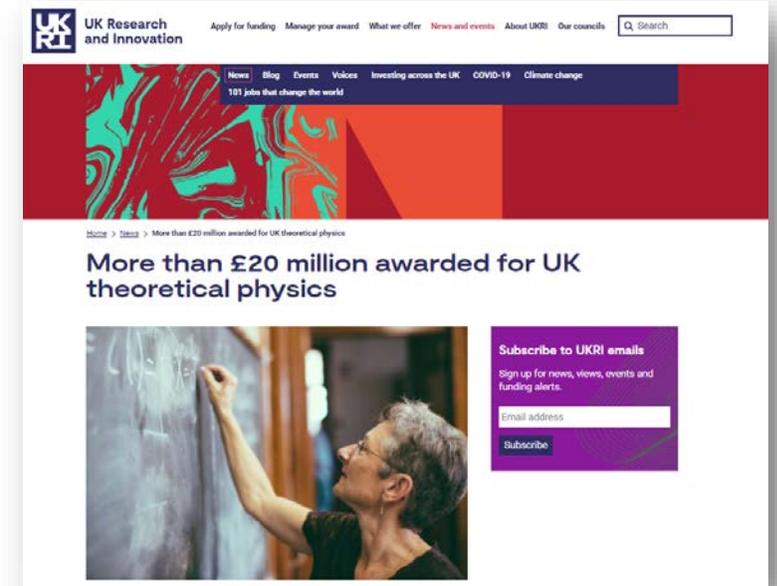
# PP Theory Consolidated Grant 2022

- Theory CG science areas + IPPP research programme reviewed together
- IPPP core programme was reviewed separately.
- **Strong proposals with a growing community.**
- **£82.2M requested across 56 science areas compared to a flat cash budget**
- *Rising costs of staff and university overheads continues to put pressure on the programme.*



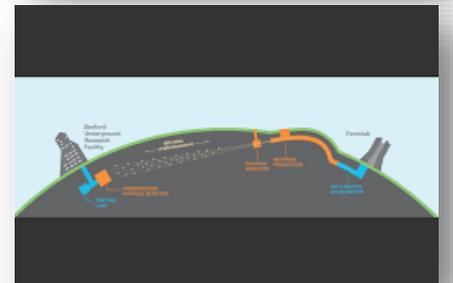
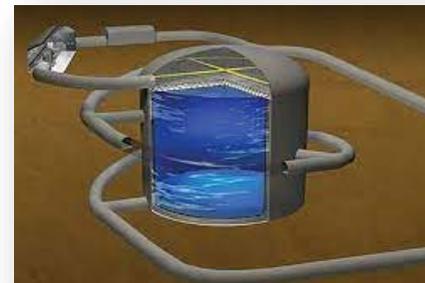
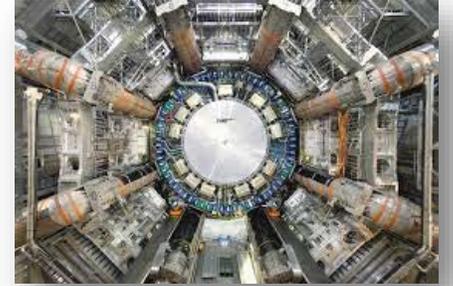
# PP Theory Community

- Community judged it has maintained the excellent, world-leading quality of science
- Uplift applied to the round of **£3M**
- Panel and Science Board recommended that the uplift be prioritised to fund **PDRA positions to maximise the benefits to the whole community.**
  - **Awarded 58.3 FTE PDRA**
  - **Awarded 173 academics**
- Outcomes of the **CG** announced in October 2022 resulted in **£22.1M over three years to 20 institutions** (inc consortia).



# Major Project Updates

- **ATLAS Phase II construction** completed peer review and now in final approval stages
- **LHCb Upgrade II** will be supported by the UKRI Infrastructure Fund from 2024/25 at a level of £49.4M – currently entering peer review stages
- **CMS** current funding in place to 2024
- **LBNF/DUNE** subprojects **PIP-II** and **DUNE** undergoing mid-term reviews in early 2023
- **Hyper-K** construction awarded £15.5M from UKRI Infrastructure Fund



# Major Project Updates (cont'd)

- **DiRAC** – next three years of investment has been awarded in the hardware to maintain research at the cutting edge.
- **Computing** – STFC and UKRI are continuing to make the case for enhanced data and computing services for the community
- **ECT\*** - recognised as an important contribution with continued support.



**ECT\***  
EUROPEAN CENTRE FOR THEORETICAL STUDIES  
IN NUCLEAR PHYSICS AND RELATED AREAS

# Accelerator Strategic Framework

Outlines a single set of clear priorities to guide the future strategic direction of accelerator science and technology

*“To strengthen our world leading capabilities in accelerator science and technology so that the UK can design, build and operate the accelerators of tomorrow”*

## STFC Strategic framework aims to;

- Set out how STFC will take forward and prioritise its work in the accelerator fields
- Enhance the coordination of accelerator activities across all of STFC’s delivery functions
- Ensure that the resources directed to accelerator science and technology achieve the best outcomes possible.



# Accelerator Strategic Framework

- Priority Technology Areas (based on strengths identified by PPTAP)

Priority technology areas	Secondary technology areas
Plasma accelerator technologies	High field magnets
THz driven and dielectric wakefield accelerators	Muon accelerators
Thin film SRF	High temperature SC magnets
Permanent Magnets	Energy recovery linacs
Beam instrumentation, manipulation and control systems	

- Priorities for supporting research:
  - LHC and its upgrades, exploiting UK strengths aligned with the European Roadmap.
  - Novel acceleration technologies (exploiting CLARA, EPAC and similar facilities)
  - The route to UK FEL capabilities.

# Strategic Review of Particle Physics

## Light-touch Strategic Review of Particle Physics

- An independent panel, chaired by Professor Brian Foster, was established in spring 2022
- Prime aim was to consider how to best ensure the long-term health of PP in the UK
- **Not a prioritisation exercise**
- Covers particle physics, including Dark Matter searches, and the accelerator and computing disciplines that support the field
- **Now available!** [Strategic review of particle physics – UKRI](#)
- Recommendations on:
  - International strategy
  - UK Particle Physics
  - The UK and CERN
  - Administration of Particle Physics in the UK

# Strategic Review of Particle Physics

## The Report

- Recognises the current uncertainties associated with the field both within the UK and internationally
- Comments on the strengths of the discipline and issues facing the UK community
- In particular noting the importance of;
  - STFC's consistent, albeit constrained, grant support through its consolidated grants mechanism
  - taking a holistic approach across the discipline to long-term planning and funding
  - reliable data, including long-term funding projections associated with international project commitments (including M&O)
  - maximising the return and value for money, in terms of science, skills and technology, of the UK's investment

# Strategic Review of Particle Physics

## Recommendations & next steps

- Many useful recommendations – many will be adopted (or are already happening)
- Some highlights
  - recommends STFC develops a prioritised roadmap of UK
  - changes to funding boundaries around particle astrophysics
  - comments/recommendations on international engagement
- STFC is developing action and implementation plans by the relevant teams

*This report, coupled with a relatively positive funding settlement, represents a unique opportunity for change*

# STFC Visions

**STFC Visions launched in September 2022** to identify ground-breaking, **early-stage concepts** that have the potential to be developed into **ambitious research and innovation concepts and infrastructures**, and might not be captured by STFC's current processes.

All concepts must:

- have the potential to **create a step change** in national or international level capability,
- **hold appeal** beyond any individual research group
- be compelling to the **wider research and innovation communities** that would deliver and/or benefit from the concept.

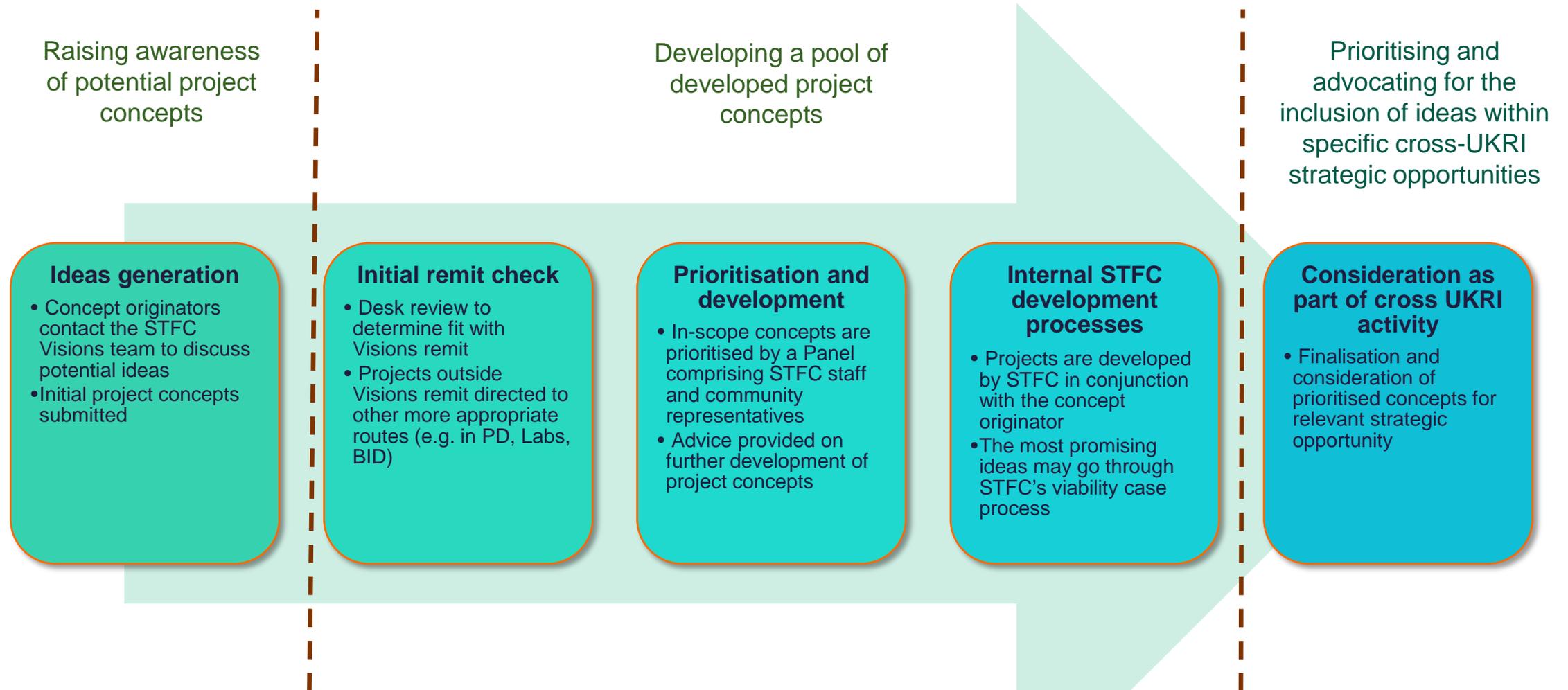
## Research and Innovation concepts

- Inter- or multidisciplinary across UKRI
- Driven by 1+ strategic programme objectives using interconnected and co-dependent research strands
- Application of STFC science & technology to a government priority

## Infrastructure concepts

- Development of infrastructure that benefits across R&I community
- National or international capability providing access to a wider community
- Lead to a large capital project with significant UK contribution
- Preliminary activities and full infrastructure categories

# Visions Process Flow



# UKRI & Collective Talent Funding

## UKRI will transition to collective working across £2bn of talent initiatives:

- Mainly covers studentships & fellowships
  - Roadmap is planned to be published externally soon
  - A stakeholder engagement strategy is also being developed
  - There are no immediate changes to council planned funding opportunities
- 
- UKRI announced that it was increasing its minimum stipend from 1 October 2022 to £17,668 full time equivalent. This is a 10% increase
  - Discussions are ongoing about potential future increases in stipend
  - **STFC Council steer that we should maintain the student to programme balance**

# Fellowships and Studentships

## Dual role – supporting research and development of the individual

- **Earnest Rutherford Fellowships (ERF)** – call closed in September with 170 applications, so please encourage colleagues to help with reviewing etc. Panels will be held early in the New Year.
- **Future Leaders Fellowship** - Round 7 Outline call closed in October. 561 outlines were received in total. The full call closed on 6 December.
- **Stephen Hawking** is now open. Now being operated by EPSRC as an open rolling round so please encourage colleagues to submit applications as soon as they are ready to apply
- **UKRI AI CDT** call open pending business case approval - community should consider applying (also EPSRC CDT call)
- ETCC will be consulting the community about skills needs

# Fellowships Update

## Overall picture remains relatively healthy

- Earnest Rutherford Fellowships (STFC):
  - 1 round every year
  - 40 fellowships awarded since 2019
- Stephen Hawking Fellowships (EPSRC/STFC)
  - 10 in 2020, 11 in 2021
  - 16 in STFC-related fields
- Future Leaders Fellowship (UKRI)
  - ~2 rounds
  - 44 fellowships awarded in STFC-related fields since 2019
- Daphne Jackson Fellowships:
  - 2 fellowships currently awarded



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# Questions?