Engineering and Physical Sciences Research Council

Biotechnology and Biological Sciences Research Council

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Strategic Priority Fund - Physics of Life Programme
Building Collaboration at the Physics of Life Interface

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EPSRC (on behalf of the whole team)

22nd April 2021

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House keeping

These slides will be added to the call webpage.

An FAQ document will be compiled from questions raised today and added to the call webpage as well.

Questions can be asked using the Q&A feature.

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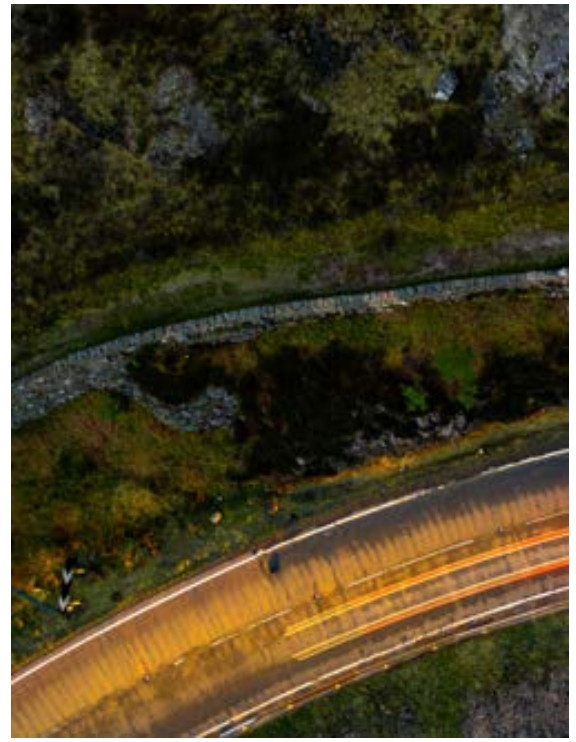
Today's Agenda

- Aims of the Physics of Life Strategic Priority Fund (SPF) and what we are seeking to achieve with this call
- Monitoring and Evaluation of this programme
- Future Plans
- Details of the call including eligibility and assessment criteria
- How to apply
- Questions and Answers



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Strategic Priorities Fund

- A key purpose of **UKRI** is to provide a greater focus and capacity to deliver on cross-cutting issues such as multi- and inter- disciplinary research.
- The **Strategic Priorities Fund (SPF)** is an £830 million investment in multi- and interdisciplinary research across 34 themes.
- It is funded through the government's National Productivity Investment Fund and` managed by UK Research and Innovation.
- The fund aims to:
  - increase high-quality multi- and interdisciplinary research and innovation
  - ensure UKRI investment links up effectively with government research and innovation priorities
  - respond to strategic priorities and opportunities

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The Physics of Life Strategic Priority Fund Vision

Physics of Life will deliver integrated programmes of inter-disciplinary research in recognition that, only by collaboration between the UK's strong biological and biomedical science and physics communities, can a series of fundamental life- and medical-science challenges be addressed.

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The Physics of Life Strategic Priority Fund Objectives

This £31.2M programme seeks to:

- Deliver **truly integrated programmes of multi-disciplinary and inter-disciplinary research** and innovation to **meet the Physics of Life challenges** and through cross-disciplinary consultation
- Fund researchers working with postdoctoral fellows and students, **developing skills** to research effectively at the interface and ultimately move between groups and industry to translate new knowledge and ideas
- Provide **access to equipment and infrastructure** to work on ambitious research questions

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Highlights of the Physics of Life Programme

- The programme builds on momentum created by the Physics of Life network and Technology Touching Life programme, and will include two calls for proposals.
- **Eight grants funded through the first call started in April 2019.**
- **Network plus grant, PoLNet3, was funded in May 2020.**
- Mid Term Evaluation of the impact of programme conducted in January 2021.
- **Outline proposals to the second call are invited until 2nd June 2021.**
- **Grants from the second call will start on 1st April 2022.**

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Grants funded in Call One of this Programme

Grant Title	Primary Investigators
Stochastic fluctuations during mammary development and breast cancer morphogenesis	Dr Guillaume Salbreux, Dr Chris Dunsby, Dr Axel Behrens
The physics of antimicrobial resistance	Prof Jamie Hobbs, Prof Simon Foster
Health assessment across biological length scales for personal pollution exposure and its mitigation (INHALE)	Prof Chris Pain, Prof Fan Chung
Biological metamaterials for enhanced noise control technology	Dr Marc Holderied, Prof Richard Craster
Transcription and nuclear phase transitions	Dr Daniel Hebenstreit, Dr Vasily Kantsler
MEGA-FLIM: quantum technologies for megapixel time-resolved imaging and control across biological scales	Prof Laura Machesky, Prof Daniele Faccio
Biological physics of protein clustering in epigenetic memory and transcriptional control	Prof Dame Caroline Dean, Prof Mark Leake Prof Martin Howard
Molecular mechanics of enzymes	Prof Frank Vollmer, Prof Jennifer Littlechild

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Monitoring and Evaluation of this Programme

- Ongoing collaboration between grant-holders and funders to monitor and evaluate this investment, to **understand and demonstrate the value of funding** this type of MIDRI
- For each grant
  - **Annual reporting** (complementing ResearchFish reporting)
    - how this funding has enabled researchers to approach research challenges in new ways
    - research outcomes achieved so far and
    - how staff have been developed
  - Suggestions for **case studies** that demonstrate the value of investment in fundamental multi- and inter-disciplinary research in this field.
  - **Financial reporting**

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Future Plans

- Work with researchers and stakeholders across the Physics of Life community to understand the opportunities and challenges in this field.
- Identify and articulate research priorities
- Create a compelling strategy for future investment in this area.

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Building Collaboration at the Physics of Life Interface: 2021 Outline Call

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Improved **understanding of living systems**, through the combination of novel perspectives and expertise from physics and the life sciences

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Aims

- Improve our **understanding of living systems**, through combining novel perspectives and expertise from physics and the life sciences
- Fund ambitious research that asks questions and achieves outcomes that would not have been possible without **Multi and Inter-Disciplinary research**.
- Support the **development of researchers** at all career stages
- **Build and develop collaborations** to strengthen the UK's research capability in this field.

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Scope

What are we seeking?

- improve our **understanding of living systems**, through combining of novel perspectives and expertise from physics and the life sciences (biological, biomedical or both)
- demonstrate **co-creation** of research questions, approaches, aims and outcomes
- interdisciplinary outcomes which are **greater than the sum of their parts**
- **biophysics and soft matter physics**, integrated with BBSRC or MRC research questions
- include a strong commitment to supporting the **development of researchers** regardless of their career stage, providing increased opportunities for professional development of established investigators, and capacity-building for stakeholders engaged in the project.

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Scope of Call continued

- The development of tools and methods using physics approaches is welcome, but this should be **integrated with a compelling life science research programme**.

- Similarly, the physics contribution to a proposal must involve **physics-based research**. It should not simply be the use of a piece of equipment or well-established biophysical method by life scientists.

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Exclusions from this call

Research that includes clinical trials or has a primary focus on:

- Medical imaging technologies for healthcare
- Instrument development
- Research equipment acquisition
- Genomics
- Improving AI/machine learning models

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Key Information

What is available?

- up to £18m available in total (UKRI + Wellcome)
- seeking to support proposals between £1.5m and £2.95m
- up to 3 years in duration
- equipment at 100% full economic costs; all other eligible costs at 80% fEC
- expenditure profile will be agreed before the grants commence.

Important dates

- mandatory start date is 1 April 2022
- fixed end date of 31 March 2025

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Assessment Criteria: Outline

- **Vision**: the ambition, adventure, transformative aspects and intended outcomes of the proposed research

- **Fit to call**: how the project demonstrates fit to the call scope (as described under scope) including synergy of the physics and life sciences elements, and brings the disciplines together in an exciting and novel way, to ensure the project achieves added value and a result greater than the sum of its parts

- **Team**: how the balance of skills, interdisciplinarity and complementarity of the two Co-PIs and wider project team provide the ability to deliver the proposed project.

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Outline Submission

Only two documents are required for the outline

- JeS application form
- Four page case for support
  - Part one: science case, including vision and fit to call
  - Part two: team

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Submissions for Outline call 2021

Outline proposals will be rejected if applicants:

- request more than £2.95 million funding from UKRI
- do not nominate two joint Co-PIs
- do not adequately demonstrate fit to the scope of this call

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Applicant Expertise

- The proposed research challenges must be such that they could **not be addressed by researchers working in physics or biology alone**.
- Each proposal must identify **two co-principal investigators** (Co-PIs). They will lead jointly and have between them the expertise required to manage a complex interdisciplinary research programme.
- Researchers' background expertise can be from one or any combination of (not limited to): Physics; Biology; Medicine; Mathematics; Bioengineering
- PIs need to demonstrate either **experience or potential** to lead a large scale collaboration.
- These will be substantial collaborative cross-disciplinary projects, so applicants are **expected to require a minimum of two PDRAs** during the period of the project.

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Joint applications

If PIs from different organisations wish to submit a joint application:

- The prospective joint applicants must submit a single outline application with the 4 page case for support on JeS

- Once the outline is invited to the full proposal stage, the applicants will be able to submit a joint application at that stage. (with the lead and component proposals)

EPSRC will treat joint applications as a single entity; **the total funding requested must not exceed £2.95M.**

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Assessment Criteria: Full proposal stage

Fit to call (primary)

- The alignment of the research programme to the aims and objectives of the call, making reference to:
- how the new science produced by, or the new understanding gained from the proposed research can only emerge from a close collaboration of physics and life sciences
- how the applicants will bring disciplines together in an exciting and novel way to ensure the project achieves a result greater than the sum of its parts; evidence of synergy and added value across the programme of work.

- **Quality; research excellence (primary)**
- **National importance; addresses societal challenges & needs (secondary major)**
- **Team; ability to deliver, balance, approach to training and dev. (secondary)**
- **Resources & management planning (secondary)**

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Other important considerations for your proposal

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Creating a diverse and inclusive culture

	Prompts
1: Good Practice in Recruitment and/or Selection Processes	Opportunities related to the EPSRC funded research activity have been openly advertised through appropriate channels.
	People involved in the research programme have been **fairly recruited**, following a process which incorporates current good practice.
	Where a grant is required to undertake a selection process, e.g. to award funding and/or prioritise candidates for funding, an **appropriate process** has been followed to manage bias and safeguard the quality of decision-making.
2: Ensuring Diversity in Advisory Boards, Associated Events and Speakers	Advisory boards associated with an EPSRC grant are diverse and include an appropriate balance of expertise from different organisations and career stages.
	Events associated with an EPSRC grant are inclusive, accessible and diverse.
	EPSRC grants are committed to removing barriers to participation in all the events and activities that they deliver.

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Creating a diverse and inclusive culture

	Prompts
3: Creating an Inclusive and Accessible Environment	EPSRC grants seek to establish an inclusive local environment where all feel valued and able to participate.
	EPSRC grants are committed to supporting participation taking into account personal circumstances.
4: Ensuring Career Progression and Training for all Members of the Team	All people involved in the research programme are supported in setting achievable career goals and continuing professional development opportunities.

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Q&A

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