

Building collaboration at the physics of life interface: 2021 outline stage

Opportunity status:	Open
Funders:	Engineering and Physical Sciences Research Council (EPSRC)
Co-funders:	UKRI Strategic Priorities Fund (SPF) delivered by EPSRC, BBSRC and MRC, and Wellcome
Funding type:	Grant
Total fund:	£18,000,000
Award range:	£1,500,000 - £2,950,000
Publication date:	7 April 2021
Opening date:	6 April 2021 06:00 UK time
Closing date:	2 June 2021 16:00 UK time

Last updated: 7 April 2021

Apply for support for cross-disciplinary research between physics and the life sciences.

The research must improve our understanding of biological systems, biomedical systems or both.

You must be a researcher from one of the following:

- UK higher education institution
- research council institute
- UKRI-approved independent research organisation
- NHS body with research capacity
- public sector research establishment (PSRE) with 10 or more researchers with PhDs.

You can request between £1.5 million and £2.95 million funding. The funders will fund:

- equipment at 100% of full economic cost
- all other costs at 80% of full economic cost.

Your project can last up to three years.

Who can apply

Research grants are open to:

- UK higher education institutions
- research council institutes
- UKRI-approved independent research organisations
- NHS bodies with research capacity
- PSREs with 10 or more researchers with PhDs (or equivalent).

If PSREs wishing to apply have not previously applied for UKRI funding and are not currently designated independent research organisation (IRO) status, they will be required to complete an eligibility form. This is to ensure they have the required research capacity, systems and controls in place to manage the research and grant funding.

PSRE applicants should contact EPSRC at the earliest opportunity to discuss their interest in applying.

Collaborations with industry, clinicians and other relevant stakeholders should be fully explored where appropriate to the research being undertaken, but are not a general requirement.

Principal investigators

The proposed research challenges must be such that they could not be addressed by researchers working in physics or biology alone.

Therefore, 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.

The Joint Electronic Submission system (Je-S) only allows one principal investigator (PI) to be named, therefore the Co-PI roles must be clearly identified within the outline. The PI named on the Je-S form will, for administrative purposes, will be the initial point of contact for liaison with UKRI during the lifetime of the award.

We expect the leadership of all proposals to demonstrate a breadth of high-quality expertise spanning both physics and life sciences. Whilst recognising that some researchers may already have an established track record in the physics of life, this call requires two Co-PIs with complementary expertise.

A track record of previous leadership of large multi-investigator or postdoctoral research associates (PDRA) grants is not required. We encourage applications from individuals with diverse backgrounds and experience, as either PI or Co-I (see below).

Where direct experience in leading complex programmes is limited, applicants should aim to demonstrate their potential to lead and manage a collaborative project of this scale, including:

- relevant professional development activities undertaken
- make appropriate arrangements for mentoring and support, for example project and risk management, during this programme.

Co-investigators

Co-investigators (Co-I) may also be included in proposals. Provided that they are essential to the Physics of Life case being proposed, Co-Is may include, but are not limited to, researchers working in:

- physics
- biology
- medicine
- mathematics
- bioengineering.

As the first funder to sign the Technician Commitment, UKRI recognises the value of technical expertise to the UK research workforce. For technicians working in higher education and research, across all disciplines, UKRI is committed to ensuring:

- visibility
- recognition
- career development
- sustainability.

As such, facility managers and technicians are eligible to apply to this call as Co-Is.

[Learn about the Technician Commitment \(technicians.org.uk\)](https://technicians.org.uk).

Early career researchers

Inclusion of early career researchers within teams is encouraged.

Evidence of significant accomplishments commensurate with their career stage should be provided and they will be expected to contribute distinctive expertise to the proposal. In such cases, the Co-PIs must also commit to the mentoring and career development of the early career researcher, and demonstrate previous successful experience of this.

Applicants are encouraged to consider the expectations laid out in the Concordat to Support the Career Development of Researchers, to which UKRI is a signatory.

Postdoctoral research associates

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. Your project is likely to be better suited to standard mode if this is not the case, and may be recommended for submission via that route.

PDRA roles not covering the duration of the award may be requested but due consideration must be given to the career development of all PDRAs. PDRAs should have the opportunity to develop transferrable technical and soft skills to enable them to progress their careers. Inclusion of part time PDRA roles is acceptable. We expect the roles and contribution of all PDRAs to be clearly defined and justified.

UKRI is committed to encouraging equality, diversity and inclusion by eliminating unlawful discrimination in accordance with the Equality Act 2010. UKRI encourages applications from research teams exploiting the strength of diversity in the wider UK research and innovation community.

Applicants are expected to consider these issues from the earliest stage of building their teams through to the delivery of awarded projects. Consideration of equality, diversity and inclusion is important for all applications to UKRI for funding.

What we're looking for

Funding available

The UKRI Strategic Priority Fund (SPF) is awarding up to £18 million of research funding for this call. We anticipate that Wellcome will co-fund this call and contribute towards this £18 million (subject to an MoU being agreed).

It is anticipated that this funding will support between six and 12 collaborative projects of three years' duration. Proposals requesting more than £2.95 million of funding are not permitted in this call.

Grants will commence on 1 April 2022 and end on 31 March 2025. Strict expenditure profiles for each grant holder will be agreed before successful grants commence.

The awards will be made on the terms and conditions of UKRI grants. As with call one, there will be additional conditions required to meet the requirements of SPF.

UKRI aims to support innovative and ambitious collaborations. The amount of funding requested by the applicants must be commensurate with the work to be undertaken and their ability to deliver.

Applicants are encouraged, but not required, to contribute funding or resources and seek leverage from external sources. However, this will not form part of the assessment process.

Individual items of equipment between £10,000 and £400,000 can be included on proposals, and will be funded at 100% full economic cost. However, applicants

should only apply for capital funding for equipment if there is a strong, justifiable case to do so for the proposed research programme. Capital requests may include costs for equipment to provide novel capability or upgrades, and modifications to existing infrastructure.

Find out [what's included within equipment funding and what information you must provide \(EPSRC\)](#).

Scope

To meet the aims of the Physics of Life Strategic Priority Fund programme, your proposal must:

- 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 and outcomes across the team of investigators
- be of sufficient ambition that it requires the contribution of substantive expertise and research activity from both physics and life sciences disciplines, to yield interdisciplinary outcomes which are greater than the sum of their parts
- include physics research which is in remit for the EPSRC biophysics and soft matter physics portfolio, integrated with research questions or applications within BBSRC or MRC remit
- 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.

The development of tools and methods using physics approaches is welcome, but this should be integrated with a compelling life science research programme. Proposals that solely focus on instrument development are excluded.

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.

Exclusions

Proposals are not in scope if they:

- are primarily focused on 'big data' approaches, for example:
 - genomics
 - machine learning
 - AI
- are primarily focused on healthcare technologies and medical imaging, for example:
 - MRI
 - CT
 - ultrasound

- include clinical trials
 - are primarily focused on the acquisition of research equipment.
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How to apply

This is the first stage of a two-stage assessment process. Your outline proposal should consist of the Je-S application form and a four-page case for support.

We strongly advise applicants to refer to the assessment criteria in the next section when writing a proposal.

Applying through Je-S

You must apply through the [Joint Electronic Submission system \(Je-S\)](#).

Named investigators who have not previously registered Je-S accounts are encouraged to do so well in advance of the submission deadline.

If you need help in applying, you can contact Je-S:

- telephone: 01793 444164
- email: jeshelp@je-s.ukri.org.

Je-S helpdesk is staffed from Monday to Thursday 8:30am to 5pm and Fridays 8:30am to 4:30pm (excluding bank holidays and other holidays).

When applying select:

- council: EPSRC
- document type: Outline Proposal
- scheme: Outline
- call/type/mode: Building collaboration at the physics of life interface: 2021 outline stage

After completing the application:

- you must 'submit document' which will send your application to your host organisation's administration
- your host organisation's administration is required to complete the submission process. Applicants should allow sufficient time for your organisation's submission process between submitting your proposal to them and the call closing date.

Applicants should ensure they are aware of, and comply with, any internal institutional deadlines that may be in place.

EPSRC must receive your application by 16:00 on 2 June 2021.

The outline will take the form of a four-page case for support. As such, when completing the Je-S Application Form, please enter 'N/A' within the objectives and summary sections.

The proposal needs to be fully costed and project partners can be named if applicable. If the outline is deemed successful, we would expect the total cost of the subsequent full proposal to be within 10% of that requested in the outline.

However, neither a detailed breakdown and justification of the costs nor information regarding direct or in-kind contributions from any project partners is required at the outline stage.

As well as the Je-S application form, the case for support document must be submitted.

Case for support

The case for support is made up of four pages.

Part one: science case, including vision and fit to call

Three pages suggested.

Describe the background to the proposal, its vision and overall goals, timeliness and potential. Set this in the broader context of current knowledge.

Describe the specific high-level objectives (main work packages) of the proposed project and briefly describe how these will be tackled. Highlight features within the work proposed which are particularly original or distinctive. A detailed technical description is not required.

Explain how the elements of the work program will be integrated together to deliver 'greater than sum of parts' and key potential outcomes.

Explain how the proposed research fits the scope of the call, the physics and life sciences contributions, and the added value of bringing together disciplines in an exciting and novel way.

Part two: team

One page suggested.

Explain how the interests and expertise of each researcher will contribute to a strong and effective team, capable of achieving more than the sum of its parts and delivering the project's objectives. This part of the case should be in the form of a succinct summary. Do not provide:

- past funding history
- publications or related metrics
- other 'track record', detailed biographical information or 'measures of esteem'.

Other documents

No other documents, such as annexes, a work plan attachment or letters of support, will be accepted.

All documents must be attached as PDFs to avoid errors. They should be completed in single-spaced Arial 11pt font or similar-sized sans serif typeface.

Read our [advice on writing proposals \(EPSRC\)](#).

Applicants are advised to self-check that the outline document and application form meet the requirements. If the application does not comply with the stated rules including formatting (font and spacing rules), given the timeline constraints, it may not be possible for us to return the submission to the applicant for amendments or corrections

EPSRC will not fund a project if it believes that there are ethical concerns that have been overlooked or not appropriately accounted for. All relevant parts of the ethical information section must be completed.

For more information, read our further guidance on [completing the Je-S form \(Je-S\)](#).

EPSRC guidance can be found in the additional information of this opportunity.

For help and advice on costings and writing your proposal, please contact your research office in the first instance, allowing sufficient time for your organisation's submission process.

How we will assess your application

Assessment process: outline

Outlines will be assessed by an interdisciplinary expert panel, with members from across UKRI's physics and life sciences communities. These panel members will have experience of carrying out interdisciplinary research.

Recommendations to invite to the full proposal stage will be made by the panel, who will create a rank ordered list of outlines against the assessment criteria described below.

In the event of this call being substantially oversubscribed as to be unmanageable, EPSRC reserve the right to modify the assessment process.

Please note, outline proposals will be office 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.

Assessment criteria: outline

The panel will assess outlines against the following criteria:

- 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.

Assessment process: full proposal

This stage will only be open to applicants who are successful at the outline stage.

Successful applicants will be provided with full guidance upon invitation to submit a full proposal.

In addition to standard documentation, an additional two pages will be permitted within the case for support (bringing the total page limit to 10).

In the response to reviewers, applicants will be allowed one additional page. This extra space in both these documents will be for applicants to explain how their proposed multi-disciplinary research will be combined to achieve more than the sum of its parts.

Full proposals will be assessed by expert postal peer review, followed by an interdisciplinary expert panel, with members from across the physics and life sciences communities in EPSRC, BBSRC and MRC remits. These panel members will be familiar with carrying out interdisciplinary research.

Recommendations to fund proposals will be made by the panel, who will create a rank ordered list of proposals against the assessment criteria described below.

Call specific criteria: full proposal

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.

Standard criteria: full proposal

Quality (primary)

The research excellence, making reference to:

- how the proposed research will lead to a significant advancement in our understanding of living systems, combining perspectives and expertise from physics and the life sciences (biological, biomedical or both)

- the novelty, relationship to the context, timeliness and relevance to identified stakeholders
- the ambition, adventure, transformative aspects or potential outcomes
- the suitability of the proposed plan of research, methodologies and the approach to achieving impact.

National importance (secondary major)

How the research:

- enables new physics of life research, contributes to addressing key UK societal challenges and contributes to future UK economic success and development of emerging industry or industries
- meets national needs by establishing or maintaining a unique world leading activity, and creating a cohort of researchers with transferable technical skills
- complements other UK research funded in the area, including any relationship to the EPSRC plus BBSRC or MRC portfolios.

Team (secondary)

The ability to deliver the proposed project, making reference to:

- appropriateness of the applicants' track record, with regards to the balance and complementarity of their skills and experience, underpinning their ability to deliver the programme of work
- the team's strategy for managing a complex multi-disciplinary project, including evidence of relevant past experience or professional development
- the applicants' approach to (or track record of, if applicable) career development and mentorship within the team.

Resources and management (secondary)

The effectiveness of the proposed planning and management and whether the requested resources are appropriate and have been fully justified, making reference to:

- any equipment requested, or the viability of the arrangements described to access equipment needed for this project, and particularly on any university or third-party contribution
- any resources requested for activities to either increase impact, for public engagement or to support responsible innovation
- the identification of potential risks with appropriate mitigation strategies.

Feedback

Successful applicants invited to submit full proposals will be given access to a separate call document, providing additional guidance on the second stage's application and assessment processes.

Brief feedback may be given to unsuccessful applicants at the outline stage as directed by the panel.

Contact details

Sarah Newman

Email: sarah.newman@epsrc.ukri.org

Abhinav Sharma

Email: abhinav.sharma@epsrc.ukri.org

Additional info

A virtual information day will be held in April 2021, involving presentations and Q&A.

 [Register for the information webinar.](#)

This registration link will be open until 20 April 2021.

Attendance is not a pre-requisite to applying to the call and a report from the day (including frequently asked questions) will be published on the EPSRC website as soon as possible following the event.

Supporting documents

- [Equality Impact Assessment \(PDF, 182KB\)](#)

Additional conditions

Supplementary to the standard UKRI grant conditions, additional conditions will be added to this call. These will include, but are not limited to the following points.

Expenditure against grants

Expenditure against grants must be claimed from the compulsory start date of 1 April 2022. The duration of the grant will be 36 months with a fixed end date of 31 March 2025.

Grant extensions

Grant extensions may only be requested in exceptional circumstances (for example, maternity and paternity leave). The grant holder is responsible for minimising any extensions and risks must be managed accordingly. Delays must be reported to the UKRI contact.

Expenditure profiles

Expenditure profiles will be agreed before grants commence. Financial reporting on to-date and forecast expenditure will be required every six months.

It is the responsibility of the research organisation or establishment to ensure the research programme remains on the expected profile. Research offices must inform UKRI of material slippage or cost savings as soon as possible. UKRI reserves the right to suspend or reprofile a grant if spend does not closely match allocation.

External advisory board

Grants holders must establish and run an external advisory board, or equivalent body, to act as a 'critical friend' and provide advice on the running of the project, its research and related activities. This board must meet with grant holders at least annually.

Grant holders must provide UKRI with an annual written report on the project's:

- progress
- outputs and training
- outreach and professional development activities.

A template for the report will be provided in due course. Each report must also be made available to the external advisory board prior to annual meetings.

The grants will be funded by UKRI and it is anticipated that Wellcome will co-fund this call (subject to an MoU being agreed).

Wellcome is an independent, global charitable foundation (registered charity number 210183). Like all registered charities in England and Wales, Wellcome is regulated by the Charity Commission. Wellcome will have access to the proposal and grant documents for this call. Therefore, in addition to UKRI terms and conditions, Wellcome's grants privacy statement will also apply.

[Read Wellcome's grants privacy statement \(PDF, 300KB\).](#)

Further guidance

The physics of life call builds on momentum created by the communities supported by EPSRC, BBSRC and MRC pump-priming for work at this interface via the Physics of Life Network ([PoLNet](#)), and investment in Technology Touching Life.

For more information:

- read about [EPSRC's portfolio and strategies \(EPSRC\)](#)
- read about [BBSRC's portfolio and strategies \(BBSRC\)](#)
- read about [MRC's portfolio and strategies \(MRC\)](#)
- learn about [Wellcome \(Wellcome\)](#).

Read our [advice on writing proposals \(EPSRC\)](#).

EPSRC will not fund a project if it believes that there are ethical concerns that have been overlooked or not appropriately accounted for. All relevant parts of the ethical information section must be completed.

For more information, read our further guidance on [completing the Je-S form](#).

This is the second and final call from the UKRI Physics of Life Strategic Priority Fund. Applicants may find it useful to browse the grants funded by the [first call \(Grants on the Web\)](#), but should refer solely to the call text to gauge the suitability of their proposal for this call.

UKRI would not expect to see the resubmission of previously unsuccessful proposals. All applicants to the previous call should familiarise themselves with EPSRC's resubmission policy. Applications may come from new or existing teams and will be assessed on the same basis using the specified criteria.

For context, applicants may find it useful to view the [PoLNet website](#) and Roadmap for Understanding the Physics of Life. However, applicants are not required to respond to areas identified by PoLNet and do not need to be a current member of PoLNet or similar managed activity to be eligible for this call.

Timeline

- **6 April 2021**
Outline stage opening date
- **TBC**
Online briefing event
- **2 June 2021**
Outline stage closing date
- **7 July 2021**
Outline panel
- **15 July 2021**
Outline call results
- **15 July 2021**
Full proposal stage opening date
- **9 September 2021**
Full proposal stage closing date
- **14 December 2021**

Full proposal panel

 **1 April 2022**

Project start date

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