

Call for Feasibility Studies

EPSRC Future Composites Manufacturing Research Hub

Closing date: 16:00 on 10th Dec 2018

Summary

The EPSRC Future Composites Manufacturing Hub is offering funding for Feasibility Studies to conduct research at **TRL 1 to 3**, to promote a fundamental step-change in polymer **composites manufacturing** within the UK. The Feasibility Study should either enhance the robustness of an existing process, via the understanding of the process science, or develop new high-rate processing technologies to deliver high quality structures. The study should be ambitious and high risk, identifying key challenges and research questions not currently being addressed.

This call is open to all UK academics and is the primary mechanism for new academic collaborators to engage with the Hub. Awards at this stage are limited to £50,000 at 80% FEC, for up to a maximum of 6 months. Successful Feasibility Studies may be invited to submit an application for further Hub funding, with the lead institution becoming a strategic partner in future Hub activities.

Key dates

Activity	Date
Call launched	1 st Nov 2018
Closing date for applications	10 th Dec 2018
Evaluation of applications by	15 th Feb 2019
Grants announced and feedback given by	22 nd Feb 2019
Expected start date of projects (or within 3 months)	1 st Apr 2019

Background

The Future Composites Manufacturing Hub is a £10.3m investment by the EPSRC to engage academics from across the UK to deliver a step-change in the production of polymer matrix composites. The vision is to develop enabling technologies to produce high performance polymer composite structures within the UK, to support the anticipated growth in the composites industry between 2020 and 2030.

The Hub is led by the University of Nottingham and the University of Bristol and includes 8 other Spokes; Brunel University, University of Cambridge, Cranfield University, University of Edinburgh, University of Glasgow, Imperial College London, University of Manchester, and the University of Southampton.

The Hub is supported by 4 High Value Manufacturing Catapult Centres and 18 leading companies from the composites sector to address two over-arching Grand Challenges:

- To enhance the process robustness of existing processes via the understanding of the process science (to deliver and accelerate growth)
- To develop new high-rate processing technologies to deliver high quality structures (to develop new technologies and diversify into emerging sectors)

Scope of the Call

Research must be novel and fundamental, addressing low TRL (1-3) problems. Applicants are invited to submit proposals that are complementary, but distinct, to the current research being conducted by the Hub (www.cimcomp.ac.uk/#research). Proposals should also fit within the overall vision of the Hub and address one of the two Grand Challenges outlined above. Projects can include the development of new manufacturing technologies, analytical studies to develop a fundamental understanding of state-of-the-art processes, or the development of process modelling and optimisation techniques.

Proposals must also fit within one of the following priority areas:

1. High rate deposition and rapid processing technologies

Proposals in this area should focus on overcoming manufacturing related challenges to improve quality, reduce cost or increase rate. Key deliverables include fundamental understanding of primary drivers such as component complexity, automation limitations and optimal processing windows. Projects developing new feedstock materials or conducting extensive material test programmes will not be funded.

2. Design for manufacture via validated simulation

Proposals in this area should focus on the virtual design and development of composite structures, such as validated process simulations capable of predicting viability and arising component quality. These tools will support existing relevant processes, or enable new automated processes to be introduced with confidence.

3. Manufacturing for multifunctional composites and integrated structures

Proposals in this area should demonstrate cost-effective and reliable routes to produce multifunctional composite structures at high rate. Projects should focus on developing existing implementations beyond the laboratory scale to the structural scale, ensuring they are compatible with relevant composite fabrication techniques. Multifunctionality may include mass/ heat/ charge transport capabilities, but these must be delivered within structural configurations, such as doubly-curved surfaces, sandwich panels and plates with stiffeners.

4. Inspection and in-process evaluation

Proposals in this area should focus on developing or improving the capability to make in-process measurements to evaluate preform or component quality, enabling corrective action to be taken to reduce/eliminate rework and scrap. Projects developing inspection and NDT techniques for post-moulded or in-service components will not be funded.

5. Recycling and re-use

Proposals of interest in this area include demonstrating a manufacturing methodology with the potential to produce structural components from recyclates at industrial production rates, or reducing the amount of in-process waste by developing more efficient processes to minimise the use of virgin fibre. Projects characterising the properties of recyclates from new fibre recovery methods will not be funded.

Proposals **must** focus on the manufacturing of composite structures rather than the development of new materials. Nanomaterials or graphene are not considered to be within the scope of the Hub. Informal enquiries are welcome to check if proposal ideas are within scope. Please send these to: enquiries@cimcomp.ac.uk

Funding available

Funding is available for up to 4 feasibility studies. Awards will be limited to £50,000 at 80% FEC for up to 6 months. Funding is intended to cover the costs of the PI and supporting researchers in undertaking research in preparation for a full grant proposal if feasibility is demonstrated. Funding will therefore primarily cover staff time, with the remainder supporting consumables and travel. Funding for PhD students is not available and this cost should be covered by the institution.

Equipment

Funding for purchasing new equipment is not permitted, but access will be available to existing equipment at Hub and Spoke institutions, which will be charged at cost.

Eligibility

This call is open to all UK academic institutions (including existing Hub and Spoke institutions), where applicants must be eligible to hold an EPSRC grant.

How to apply

Feasibility study applications should be submitted to Dr Lee Harper, Hub Manager (lee.harper@nottingham.ac.uk). Applications should be no more than four sides of A4, using 2cm margins and a standard 12pt font. Proposals should include, but not be limited to, the following content:

1. Research title, institution name and Principal Investigator (PI)– note that PI must be eligible to hold an EPSRC grant
<https://www.epsrc.ac.uk/funding/howtoapply/fundingguide/eligibility/investigators/>
2. Start date and duration. (Projects should typically last for a maximum of 6 months. Please consider the resources available for this project before applying)
3. Context, aim and objectives of the research, including a description to explain how the study fits within the overall vision of the Hub and how it supports one of the research priority areas.

4. A statement of the novelty of the proposed research, including some evidence that it is not being addressed elsewhere.
5. A description of the methodology to be used, including a timing and resource allocation plan.
6. A description of the tangible deliverables from the feasibility study (what does success look like?)
7. A plan to show how you will attract further funding if your idea is feasible and the research is successful.
8. Provide some evidence of industrial interest or support (Letters of support are not included in the page limit, however they must give details of the level of support on offer).
9. A brief track record of the applicants relevant to this research area.
10. Justification of resources, summarising Directly Allocated (staff, estates costs, other), Directly Incurred (investigators, travel, consumables, infrastructure etc.), and Indirect Costs. A total limit of 3.75hrs/week is imposed for investigators, regardless of the number of co-investigators.

Assessment process

Submissions will be considered by independent assessors. In order of importance, the evaluation criteria for applications will be:

1. Impact. Is the proposal likely to result in high quality research, in the form of journal publications, patents etc.?
2. Novelty. How novel and timely is the work? Is it being addressed elsewhere?
3. Relevance. Is the proposal relevant to the interests of the industrial partners and the other stakeholders?
4. Achievability. How likely is the project to succeed? Is the hypothesis plausible, is the approach credible and will the team be able to deliver?
5. Ambition. Does the proposal offer suitable levels of challenge, ambition and risk? High-risk, high return studies are encouraged.
6. Planning. How well has the proposal been planned? Are the requested resources appropriate to deliver the proposed programme within the short timeframe and have they been fully justified?

Contacts

Applicants are asked to consult their university's research office ahead of submitting a proposal to this call, in order to be clear of the requirements for meeting the deadlines set out above.

Informal enquiries can be sent to enquiries@cimcomp.ac.uk.