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Quick Reference

Please note that you must read the full Call document for guidance before submitting your proposal

Second Call for Feasibility Studies: EPSRC Future Composites Manufacturing Research Hub

Call type: Invitation for proposals

Closing date: 30 November 2017 at 16:00

Funding Available: Funding is available for up to two feasibility studies, which may be from the same research area (Recycling and Waste Reduction or Microwave Processing) if of appropriate quality. Awards will be limited to £50,000 at 80% FEC for up to six months.

How to apply: Feasibility study applications should be submitted to Dr Lee Harper, Hub Manager (lee.harper@nottingham.ac.uk).

Assessment Process: Submissions will be considered by a panel of independent assessors.

Key Dates:

Activity	**Date**
Call launched	10 October 2017
Closing date for applications	30 November 2017
Evaluation of applications by	15 December 2017
Grants announced and feedback given by	22 December 2017
Expected start date of projects (or within six months)	01 February 2018

Contacts:

- Dr Lee Harper (lee.harper@nottingham.ac.uk - 0115 9513823)

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Related themes: Manufacturing the future

Summary

The EPSRC Future Composites Manufacturing Research Hub is offering funding for up to two feasibility studies to conduct research at **TRL 1 to 3**. Proposals are invited in two distinct areas; **1) Recycling and Waste Reduction** and **2) Microwave Processing**. The feasibility study should examine a subject area that is ambitious and high risk, identifying key challenges and research questions not currently being addressed.

Proposals must offer a fundamental step-change in composites manufacturing, rather than focusing on the development of next-generation materials. Proposals that do not address one of these two areas outlined above will not be funded.

This call is open to all UK academics and is the primary mechanism for new collaborators to engage with the Hub. Awards are limited to £50,000 at 80% FEC, for up to a maximum of **six** months. Successful applicants are expected to attract significant new industrial support for follow-on funding, which will form a strategic part of future Hub activities. Access to further Hub funding may be released if feasibility is demonstrated, with the potential for the lead institution to become a Spoke member.

Background

The Future Composites Manufacturing Research Hub is a £10.3m investment by the EPSRC to engage academics from across the UK to deliver a step change in the manufacturing of polymer matrix composites. The Hub is led by the University of Nottingham and the University of Bristol and includes 7 other Spokes; the University of Cambridge, Cranfield University, the University of Edinburgh, Imperial College London, the University of Glasgow, the University of Manchester, and the University of Southampton.

The vision for the Hub is to enable Moore's law for composites - a doubling in production capability every two years for high performance polymer composites. Five research priority areas have been identified to realise this, which have been identified in collaboration with industry partners and the broader composites community:

1. High rate deposition and rapid processing technologies

2. Design for manufacture via validated simulation
3. Manufacturing for multifunctional composites and integrated structures
4. Inspection and in-process evaluation
5. Recycling and re-use

In order to grow the national effort to support future UK composites manufacturing, the Hub has allocated funding for up to two feasibility studies to investigate ambitious, high risk and step-changing ideas, with the possibility for successful applicants to secure follow-on funding for major collaborative Hub Core Project if feasibility is demonstrated. This announcement follows on from a recent call for Feasibility Studies (May 2017), where six new projects were funded, introducing three new Spoke members to the Hub; the University of Cambridge, the University of Edinburgh and the University of Glasgow:

- 'Can a composite forming limit diagram be constructed?', Dr Michael Sutcliffe, University of Cambridge
- Multi-Step Thermoforming of Multi-Cavity, Multi-Axial Advanced Thermoplastic Composite Parts, Dr Philip Harrison, University of Glasgow
- Layer by layer curing, Dr Alex Skordos, Cranfield University
- Simulation of forming 3D curved sandwich panels, Professor Nick Warrior, University of Nottingham
- Manufacturing Thermoplastic Fibre Metal Laminates by the In Situ Polymerisation Route, Dr Dipa Roy, University of Edinburgh
- Active control of the RTM process under uncertainty using fast algorithms, Professor Michael Tretyakov, University of Nottingham

Details of other current Hub projects can be found at www.cimcomp.ac.uk

For more information about EPSRC's portfolio and strategies, see our website: https://www.epsrc.ac.uk/research/ourportfolio/

Scope of the call

The current announcement is a focused call for proposals to explore one of two research topics:

1. Recycling and Waste Reduction
2. Microwave Processing

These have been prioritised by the Advisory Board to balance the Hub's current research portfolio, taking account of projects funded in the previous round. These topics fit within the overall vision of the Hub and support one or more of the five research priority areas.

Proposals must be novel and fundamental, addressing low TRL (1-3) problems, including 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

be step-changing and disruptive in order to support the vision of Moore's Law. Incremental developments on existing processes/technologies offering marginal improvements in productivity, cycle time, cost etc. will not be funded.

Proposals should focus on overcoming manufacturing related challenges, rather than material developments.

- Recycling and Waste Reduction proposals may focus on 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 reduce the consumption of virgin fibre. Projects simply characterising the properties of recyclates from new fibre recovery methods will not be funded.

- Microwave Processing proposals should focus on reducing cycle time, cost and energy; projects that focus on the development of suitable microwave curable materials will not be funded.

Funding available

Funding is available for up to **two** feasibility studies, which may be from the same research area (Recycling and Waste Reduction or Microwave Processing) if of appropriate quality. Awards will be limited to £50,000 at 80% FEC for up to six months. Funding is intended to cover the costs of the PI and supporting researchers in undertaking research in preparation for a full grant proposal. 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. However, access will be available to existing equipment at Hub and Spoke institutions, and 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. The University of Nottingham is the host organisation and will be administering the process. Awards will therefore not affect the applicant's eligibility for EPSRC First Grants.

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 six months)

3. A clear statement identifying the research topic addressed (either Recycling and Waste Reduction or Microwave Processing), briefly explaining **how** the project addresses this area

4. Context, aim and objectives of the research, including a description to explain how it aims to provide a quantifiable step-change in composites manufacturing.

5. A statement of the novelty and timeliness of the proposed research, including some evidence that it is not being addressed elsewhere.

6. A description of the methodology to be used, including a timing and resource allocation plan. Clearly identify the key elements of your idea and the breakthrough principle(s) that need to be validated to achieve success. Include one or more milestones on the timing plan that will form the fastest route to validating these key breakthrough principle(s).

7. A description of the tangible deliverables from the feasibility study. Define suitable 'success criteria' that can be used to establish go/no go for follow-on funding.

8. A brief track record of the applicants relevant to this research area.

9. Justification of resources, summarising Directly Allocated (staff, estates costs, other), Directly Incurred (investigators, travel, consumables, infrastructure etc.), and Indirect Costs. A limit of 3.75hrs/week is imposed for investigators. This is in total for all investigators involved, including all institutions if a joint proposal is submitted.

Assessment process

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

1. Fit to the call scope. Does the proposal address a fundamental step-change in composites manufacturing technology? Does the proposal address one of the two areas identified?

2. Is the proposal likely to result in high quality research? Is the hypothesis plausible, is the approach credible and will the team be able to deliver?

3. How novel and timely is the proposed approach?

4. Does the proposal present suitable levels of challenge and ambition? High risk, high-return studies are encouraged.

5. How well has the proposal been planned? Are the requested resources appropriate and have they been fully justified?

6. Is there potential for developing a larger collaborative project, either at a similar fundamental level or at higher TRLs?

7. Is the proposal relevant to the interests of industrial partners and other stakeholders?

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Contacts

For more details, please contact the Hub Manager, Dr Lee Harper (lee.harper@nottingham.ac.uk or 0115 9513823). 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.

Change log

Name	**Date**	**Version**	**Change**
Tracy Hanlon	09 October 2017	1	N/A