Call for Proposals

Feasibility Studies on Solidification and Casting

The EPSRC Centre – LiME

January 2014

Closing date: 4pm Friday 14th March 2014

The EPSRC Centre – LiME:

The EPSRC Centre for Innovative Manufacturing in Liquid Metal Engineering (the EPSRC Centre – LiME for short), officially launched on 21st September 2010. The EPSRC Centre - LiME is a national centre in liquid metal engineering based at Brunel University in collaboration with Oxford University and Birmingham University. It is founded on our long-term vision for the global metallurgical industry: that the global demand for metallic materials should be met by a full circulation of secondary metals with only a limited addition of primary metals each year, which can be achieved by effective reuse, remanufacture, closed-loop recycling and effective recovery of secondary metals. This represents a paradigm shift for metallurgical science, manufacturing technology and the industrial landscape. The EPSRC Centre - LiME aims to lay down a solid foundation for full metal circulation by conducting successful research in the following areas:

- Establishment of a nucleation centred solidification science to underpin the development of new metallic materials and new processing technologies
- Development of new metallic materials which are suitable for closed-loop recycling
- Development of novel solidification processing technologies to facilitate the full circulation of secondary metals

Building Community:

Metallic materials are the backbone of manufacturing, and solidification processing forms an important and vital part of metallic materials processing. However, the shrinkage of the UK solidification community in the last 30 years has been shocking. The divergence of academic teaching of materials science and engineering, the closure of over 30 materials departments in UK universities and the retirement of eminent metallurgists in both academic institutions and industrial companies are all contributing factors to the current situation. The EPSRC Centre – LiME is determined to take the lead in rebuilding the UK solidification community, restoring its glory and to take it to a new height on the international stage. Together with the EPSRC, we are working closely with all of our UK colleagues to develop effective mechanisms and specific actions to meet this challenge. We must go
beyond our immediate solidification community and interact with the wider metallurgical circle in the UK.

**The Feasibility Study Fund:**

The EPSRC Centre – LiME sees itself as an open and dynamic organisation. We strive to enhance our engagement with the wider research community and the UK solidification community in particular. As part of our community building exercise, we have set up a special fund to support small-scale feasibility studies in the UK solidification community excluding the original LiME investigators. A total of £144,000 has been ring-fenced to support a total of 6 studies, each at a cost of up to £24k (EPSRC contribution, not FEC). The duration of each feasibility study should not exceed 6 months. This action aims to support radical scientific ideas and potential technology champions at the earliest stages generated from the UK solidification community. This support will provide proof-of-concept results for preparation of grant proposals to the relevant funding bodies.

**The Application Process:**

The potential feasibility studies will be proposed by members of the UK solidification community who are eligible for EPSRC funding. The proposal should not exceed 2 sides of A4 page and should contain the following information:

- A brief description of your research track record
- A brief background of the proposed research project
- A concise description of the proposed research project, its significance and the potential LiME collaborator(s)
- A brief project plan
- Justification for resources requested (this should be accompanied by a Je-S form in PDF format. Please do not submit the Je-S form to EPSRC.)

The 2-page proposal accompanied by the completed Je-S form should be emailed to Ms Lauren Wigmore (Lauren.Wigmore@brunel.ac.uk) before 4PM on 14th March 2014. The final selections will be made by the LiME Management Group advised by the International Advisory Board (IAB) and with the consent of the EPSRC. The final announcement will be made at the UK Solidification Workshop 2014 held at Brunel University on 9-10th April 2014. At the end of each feasibility study the investigator will submit a 2-page report to the LiME Management Group for assessment and a copy to the EPSRC for their records. It is expected that proposals developed based on such feasibility studies should have one or more LiME members as Co-Is and that the PIs of such proposals should become LiME associates.

**The Scope:**

We are looking for radical ideas in the wider field of solidification science and casting technologies. However, in order to promote collaborations between the members of the UK solidification community and the LiME investigators, the topics of the proposals in the following research areas are particularly welcome but not limited to:

- Understanding heterogeneous nucleation by both experimental, and modelling and simulation approaches.
- Understanding the mechanisms of formation of solidified microstructures with fine grain size, uniform chemistry and reduced/eliminated cast defects.
- Designing metallic materials suitable for closed loop recycling.
- Development of new casting processes to facilitate closed loop recycling of metallic materials.
**The Eligibility:**

All those eligible to apply for EPSRC grants will be eligible to apply for the feasibility fund. For further information please check: [http://www.epsrc.ac.uk/funding/guidance/Pages/eligibility.aspx](http://www.epsrc.ac.uk/funding/guidance/Pages/eligibility.aspx)

**Assessment criteria:**

The assessment panel will include: Professor Zhongyun Fan (PI, Brunel), Professor Patrick Grant (Co-I, Oxford), Professor Geoff Scamans (Co-I, Brunel), Dr Bill Griffins (Co-I, Birmingham), and Dr Richard Bailey (EPSRC contact person for LiME). Ms Lauren Wigmore will be present at the panel meeting as a co-ordinator. The panel will use the following criteria for assessment of each proposal:

- Scientific quality
- Track record of delivery
- Potential for a collaborative proposal at the end of the feasibility study.

**Important dates:**

- 4th February 2014: Call for proposals issued
- 14th March 2014: **Deadline for proposal submission (before 4pm)**
- 9th April 2014: Panel assessment completed
- 10th April 2014: Outcome announced at UK Solidification Workshop
- 1st May 2014: Project start date
- 31st October 2014: Project completed
- 15 December 2014: Final Report submitted

**Contact:**

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