

## **State of the Art in Simulation and Design - Workshop**

**Call type: Expression of interest**

**Closing date: 16.00 on Wednesday 10 June 2015**

**Related themes: ICT, Manufacturing the future, Mathematical sciences,  
Physical sciences**

### **Summary**

EPSRC and Innovate UK would like to invite applicants to participate in a workshop exploring the state of the art in simulation and modelling tools for engineering design.

The aim of the workshop is to identify the state of the art in fundamental simulation and modelling techniques that can help improve the design process within engineering design. The workshop will also aim to enable users to progress in their use of these tools and determine key areas of need not currently being addressed by research programmes.

This will be a one day workshop taking place on **Thursday 16 July 2015**. It will provide an opportunity for the academic and user communities to set out a joint vision in these areas identifying potential collaborations and future opportunities for investment.

Applications are encouraged from researchers working across engineering, physical sciences, mathematics, ICT and manufacturing. Research interests could include but are not limited to: computer aided manufacture, materials characterisation and modelling, design for the manufacturing of products and /or processes, and simulation processes.

### **Background**

Design is critical for the UK economy and reflects some of the most innovative and creative activities in business and other organisations. Engineering Design is one aspect of this, which addresses the engineering and technical aspects as well as the socio-technical factors of design. Research in this area has the potential to revolutionise the way in which we approach design in the future as well as the opportunity to speed up innovation, enable new business models and technologies.

This workshop was devised as part of EPSRC's Engineering Design strategy and Innovate UK's Modelling and Simulation – Best Practices Knowledge Transfer Project.

EPSRC's Manufacturing the Future theme is looking to identify potential opportunities for fundamental computational methods to be integrated into novel

or existing design approaches. This could be, for example, by the development of tools that could incorporate these methods into the design process.

Innovate UK's Modelling and Simulation – Best Practices Knowledge Transfer Project is looking to gather and disseminate best practice in the use of simulation and modelling tools for engineering design, and to encourage the take up and development of simulation tools by the UK manufacturing industry.

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

## **Objectives of the workshop**

The intention of this workshop is to identify the state of the art and future developments in simulation and modelling for engineering design so that:

- Experienced users can progress in their use of new tools
- Key areas needing research and development can be identified
- New opportunities for applications of simulation and modelling can be identified.

A diverse selection of end-users, developers and researchers in design, manufacturing and underpinning sciences will be brought together to address the following questions:

- What are the latest research developments with the potential to have impact on the engineering design and simulation modelling user communities?
- How can these developments be better exploited by end users and researchers in design and manufacturing.
- What are the opportunities and barriers to uptake of these new design and simulation and modelling techniques?
- What are the potential risks and benefits of uptake of these new design and simulation and modelling techniques?

The workshop will focus on the following four areas:

- Optimisation - Obtaining the best value using an automatic methodology employing mathematic and computational tools and methods.
- Multiphysics – Multi-disciplinary coupled simulation or multi-physics simulation.
- Materials modelling – Characterising and modelling of structures.
- Multiscale – The integration of detailed models of a wide range of scales (eg micro-macro, 1D-2D-3D, detailed+simplicistic, etc).

With challenges identified as relevant to the following sectors:

- Automotive
- Aerospace
- Energy
- Built Environment

- Healthcare Technologies
- Electronics
- Process Industries: Chemicals and Food

Sectors not included: Nuclear and defence (unless captured in the above).

## **Applying to attend and selection procedure**

Applications are encouraged from research areas across engineering, physical sciences, mathematics, ICT and manufacturing. We are not defining the disciplines that should be represented at this event; rather we are asking potential participants to indicate how their expertise can help address the questions we are attempting to answer.

Research interests could include but are not limited to: computer aided manufacture, materials modelling and characterisation, design for the manufacturing of products and /or processes, and simulation processes.

Those wishing to attend this workshop should complete the short Expression of Interest (EoI) form on the call page of the EPSRC website:

**An application will be considered as confirming availability for the workshop and as a commitment to attend if selected.**

This form contains the following sections:

- Brief applicant biography
- Research area of expertise
- Why this event interests you and what contribution you hope to make
- What you would like to gain from the workshop

The EoI will be used to select participants ensuring a balanced representation of institutions and expertise. Please do not submit any other information as it will not be considered.

Places are limited to approximately **40** and the number of attendees from a given institution **may** have to be restricted in the event of multiple applications from that institution.

Selection of participants will be made by an EPSRC panel with representation from Innovate UK and selection will ensure a balance of participants using the following criteria:

- Relevance of research interests
- Balance of research interests across the participants
- Balance of institutions and departments
- Vision for individual contribution and benefits from attending this workshop.

The deadline for all submissions is **Wednesday 10 June 2015**. We are unable to accept applications after this deadline.

The selection panel will take place during the **week of the 15 June** and applicants will be notified of the decision by **17.00 on Friday 26 June** at the latest. EPSRC's decision on attendance is final.

**A list of attendees and research interests will be published prior to the workshop.** This will allow the delegates to engage with their colleagues prior to the workshop and contribute any thoughts that they may wish to feed in.

Please note EPSRC will pay reasonable travel and subsistence costs associated with attendance, in line with our policies (<https://www.epsrc.ac.uk/about/standards/travel/>). All accommodation, refreshments, breakfast, lunch and dinner costs will be met by EPSRC and Innovate UK.

EPSRC and Innovate UK reserve the right to invite workshop participants directly.

## **Workshop Outputs**

The results from the workshop will be collated into a report which will then be made available on the EPSRC website following the workshop. This report will be used to determine the potential of this research area for future Research Council activities, as well as the format of those activities.

## **Location and date**

The workshop will take place on Thursday 16 July 2015. Full details of the venue and an agenda will be made available to the selected participants.

## **Key dates**

<b>Activity</b>	<b>Date</b>
Expression of Interest Deadline	16.00 on 10 June 2015
Sift Panel	Mid June 2015
Notification to participants	Late June 2015
Workshop	16 July 2015

## Contacts

For general enquiries please contact:

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## Change log

<b>Name</b>	<b>Date</b>	<b>Version</b>	<b>Change</b>
Rhia Visavadia	07 May 2015	1	N/A