

# Uncertainty Quantification in Digital Image Correlation

The National Physical Laboratory,  
Hampton Rd, Teddington, TW11 0LW, UK.

22nd February 2017

**Chaired by: Dr Richard Burguete** *NPL*  
**Dr Dave Hollis** *BSSM*

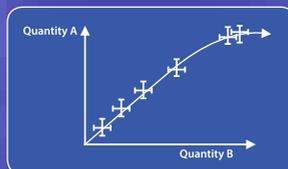
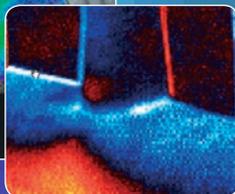
Digital Image Correlation (DIC) is an extremely popular measurement tool utilised widely in experimental mechanics. By virtue of the optical technology it employs, it is easy to deploy and can acquire data where other techniques cannot. It is also very easy to gather full-field data quickly. However there is still a lack of understanding surrounding the uncertainties associated with DIC measurements:

- What are the sources of error in DIC measurements?
- How can we quantify the uncertainties reliably?
- How do I use this uncertainty information?
- How does it propagate into derived data?
- Does uncertainty quantification (UQ) really matter?

This event aims to address these questions. It may not arrive at all of the answers but the objective is to share current practices and perspectives around this extremely important subject.

Through a host of well-known speakers you will learn about uncertainty quantification; its history, importance, and state-of-the-art approaches. The event will also have a session where you will be encouraged to share your ideas and current approaches to UQ in DIC measurements.

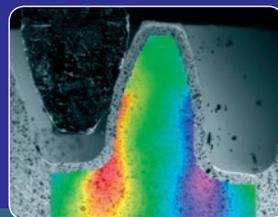
There will be an exhibition of instruments related to the techniques presented.



Co-sponsored by iDICs



**Target audience:** The seminar is aimed at engineers, physicists and scientists with a background in mechanics of materials and/or mechanical testing wishing to learn more about uncertainty quantification in DIC measurements.



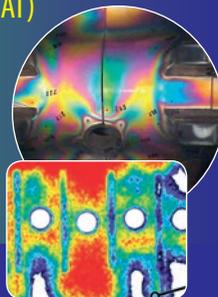
### Event Registration Prices (exc. VAT)

Member	£150
Non-member	£195
Student member	£95
Student non-member	£125
Co-sponsoring organisation member	£170

### Event Exhibition Prices (exc. VAT)

Corporate 1 BSSM Members	£195
Corporate 2 BSSM Members	£295
Non-members	£395

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### Programme Timetable

**Start Finish Title of Presentations/session Speakers full title, name and affiliation**

09.30 10.00 Registration, exhibition and coffee

10.00 10.05 Introduction and welcome *Dr Dave Hollis, LaVision*

10.05 10.30 Uncertainty quantification in materials testing *Dr Jerry Lord, BSSM*

10.30 11.00 The story of DIC Uncertainty Quantification to this point *Dr Phillip Reu, Sandia National Labs*

11.00 11.30 Application example : Uncertainties in SEM-DIC testing *Dr Nick McCormick, NPL*

11.30 12.15 2 min presentation per delegate (max 2 slides) - your current approach to DIC uncertainty quantification *All attendees*

12.15 13.15 Lunch and Exhibition

13.15 13.45 Knowing the unknowns : Quantifying uncertainties in DIC using synthetic images  
*Dr Pascal Lava, MatchID*

13.45 14.15 Propagation of DIC uncertainties in material identification and FE model validation  
*Prof Fabrice Pierron, University of Southampton*

14.15 14.45 Impact on decision-making of quantified uncertainty for DIC measurements  
*Prof Eann Patterson, University of Liverpool*

14.45 15.15 Coffee and Exhibition

15.15 15.45 Uncertainty Quantification in DIC – an Industrial Perspective *Dr Eszter Szigeti, Airbus*

15.45 16.15 Propagating experimental UQ into simulations *Dr Louise Wright, NPL*

16.15 17.00 Summary: where it's all heading and international activity *Chaired by Dr Phillip Reu*

17.00 17.10 Closing Remarks *Dr Dave Hollis, LaVision*

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