



13th International Conference on Advances in Experimental Mechanics

Conference Handbook

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AIRBUS

UNIVERSITY OF
Southampton

29 -31 August 2018 • The Grand Harbour Hotel, Southampton, UK

I am delighted to welcome you to Southampton, and our conference venue, the Grand Harbour Hotel, for the 13th International Conference on Advances in Experimental Mechanics. In addition to the main conference programme, with two invited plenary speakers, the event also includes two BSSM Measurements Lectures, a presentation from the winners of the Fylde Prize, (BSSM best paper in 'Strain' 2017), the annual BSSM EMex Exhibition of Experimental mechanics, and the BSSM's Young Stress Analyst Competition. I am very grateful to the authors and guest speakers for their efforts in producing their contributions to the programme, which is technically excellent, including special sessions in Dental Biomechanics and High Strain Rate.

I also thank the organising committee, without whom the conference would not have been possible, which include my University of Southampton colleagues Professor Janice Barton and Professor Fabrice Pierron (Scientific Committee co-chairs), Dr Frances Davis and Dr Rachael Tighe (now University of Waikato, New Zealand), and the BSSM staff, Mrs Amanda Boaler (conference secretariat) and Mrs Biana Gale (EMex).

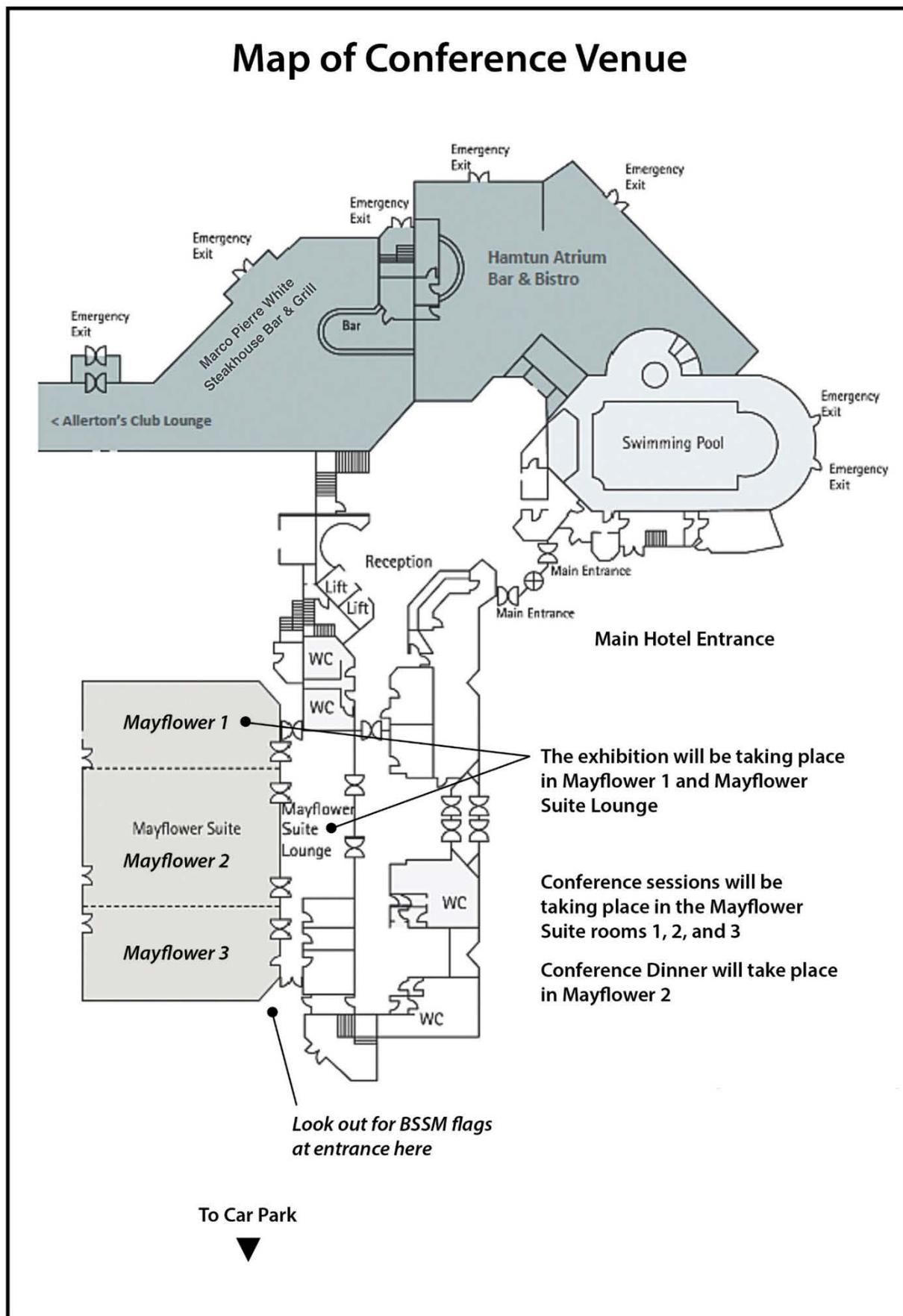
I hope you enjoy the conference, the scientific and technical interchange and the social events. We hope to see you at future events, which are highlighted at the end of this booklet.

Professor Simon Quinn, University of Southampton, Conference Chairman

Overview of Conference Programme and Events

Venue: The conference takes place the Mayflower Suite of the Grand Harbour Hotel, the venue map shown below. Plenary sessions will be held in Mayflower 2, with parallel sessions using Mayflower 1, 2 and 3.

General conference enquiries: these are to be made to the BSSM conference registration desk. University of Southampton PhD students will be providing additional support; when they are on duty they will be identifiable by their yellow sashes. If you require any assistance during the conference, please do not hesitate ask.



Scientific Programme: see the final conference programme, which is included separately in your delegate pack. The submitted abstracts for the papers in the conference paper are provided here: www.bssm.org/2018abstracts

Wifi access: select wifi and select hotel wifi and then follow the log on instructions.

Lunches and Refreshments: are served as follows on each day of the conference:

	Day 1	Day 2	Day 3
Morning:	Mayflower Suite Lounge	Exhibition*	Mayflower Suite Lounge
Lunch:	Marco Pierre White restaurant	Exhibition*	Marco Pierre White restaurant
Afternoon:	Mayflower Suite Lounge	Exhibition*	Mayflower Suite Lounge

**Mayflower 1 and Mayflower Suite Lounge*

Information for presenters: The session chairmen have been asked to keep to a tight schedule so delegates can move around the parallel sessions, please ensure you keep to time (15 minutes and 5 minutes for questions for the general papers). Laptops are available in each of the sessions for you to upload your presentation. Please upload well ahead of your session and check that the presentation works. If you wish to use your own laptop then please check this works with the AV. Please use the microphones, which are available in each room. There will be a member of the conference support team in each room during the sessions and the breaks to help you - they are easily identified as they will be wearing a yellow sash. Please also make sure you make yourself known to the session chairman prior to your session.

Welcome Reception: This will take place on day 1 of the conference at the University of Southampton. There will be a light buffet served of Indian Cuisine with complementary soft drinks, wine and beer. After which you may join the tour of facilities, which includes a visit to our X-ray CT suite and demonstrations in our laboratories that include high speed imaging, thermography, DIC and biomechanics. The tour has been set-up especially for the conference delegates by the research staff and students of the University of Southampton and provides a unique insight into our research activities. Coaches will leave the Grand Harbour Hotel at 17:30 and return from the University at 20:30.

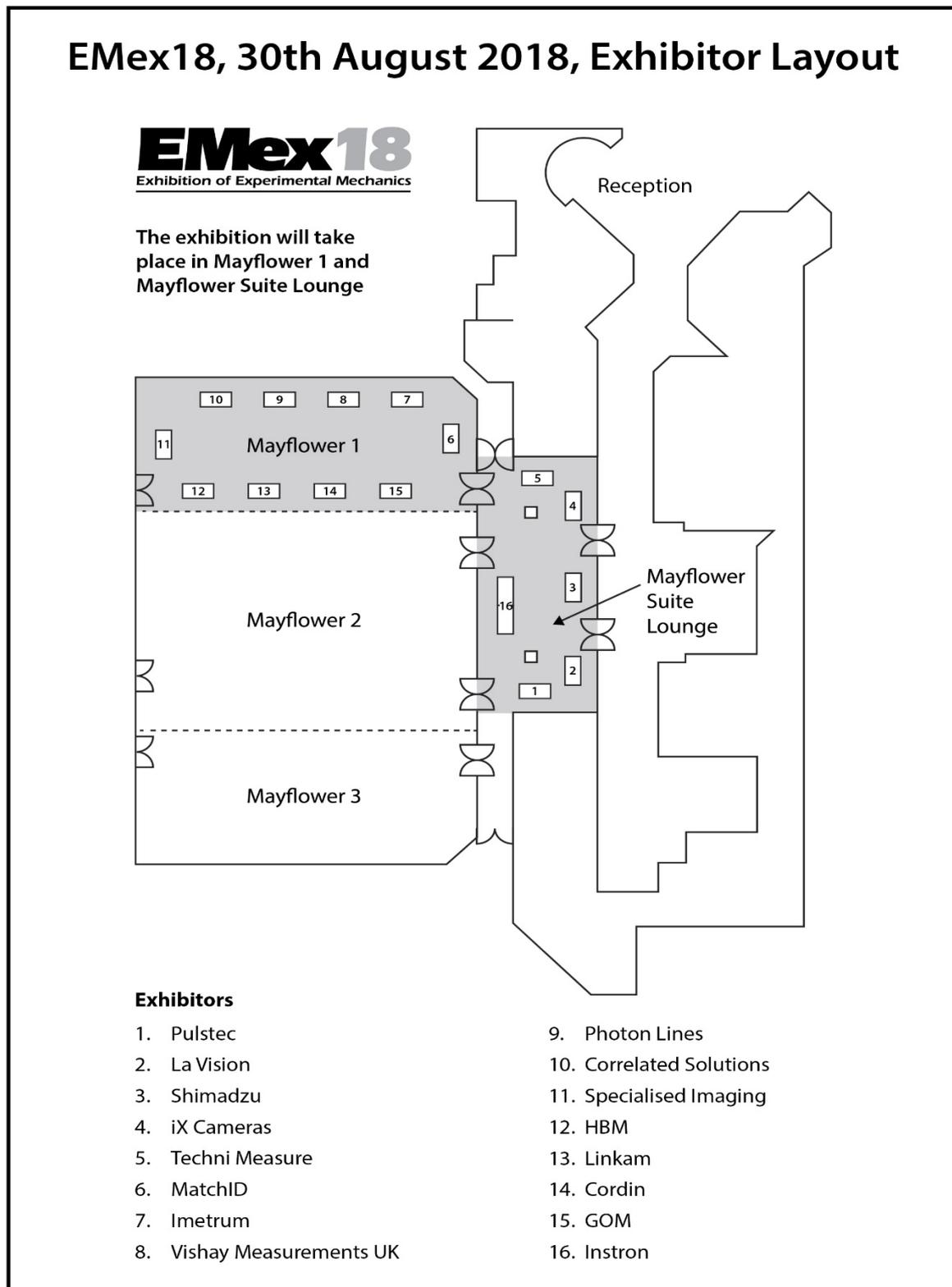
Young Stress Analyst Competition: an annual competition that is intended to encourage and reward young practitioners in the field of experimental mechanics. The final of the competition takes place on the afternoon of day 2 of the conference. The finalists have been selected by a panel of expert judges and will present their work in a plenary session, where another panel of judges will select the most technically outstanding and best presented work. The competition is generously sponsored by Airbus and all finalists receive a cash prize. A booklet containing the abstracts from the four YSA finalists is included in your delegate pack.

BSSM Annual General Meeting (AGM): This is the annual open business meeting of the BSSM all conference delegates are welcome to take part and comment on BSSM activities in Mayflower 3 at 17:30 on day 2.

Chairman's Gala Reception and Awards Ceremony: takes place in Mayflower 2, beginning at 19:00 on day 2 of the conference. There will be a three course buffet served over the course of the evening. Delegates will be supplied with a menu on arrival. Dress code is smart casual.

Exhibition

The EMex18 Exhibition is in Mayflower 1 and the Mayflower Suite Lounge on Day 2 of the conference, open from 11:00 until 16:30. At 10:40 exhibitors will give a short 1 minute pitch style presentation in a plenary session in Mayflower 2, which provides an overview of the exhibition and which stands you may wish to visit.



Invited Speakers:

Plenary 1: Professor Daniel Rittel, Technion, Israel, *“The engineer’s perspective on dynamic shear localization”*

Daniel Rittel holds a PhD in Materials Science (1988) from the Hebrew University of Jerusalem. He spent 2 years as a postdoc at Yale University before moving to Ecole Polytechnique. He joined Technion (Mechanical Engineering) in 1994 where he founded the Dynamic Fracture Laboratory, and is currently the Zandman Chair in Experimental Mechanics and heads the Materials Mechanics Centre. He has developed expertise in many aspects of dynamic failure, including fracture mechanics, constitutive behaviour, dynamic failure mechanisms and numerical modelling. He has research interests in the thermomechanics and physics of dynamic failure, and in the field of dental biomechanics. He has authored about 170 journal publications and is a Fellow of the Society for Experimental Mechanics (SEM) and of the American Society of Mechanical Engineers (ASME). Daniel has been awarded the prestigious Gili Agostinelli Prize (Torino Academy of Sciences, Italy), in 2015 and the B. Lazan award from SEM in 2018 for his work on adiabatic shear localization.

Plenary 2: Professor Raffaella De Vita, Virginia Tech, USA, *“Taking the (female pelvic) floor to talk about experimental mechanics”*

Raffaella De Vita is an associate professor in the Department of Biomedical Engineering and Mechanics at Virginia Tech. She received her laurea in mathematics from Seconda Università degli Studi di Napoli, Italy, in 2000 and her M.S. and Ph.D. from University of Pittsburgh in 2003 and 2005, respectively. She is the recipient of the American Society of Biomechanics President’s Award, NSF CAREER award, and 2012 PECASE award. Her research focuses on determining the relationship between the mechanical behaviour and complex structure of biological systems with emphasis on the female pelvic floor tissues, using approaches that combine physically sound theoretical models with novel experimental methods.

Measurements Lectures: Each year a distinguished researcher or industrialist in the field of experimental mechanics based in the UK is selected to present their work at the BSSM annual conference. This year the conference is fortunate to be holding two measurements lectures.

2017: Professor Margaret Lucas, School of Engineering, University of Glasgow, *“Characterising the behaviour of ultrasonic devices”*

Margaret Lucas was awarded a BSc(Eng in Mechanical Engineering from the University of Aberdeen then studied for her PhD in power ultrasonics in the Department of Mechanical Engineering at Loughborough University, where she was subsequently appointed as a Lecturer in 1990. In 1996 she joined the University of Glasgow where she is currently Professor of Ultrasonics and a Head of Division in the School of Engineering. Her group, Medical & Industrial Ultrasonics (MIU), now has 7 academic staff and around 35 researchers, covering ultrasound materials, therapeutic ultrasound, ultrasonic surgical devices, and manufacturing and space applications of high power ultrasonics. She is currently Vice-President of the Ultrasonic Industry Association and an Associate Editor of Ultrasonics.

2018: Professor Bruce Drinkwater, University of Bristol, UK, *“Accurate non-destructive defect characterisation using ultrasonic measurements”*

Bruce Drinkwater joined the Mechanical Engineering Department at the University of Bristol in 1996, after obtaining B.Eng. and Ph.D. degrees from Imperial College. He was promoted to Professor of Ultrasonics in 2007 and now leads the Ultrasonics and NDT research group. His current research interests include ultrasonic array imaging for NDT, as well as acoustic tweezers and tractor beams. His NDT research has led to the successful commercialisation of an array wheel probe and the imaging techniques he helped to develop are now widely used in industry. His current research focuses on the measurement of ultrasonic scattering signatures to characterise defects such as cracks and inclusions.

BSSM Fylde Electronics Best Paper in ‘Strain’ Prize: The prize is awarded annually for the best paper in Strain supported by the generosity of Fylde Electronics. A shortlist of papers is created by the Editor and Associate Editors based on referees comments on the papers. The papers are then assessed by a panel of experts from the BSSM and the Strain Editorial Board based on novelty, technical challenge and potential impact. In 2017 the prize was awarded to *“Dynamic contact strain measurement by time-resolved stroboscopic energy dispersive synchrotron X-ray diffraction”*, by M. Mostafavi, D.M. Collins, M.J. Peel, C. Reinhard, S.M. Barhli, R. Mills, M.B. Marshall, R.S. Dwyer-Joyce, T. Connolly. ***Dr Mahmoud Mostafavi, of University of Bristol, UK, will present the work.***

BSSM Annual Conference 2019

The BSSM's 14th International Conference on Advances in Experimental Mechanics will be held in Belfast, from 10 to 12 September 2019. The Conference chair is Professor Adrian Murphy, from Queen's University Belfast, who will welcome you, with Visit Belfast, in the closing plenary session. The conference will be held at Riddell Hall, with a welcome reception on 10 September at Belfast City Hall, and the conference dinner venue will be the Great Hall at Queen's University Belfast.

BSSM Future Events

Experimental strains in Orthopaedic Biomechanics using Digital Correlation techniques

1 - 3 November 2018

Portsmouth, UK

Real-time Damage Tracking in Engineering Structures

21 November 2018

London, UK (this event is free to attend but registration is required)

Fourth Postgraduate Experimental Mechanics (PGEM) Conference

6 -7 December 2018

Glasgow, UK

International Workshop on Graphene and Carbon Nanotubes in Experimental Mechanics

15 May 2019

Manchester, UK

Visit www.bssm.org/events for further details including registration.