

BSSM 20th International Conference on Advances in Experimental Mechanics

Tuesday 8th September 2026
Swansea Arena, Swansea, UK

08:30	Registration and Refreshments	
09:30	Welcome – Professor Hari Arora, Conference Chair, Swansea University	
	Room 1	Room 2
	Session 1.1a DIC Methods, Simulation & Uncertainty Quantification Chair:	Session 1.1b Residual Stress Chair:
10:00	A Scalable Open-Source 2D Digital Image Correlation (DIC) Engine Capable of Handling Gigapixel Images Joel Hirst UK Atomic Energy Authority	Solid State Phase Transformation and Restraint in Residual Modelling of 100+ Pass Low-Alloy Steel Welds Robin C Laurence University of Manchester
10:20	Generating DIC speckle patterns via ray tracing for uncertainty quantification on curved surfaces Wiera Bielajewa UK Atomic Energy Authority	SimSetup: An Integrated Digital Workflow for Planning and Analysing Residual Stress Measurements on Engin-X Ruiyao Zhang ISIS Neutron and Muon Source
10:40	Long Term Stability of Stereo-DIC Calibration Rory Spencer UK Atomic Energy Authority	Evaluation of Residual Stresses in Rotary Friction Welds Between Dissimilar Steels Using an Interlayer Shixian Yue University of Manchester
11:00	pyvale.zraster: A Performant Software Rasteriser for Digital Image Correlation Uncertainty Quantification Lloyd Fletcher UK Atomic Energy Authority	Influence of Residual Stress on Fatigue Crack Growth of Ferritic Steel Maliha Irfan Imperial College London
11:20	Correlated Solutions – Technical Presentation	
	Session 2.EM Plenary Session Chair: Professor Hari Arora, Swansea University	
11:30	EMex: Meet the Exhibitors	
12:00	Lunch and Exhibition	
	Room 1	Room 2
	Session 1.2a Materials Testing 2.0 & Virtual Fields Method Chair:	Session 1.2b Metals, Microstructure & HRDIC Chair:
13:20	Extracting Anisotropic Plasticity from a Single Heterogeneous Test Using Full-Field Measurements Miroslav Halilović University of Ljubljana	Using in-situ HRDIC bend testing to examine local-stress state driven plasticity in pure copper Ben Poole UK Atomic Energy Authority
13:40	Mapping the spatially varying yield strength of welded joints Robert Hamill UK Atomic Energy Authority	Effect of Electron Beam Welding on Microstructure and Mechanical Behaviour of Near-? Titanium Alloy Meng Tong University of Manchester
14:00	Identification of Elasto-Plastic Property of Aluminium Alloy Under Multiple Mechanical Tests Makoto Uchida Osaka Metropolitan University	
14:20	Plenary Session 1.P Plenary: Professor Caitríona Lally, Trinity College Dublin, Ireland Chair: Exploring The Synergistic Effect Of Calcification And Structural Damage on Bioprosthetic Heart Valve Leaflets Using Bespoke In-vitro Testing	
15:10	Break and Exhibition	
	Room 1	Room 2
	Session 1.3a Biomechanics & Soft Matter 1 Chair: Hari Arora	Session 1.3b Aerospace Applications & Large Structures DIC Chair:
16:10	Characterizing External Pressure in Compression Garments Using a Modular Test Rig: Design and Validation Angelo Karunaratne Swansea University	Digital image correlation (DIC) & testing of aerospace components for Hydrogen Powered Gas Turbines Aikaterini Katsouli Swansea University
16:30	Digital Image Correlation for Biomaterial Characterisation: Challenges and Applications in Soft Tissue Waleed Albustami Swansea University	Integrating Multi-System DIC into Hybrid Testing for Large-Scale Testing of Aerospace Structures Ramani Sankar Rajendran Airbus UK
16:50	Ex vivo experimental investigations and modelling of visco-hyperelastic behaviour of the human facial tissues Eyad Awad Swansea university	Measurement of Full-Field 3D Displacement of Large Structures using a Multi-camera stereo-DIC System Jangam Babu IIT Madras
17:10	Realtime permeability estimation during tissue growth within different scaffold designs Feihu Zhao Swansea University	Biaxial Response of Composite Propellant at Low Temperature: Effect of Displacement Rate and Biaxiality Ratio Aakash Kumar IIT Madras
17:30	Close of Day 1	
18:00	Drinks and Buffet Networking Reception - The Observatory, Oystermouth Road, Swansea	

Wednesday 9th September 2026

	Room 1	Room 2
	Session 2.1a DIC Model Validation & Digital Twins Chair:	Session 2.1b Fatigue & Fracture 1 Chair:
09:00	Impact of depth of field reduction on stereo DIC-based model validation Vahid Firouzbakht MatchID NV	Prediction of Creep Crack Growth in 316H Stainless Steel Clarynnsia Lai Imperial College London
09:20	Validation of Electromagnetic Load Simulations for Fusion by Digital Image Correlation (DIC) Adel Tayeb UK Atomic Energy Authority	Through-Thickness Fracture Analysis of a Ductile Steel by Observing 3D Surface Displacements David Asquith Sheffield Hallam University
09:40	On the high-fidelity digital twinning of image-based mechanical tests in an HPC environment Pascal Bouda Université Paris-Saclay, CEA	Heat error reduction in real-time DIC measurements for high temperature biaxial crack growth trials Andreas Blug Fraunhofer IPM
10:00	A Radiometric Digital Twin of the Measurement Space for Digital Image Correlation Experiments Owen Tyley University of Bristol	Applying fracture toughness test methods to specimens additively manufactured by filament-deposition methods Peter Bailey Instron
10:20	Round table discussion on Experimental Verification of Computational Models	How stress concentration factors affect the flexural behaviour of ceramic matrix composites Rowan Downey Swansea University
10:40	Break and Exhibition	
	Room 1	Room 2
	Session 2.2a Biomechanics & Soft Matter 2 / Medical Chair: Hari Arora	Session 2.2b Infrared, Thermal & TSA Chair:
11:20	Application of Surface Strain Measurements to Assess Structural Morphology in Medical Applications Izabela Nowakowska Heriot-Watt University	Thermoelastic Stress Analysis under signal undersampling conditions Giuseppe Pitarresi University of Palermo
11:40	Exploring Mechanical Treatments to Reduce Calcification in Bioprosthetic Heart Valves Ryan Ginley Trinity College Dublin	Validation of a New Modelling Framework for TSA of CFRP Components Janice Barton University of Bristol
12:00	Image-based fracture mechanics of cortical bone during in situ Sr-micro-CT three-point bending Marcin Sikorski Heriot-Watt University	Full-Field Uncertainty Quantification of Thermographic Phosphor Digital Image Correlation Caroline Winters National Physical Laboratory
12:20	3DASE A Novel 3D Strain Measurement Technique Applied to Needle Insertion in Gel Brain Phantom Thomas Pritchard Swansea University	TSA of Carbon/Epoxy Composite Laminates Under Cyclic Loading Using Harmonic Amplitude Characterisation Shun Tomizawa University of Bristol
12:40	Human and Rat Lung DIC Strain Comparisons: A Preliminary Study Mona Eskandari University of California, Riverside	3D Decomposition of uncalibrated thermoelastic emission data for automated damage monitoring Joseph Eyres University of Liverpool
13:00	Lunch and Exhibition	
	Room 1	
	Session 2.YSA BSSM Young Stress Analyst Competition - Finalists Chair: Neha Chandarana	
14:00	Decoding Additively Manufactured Functionally Graded Metals Using the Virtual Fields Method Maximalian Kephart Colorado School of Mines	
14:25	High Level Strain Sensors: The first step, a functional electrode Alexandra Perryman Swansea University	
14:50	Homogeneity & Biofidelity of Fabric-Reinforced Elastomers as Arterial Mechanical Reference Materials Matijs Loeckx KU Leuven	
15:15	Mechanical performance of a 3D-printed Distributed Fiber Optic Sensor (DFOS) María Paula Flores Espino Université Gustave Eiffel	
15:40	Break and Exhibition	
	Room 1	
16:00	Session 2.P Measurements Lecture Chair: Professor Michael Sutton, University of South Carolina, USA Recent Developments in Characterization of Advanced Material Response	
17:00	Close of Day 2	
19:00	Conference Dinner - Swansea Arena, Main Hall	

Thursday 10th September 2026

	Room 1	Room 2	Room 3
	Session 3.1a Impact, Blast & High Strain Rate Chair:	Session 3.1b Fatigue & Fracture 2 / Nuclear Materials Chair:	Session 3.1c Novel Experimental Methods & Sensing Chair:
09:00	Mesoscale Mechanical Testing: Possibilities for High Strain Rate Characterisation Arijit Lodh Research Fellow	Experimental Method for Testing Fracture Toughness of RVP Steel at High Speed and Small Sized Samples Ben Sargeant Imperial College London	2D mapping of volume change in sheet elastomer testing using back-to-back stereo DIC systems Fabrice Pierron MatchID NV
09:20	DIC of plate behaviour under buried blast loading, residual displacement, and correlation with spall pattern Ross Waddoups University of Sheffield	UKAEA Material Research Facility – Mechanical Testing Capability Henk Nollies UK Atomic Energy Authority	Coupled In-Situ Contact Mechanics and Electrical Performance in Triboelectric Nanogenerators Charchit Kumar IIT Madras
09:40	Inferring spatial pulse from DIC of near field blast loaded plates Richard Curry University of Sheffield	Investigating the Effects of Yttrium Additions on the Tensile and Creep Properties of Modified RAFM Steel Talal Said Abdullah Swansea University	Transense SAW Sensors for Torque and Temperature Measurement in next-generation smart electric drive systems Tomasz Rybak Transense Technologies PLC
10:00	Dynamic Response of AISI 1045 Steel under Split Hopkinson Pressure Bar Loading Arman Mozaffary University of Sheffield	Early-Stage Failure Predictions in Fusion Materials using Machine Learning Joshua C Lee University of Sheffield	Predicting Specific Energy Absorption of Bioinspired UHMWPE-Kevlar Armour Structure using surrogate modelling M Ghowtham IIT Madras
10:20	Measuring Dynamic Tensile Properties of Saturated Concrete in Spalling Tests using DIC-VFM Approach Mushfiqullah Sapay Université Grenoble Alpes	Digital Image Correlation (DIC) for Plastic deformation Assessment of High-Strength Nuclear Steel Zuhair Faruq Namiq University of Kirkuk	Comprehensive investigation of static and fatigue performance of Fiber Bragg Grating, Digital Image Correlation Salim Çalışkan Turkish Aerospace
10:40	Break and Exhibition		
	Session 3.P1 Plenary Session and Strain Best Paper Chair:		
11:30	Plenary Speaker: Professor Lizzy Cross, University of Sheffield, UK Modelling structures with physics and data		
12:15	Fylde Best Paper in 'Strain' for 2025: Towards a Digital Virtual Twin for Heterogeneous Thermomechanical Experiments Alessandro Lambrughì KU Leuven, Belgium		
13:00	Lunch and Exhibition		
	Session 3.2a Composites, Optical Fibre Sensing & Structural Testing Chair:	Session 3.2b Additive Manufacturing Chair:	
14:00	A New Testing Method for Implementing Diaphragm Pre-Tensioning in Double Diaphragm Forming Ali Tabatabaieian Loughborough University	Accelerated Creep Testing of Laser Powder Bed Fusion Ti6Al4V Amy Milne Imperial College London	
14:20	Characterisation of filament wound carbon fibre composites through open-ended pressure testing Jordan Forbes-Thomas University of Bristol	Multi-point hinge displacement characterisation in a 316L additively manufactured re-entrant auxetic Matthew Roy University of Manchester	
14:40	High Aspect-Ratio Flat Optical Fibres for In-Situ Multi-Axial Strain Sensing in CFRP Laminates Robin Hartley University of Bristol	Additive manufacturing of inherently damped titanium structures Kacper Uzdowski University of Edinburgh	
15:20	Plenary Session Closing Session – Conference Chair & next Conference Chair		
15:40	Conference Close		