

BSSM 20th International Conference on Advances in Experimental Mechanics

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Swansea Arena, Swansea, Wales, UK

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Tuesday 8th September 2026

8:30	Registration and Refreshments - Level 2	
	FSG VIP Lounge	
9:30	Welcome – Professor Hari Arora, Conference Chair, Swansea University	
	FSG VIP Lounge	The Peter Lynn and Partners Suite
	Session 1.1a DIC Methods, Simulation & Uncertainty Quantification Chair: Mike Sutton	Session 1.1b Residual Stress Chair: Matthew Roy
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	Influence of Residual Stress on Fatigue Crack Growth of Ferritic Steel Maliha Irfan Imperial College London
11:00	pyvale.zraster: A Performant Software Rasteriser for Digital Image Correlation Uncertainty Quantification Lloyd Fletcher UK Atomic Energy Authority	
11:20	Latest Developments in Digital Image Correlation for FEA Comparison Alistair Tofts Correlated Solutions	
	Session 1.EM Plenary Session Chair: Hari Arora, Swansea University	
11:30	EMex: Meet the Exhibitors	
12:00	Lunch and Exhibition - Level 0	
	FSG VIP Lounge	The Peter Lynn and Partners Suite
	Session 1.2a Materials Testing 2.0 & Virtual Fields Method Chair: Fabrice Pierron	Session 1.2b Metals, Microstructure & HRDIC Chair: David Asquith
13:20	Extracting Anisotropic Plasticity from a Single Heterogeneous Test Using Full-Field Measurements Andraž Maček 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- β 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 Sponsored by SinceVision Plenary: Professor Cairiona Lally, Trinity College Dublin, Ireland Chair: Hari Arora Exploring The Synergistic Effect Of Calcification And Structural Damage on Bioprosthetic Heart Valve Leaflets Using Bespoke In-vitro Testing	
15:10	Refreshment Break and Exhibition - Level 0	
	FSG VIP Lounge	The Peter Lynn and Partners Suite
	Session 1.3a Biomechanics & Soft Matter 1 Chair: Shakir Jifri and Yannis Polydoros	Session 1.3b Aerospace Applications & Large Structures DIC Chair: Richard Curry
16:10	Realtime permeability estimation during tissue growth within different scaffold designs Feihu Zhao Swansea University	Digital image correlation (DIC) & testing of aerospace components for Hydrogen Powered Gas Turbines Aikaterini Katsouli Swansea University
16:30	Characterizing External Pressure in Compression Garments Using a Modular Test Rig: Design and Validation Angelo Karunaratne Swansea University	Integrating Multi-System DIC into Hybrid Testing for Large-Scale Testing of Aerospace Structures Ramani Sankar Rajendran Airbus UK
16:50	Digital Image Correlation for Biomaterial Characterisation: Challenges and Applications in Soft Tissue Waleed Albustami Swansea University	Measurement of Full-Field 3D Displacement of Large Structures using a Multi-camera stereo-DIC System Jangam Babu IIT Madras
17:10	Ex vivo experimental investigations and modelling of visco-hyperelastic behaviour of the human facial tissues Eyad Awad 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 Hot Buffet Networking Reception - The Observatory, Oystermouth Road, Swansea	

Wednesday 9th September 2026

8:30	Registration and Refreshments - Level 2	
	FSG VIP Lounge	The Peter Lynn and Partners Suite
	Session 2.1a DIC Model Validation & Digital Twins Chair: Ksenija Dvurecenska	Session 2.1b Fatigue & Fracture 1 Chair: Catrin Davies
9:00	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
9:20	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
9:40	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	Patch Repair of Impact-Damaged CFRP: Effects of Patch Material and Laminate Thickness Adit Jasra University of the West of England
10:40	Refreshment Break and Exhibition - Level 0	
	FSG VIP Lounge	The Peter Lynn and Partners Suite
	Session 2.2a Biomechanics & Soft Matter 2 / Medical Chair: Catriona Lally	Session 2.2b Infrared, Thermal & TSA Chair: Will Christian
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	Round table discussion on Experimental Challenges in Biomechanics	3D Decomposition of uncalibrated thermoelastic emission data for automated damage monitoring Joseph Eyres University of Liverpool
13:00	Lunch and Exhibition - Level 0	
	FSG VIP Lounge	
	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 Maximilian Kephart Colorado School of Mines	
14:25	High Level Strain Sensors: The first step, a functional electrode Alexandra Perryman Swansea University	
14:50	Homogeneity & Bioidentity 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) Maria Paula Flores Espino Université Gustave Eiffel	
15:40	Refreshment Break and Exhibition - Level 0	
	FSG VIP Lounge	
16:00	Session 2.P Sponsored By Instron Measurements Lecture Chair: Daniel Mulvihill Professor Michael Sutton, University of South Carolina, USA Recent Developments in Characterization of Advanced Material Response	
17:00	Close of Day 2 - If delegates are not going to their hotels during this break, then we recommend a walk on the beach or "The Swigg" at the National Waterfront Museum	
18:30	Pre-dinner drinks Reception - Swansea Arena, Main Hall	
19:00	Conference Dinner - Swansea Arena, Main Hall	

Thursday 10th September 2026

8:30	Registration and Refreshments - Level 2		
	FSG VIP Lounge	The Peter Lynn and Partners Suite	Gower Gold Lounge
	Session 3.1a Impact, Blast & High Strain Rate Chair: Angelo Karunaratne	Session 3.1b Fatigue & Fracture 2 / Nuclear Materials Chair: Rory Spencer	Session 3.1c Novel Experimental Methods & Sensing Chair: David Kumar
9:00	Mesoscale Mechanical Testing: Possibilities for High Strain Rate Characterisation Arijit Lodh Cranfield University	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
9:20	Inferring spatial pulse from DIC of near field blast loaded plates Richard Curry University of Sheffield	UKAEA Material Research Facility – Mechanical Testing Capability Henk Nolles UK Atomic Energy Authority	Coupled In-Situ Contact Mechanics and Electrical Performance in Triboelectric Nanogenerators Charchit Kumar IIT Madras
9:40	DIC of plate behaviour under buried blast loading, residual displacement, and correlation with spall pattern Ross Waddoups 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	Experimental SHPB Characterisation of AISI 1045 Steel for Machining Applications Arman Mozaffary University of Sheffield	Early-Stage Failure Predictions in Fusion Materials using Machine Learning Joshua C Lee University of Sheffield	Evaluation of Residual Stresses in Rotary Friction Welds Between Dissimilar Steels Using an Interlayer Shixian Yue University of Manchester
10:20	Measuring Dynamic Tensile Properties of Saturated Concrete in Spalling Tests using DIC-VFM Approach Mushfiqullah Sapay Université Grenoble Alpes		
10:40	Refreshment Break and Exhibition - Level 0		
	Session 3.P1 Sponsored by Correlated Solutions Plenary Session and Strain Best Paper Chair: Janice Barton		
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 Lambrughi KU Leuven, Belgium		
13:00	Lunch and Exhibition - Level 0		
	Session 3.2a Composites, Optical Fibre Sensing & Structural Testing Chair: Peter Bailey	Session 3.2b Additive Manufacturing Chair: Feihu Zhao	
14:00	A New Testing Method for Implementing Diaphragm Pre-Tensioning in Double Diaphragm Forming Ali Tabatabaeian 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 Hari Arora		
15:40	Conference Close		
	Tea and Coffee will be available before departure on Level 0		