

BSSM 19th International Conference on Advances in Experimental Mechanics

City and Guilds Building, Imperial College London, UK

Tuesday 2nd September 2025			
09:00	Registration and refreshments CAGB Ground Floor. Foyer behind main reception desk		
09:30	Welcome - Catrin Davies, Imperial College London CAGB LT300		
	CAGB LT300	CAGB LT309	Skemp 201
	Session 1.1a Chair: Matthew Roy Residual Stress	Session 1.1b Chair: Christoph Schwingshackl Aero Applications	Session 1.1c Chair: Richard Curry High-Rate Deformation and Blast Loading
10:00	Non-Uniform Residual Stress Measurement Using Incremental Hole-Drilling Method and Digital Image Correlation Dávid Halabuk Brno University of Technology	Experimental Study of a High-Speed Rotor Supported by Aerodynamic Bearings Under Base Excitation Gabriel Cabaj Brno University of Technology	Digital image correlation for composites under impact Gustavo Quino Quispe Imperial College London
10:20	Residual stress prediction by element birth within a digital twin of a wire arc additive manufacturing cell Robin Laurence University of Manchester	Geometry-induced effects in acoustic emission testing of composite structures Ana Beatriz Quelhas Oliveira e Moreira University of Bristol	Measurement of Thermomechanical Response Under Transient Reverse Loading and Its Application to Advanced Alloy Longhui Zhang SCUT & University of Oxford
10:40	Machine learning assisted rapid residual stress simulation for laser powder bed fusion additive manufacturing Ruiyao Zhang ISIS Neutron and Muon	Enriching experimental training data for transient Signal Detection in Aircraft Engines Yijia Guo Imperial College London	Nanomechanical Testing in Extreme Environments: High Strain Rate Nanoindentation at High Temperatures Renato Pero Alemnis AG
11:00	Suitability of the contour method for reliable local residual stress maps in cold gas sprayed repairs† Florian Lang Karlsruhe Institute of Technology	Modelling on Process-microstructure-property (PMP) Relationship of 2195 Al-Li Alloy Huabo Zhou Harbin Institute of Technology	Exploring the Application of High-Speed Camera in Digital Image Correlation (DIC) Kevin Cheng SinceVision technology
11:20	Break CAGB Rooms 649-652		
	CAGB LT300	CAGB LT309	Skemp 201
	Session 1.2a Chair: Mateusz Kopec Fatigue Crack Initiation and Growth in Alloys	Session 1.2b Chair: Eann Patterson Advanced Mechanical Testing	Session 1.2c Chair: David Kumar Polymers and Composites
11:50	Impact of Welding Residual Stress on Fatigue Cracks and a Low-Cost Surrogate Method for Sample Preparation Jialin Wang University of Bristol	Toward Ultrasonic Hydrogel Devices: A Protocol for Stimulus-Dependent Bulk Wave Characterization Katherine Nelms University of Bristol	The influence of void cells on the microstructure of thermoplastic polymers TPE-S and TPE-V Ismahen Zaafour Institute of Physics, Rennes
12:10	Residual Stress Effects on the Fatigue Crack Growth of 316H Stainless Steel Martin Gillet Imperial College London	Relation between free volume and thermodynamic entropy generation during tensile deformation† Takenobu Sakai Saitama University	Characterization and modeling of mechanical behavior of polymer TPS and TPV reinforced by voids cells David Kerihuel Institute of Physics, Rennes
12:30	Influence of Corrosion on Fatigue Crack Growth of High Strength Steels Monisha Manjunatha University of Strathclyde	User friendly method to solve the inverse problem with heterogenous material properties Benjamin Cameron University of Southampton	Experimental characterisation on open-hole compression of CFRP with hybridisation of carbon/glass fibres Xuanye Hu University of Bristol
12:50	Lunch and Exhibition - Level 6 CAGB Rooms 649-652		

	CAGB LT300		
14:00	Plenary Session Dr Fred Cegla, Department of Mechanical Engineering, Imperial College London Chair: Catrin Davies <i>Non-destructive ultrasonic monitoring of stress, strain, temperature and material properties</i>		
	CAGB LT300	CAGB LT309	Skemp 201
	Session 1.3a Chair: Fabrice Pierron Material Testing 2.0	Session 1.3b Chair: Gustavo Quino Quispe Advanced Mechanical Testing 2	Session 1.3c Chair: Hari Arora Bio Based Materials 1
15:00	Shape Optimisation for Creep Testing 2.0 Rory Spencer UK Atomic Energy Authority	Gaussian Process Latent Force Models for Point Load Estimation using Distributed Strain Measurements David Goodman University of Sheffield	Mechanical Characterization of the Pancreas Under Quasi-Static Compression Aminata Diarra Université of Rennes
15:20	Material Testing 2.0: Uncertainty Quantification for Accelerated Creep Tests Alexander Fieldsend University of Oxford	Investigation of Ultrasonic-Assisted Consolidation in Multi-Layered Thermoplastic Composites Andrew Feeney University of Glasgow	Sub-3 nm Pt3Ni nanoparticles for urea-assisted water splitting Kaixin Jiang Northumbria University
15:40	Experimental Validation of the EUCLID Framework for Automated Discovery of Hyperelastic Material Models† Arefeh Abbasi ETH Zürich	Residual stresses and deformations generated in laser powder bed fusion of thin metallic samples Eann Patterson University of Liverpool	Mechanical characterization of chemically etched trabecular scaffolds† Mudassar Khalil Loughborough University
16:00	Break and Exhibition CAGB Rooms 649-652		
	CAGB LT300	CAGB LT309	Skemp 201
	Session 1.4a Chair: Rory Spencer High Temperature Testing	Session 1.4b Chair: Neha Chandarana Infrared & Thermal Methods 1	Session 1.4c Chair: Hari Arora Bio Based Materials 2
16:30	Multiscale Investigation of the Creep Damage Mechanisms in CuCrZr alloy using High Resolution and Optical Digi Parth Nilkanth Kulkarni The Open University	On the use of infrared thermography to select more sustainable fillers for natural rubber components Doriane Auché Institute of Physics, Rennes	Mechanical properties of bio-resorbable and non-resorbable bulk metallic glasses Shangmou Yang Loughborough University
16:50	Hot Tension and Creep Ranking of 3D printed ODS Nickel-base Superalloys Kojo Benefo The Ohio State University		Soft matter based Biomimetic Wound Healing Material Bin Xu Northumbria University
17:10	Uniaxial Compression Properties of Ti6Al4V Manufactured by Laser Powder Bed Fusion Amy Milne Imperial College London		Compressive Behavior of Cuttlebone-Inspired Design: A Computational study on Structural Scaling Yokesh S IIT-Madras
18:00	Drinks and Buffet - Eastside Bar, Prince's Gardens, London		

Wednesday 3rd September 2025			
	CAGB LT300	CAGB LT309	Skemp 201
	Session 2.1a Chair: Yevgen Gorash Fatigue & Fracture of Alloys	Session 2.1b Chair: Wei Fan Additive Manufacturing of Polymers and Composites	Session 2.1c Chair: Lloyd Fletcher Multiscale Approaches to Strain Characterisation
09:00	Stroboscopic neutron diffraction to capture crack closure during high cycle fatigue Simon McKendrey University of Bristol	The experimental investigation of shear response of epoxy matrix under compression Bohao Zhang University of Bristol	VDASE a Novel Volumetric Strain Measurement Technique Based on Shake the Box Particle Tracking Thomas Pritchard Swansea University
09:20	Review of Fracture Toughness Assessment Methods using Experimental Data from RPV Steel Sub-sized Specimens Ben Sargeant Imperial College London	In Situ Study of Deformation and Fracture in a 3D Printed Short Fibre Composite Chunxi Mo University of Oxford	Investigating of local strain evolution of three different strain path using full kinematic field measurements Raphaël Le Franc University of Rennes
09:40	High-temperature fatigue testing of turbine blades Mateusz Kopec IPPT PAN	Dynamic Characterisation of Additively Manufactured Honeycomb Architectures for Enhanced Energy Dissipation James Lee University of Oxford	Double bridge shear testing of sheet metals using 2D micro-DIC Bojan Starman University of Ljubljana
10:00	Predicting the Fatigue Life of S355 High Frequency Induction Welded Sections Peter Hanna Imperial College London	In situ study of strains in a 3D Printed Composite by Dual X-Ray Imaging and Diffraction Liusiyuan He University of Oxford	Simulated DIC Images for Design and Validation of Cryogenic Mechanical Testing Lorna Sibson UK Atomic Energy Authority
10:20	Evaluation of Frequency Effect for Fatigue using High Strain Rate Tensile Testing Yevgen Gorash University of Strathclyde	Influence of Print Orientation on the Dynamic Fracture Behavior of Two Additive Thermosets Leslie Lamberson Colorado School of Mines	A target-independent sensors-based stereo camera calibration technique enabling 3D-DIC for large structures David Kumar IIT Madras
10:40	Break and Exhibition CAGB Rooms 649-652		

	CAGB LT300
	Session 2.2 Chair: Neha Chandarana Instron Young Stress Analyst Competition
11:10	Correlative nano- to whole-joint-scale strain measurements in the intervertebral disc using TomoSAXS Alissa Parmenter University College London
11:35	SYNCHROTRON X-RAY RADIATION INDUCED DAMAGE IN BONE DURING IN SITU μCT EXPERIMENTS Marcin Sikorski Heriot-Watt University
12:00	Correlating Microstructural Deformation and Slip System Activation Using HRDIC, EBSD, and Crystal Plasticity Michael Salvini University of Bristol
12:25	In-situ Neutron Diffraction Analysis of OFHC Copper Under Low-Cycle Fatigue for Fusion Applications Wan W Mohammad University of Bristol
12:50	Lunch and Exhibition CAGB Rooms 649-652
	CAGB LT300
	Session 2.3 Chair: Catrin Davies Measurements Lecture
14:00	Professor Philippa Reed, Professor of Structural Materials, University of Southampton <i>Characterising fatigue crack deformation zones: effects of microstructure, environment and stress state on strain accumulation</i>
15:00	Break and Exhibition CAGB Rooms 649-652 Lab Tours
	Millennium Hotel and Conference Centre Gloucester London <i>4-18 Harrington Gardens, South Kensington, London SW7 4LH</i>
18.30	Drinks Reception
19.00	Conference Dinner

Thursday 4th September 2025			
	CAGB LT300	CAGB LT309	Skemp 201
	Session 3.1a Chair: Ksenija Dvurecenska Digital Image Correlation and Validation	Session 3.1b Chair: Daniel Mulvihill Micro and Nano Scale Testing and Tribology	Session 3.1c Chair: Gustavo Quino Quispe Advanced Characterization & Applications
09:20	Findable, Accessible, Interoperable and Reusable (FAIR) Digital Image Correlation Data Megan Sampson UK Atomic Energy Authority	High-Speed Imaging of Contact Area Evolution in Dry Metallic Impact Jaffry Jaman Imperial College London	Quantitative Visualization of Cascading Dynamic Crack Bifurcations in Soda-Lime Silicate Glass Hareesh Tippur Auburn University
09:40	Multispectral Mirrorball Images for Improved Virtual Experiments of Digital Image Correlation Setups Owen Tyley University of Bristol	Beyond the Hertz: Limit radius indentation model Vasily Rublev Imperial College London	Shredding of fibre-based multilayer packaging for recyclability assessment Wei Fan Imperial College London
10:00	Measurement of volume change in sheet elastomer testing using back-to-back stereo DIC Fabrice Pierron MatchID NV	Adapting the rotational cone tribometer concept for stern tube seal research Tom Briggs Imperial College London	Experimental study on the coupling effect of knots and thermal radiation in timber William Christian University of Liverpool
10:20	Pyvale: An Open-Source Python Package for Image-Based Simulation Validation Lloyd Fletcher UK Atomic Energy Authority	Influence of silicon phase on the mechanical properties of boron carbide for ballistic applications Pascal Forquin Université Grenoble Alpes	Stereo-measurements with optimal patterns processed by Localised Spectrum Analysis Thomas Jailin Université Clermont Auvergne
10:40	Uncertainty quantification for DIC-based model validation: the influence of undermatched lens distortions Vahid Firouzbakht MatchID NV	Development of a Modular Compression Test Rig for Simulating Human Limb Pressurisation under Wearable Garments Angelo Karunaratne Swansea University	Automated Process for Calibrating Material Cards of Punctiform and Planar Joints in Finite Element Simulations† Tim Wirtz DLR-Vehicle Concepts
11:00	Break CAGB Rooms 649-652		
	CAGB LT300		
	Session 3.2 Chair: Catrin Davies Plenary Session and Strain Best Paper		
11:30	Strain Best Paper - Fylde Prize for 2024 Amar Peshave, Fabrice Pierron, Pascal Lava, David Moens, Dirk Vandepitte <i>Metrics to evaluate constitutive model fitness based on DIC experiments</i>		
12:00	Plenary: Dr Calvin M Stewart, Department of Aerospace and Mechanical Engineering, Ohio State University <i>Materials at Extremes</i>		
13:00	Lunch CAGB Rooms 649-652		

	CAGB LT300	CAGB LT309	Skemp 201
	Session 3.3a Chair: Matthew Roy Testing and Characterisation of Energy Materials	Session 3.3b Chair: William Christian Innovative Methods in Structural and Material Characterization	Session 3.3c Chair: Janice Barton Infrared & Thermal Methods 2
14:00	Through-Thickness Microstructure and Mechanical Properties Evaluation of a TMCP S355ML Steel Plate Hamidreza Badakhshian University of Galway, Ireland	Accurate bridge deflection measurement using drone imagery via phase-based motion analysis Shien Ri AIST	Exploiting the non-adiabatic thermoelastic response for assessment of CFRP Janice Barton University of Bristol
14:20	Strain Concentration around Geometric Features in Welding Wenrui Shao University of Bristol	Digital Image Correlation (DIC) for Fatigue Assessment of High-Strength Nuclear Steel under Low-Cycle Loading Faruq Zuhair Sheffield Hallam University	Infrared based-surface calorimetry unravel many mysteries in the deformation of natural rubber Jean-Benoit Le Cam Institute of Physics, Rennes
14:40	The Impact of Plasma Transient Exposure on Structural Fusion Materials Hannah Tipping University of Bristol	3D DIC for the CTE measurement of complex microelectronic structures Natasha Crossley Heriot-Watt University	Acoustic emission and passive thermography monitoring of transverse cracking in CFRP cross-ply laminates Spyros Spyridonidis University of Bristol
15:00	A hybrid surface fitting module for analysis in the Python Contour Method software Zhe Cai University of Manchester	Mechanical characterisation of bio-based epoxy resin using Shear Compression Specimen Mounika C Karlapudi University of Bristol	Evaluating Thermal Stresses from Measured In-plane Displacements Based on the Principle of Superposition Satoru Yoneyama Aoyama Gakuin University
15:30	Closing Session - Catrin Davies and Hari Arora, Swansea University CAGB LT300 Finish 16.00		

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