

BSSM 18th International Conference on Advances in Experimental Mechanics

Harrison Building, School of Engineering, University of Liverpool

Draft Programme

08:00	Tuesday 3rd September 2024		
	Registration – The Foyer – Harrison Building		
09:00	Introduction and Welcome		
	Hele-Shaw Lecture Theatre		
	Conference Chair: Will Christian, University of Liverpool		
	Hele Shaw Lecture Theatre	Walker Lecture Theatre	Mason Bibby Room
	Session 1.1a Chair:	Session 1.1b Chair:	Session 1.1c Chair:
	Fatigue and Fracture 1	Residual Stresses	Optical and DIC Techniques 1
09:20	Fatigue Crack Growth And Crack Tip Cyclic Plasticity Of 304L Stainless Steel At High ΔK <u>MMJ Gillet</u> , CM Davies Imperial College London, UK	Application of Machine Learning in the Investigation of Residual Stress in Electron Beam Welding <u>G Wang</u> , C Truman, N Larrosa, C Jacquemoud University of Bristol, UK	Initial value estimation using feature-based clustering in DIC for measuring large deformations S Prasad, <u>D Kumar</u> Indian Institute of Technology Madras, India
09:40	Fatigue Life Evaluation in Corner Welded Joints <u>PD Hanna</u> , Y Gao, S Whitfield, CM Davies Imperial College London, UK	Residual stresses and deformations generated in laser powder bed fusion of thin metallic samples P Khanbolouki, E Patterson, C Sutcliffe, <u>J Lambros</u> University of Liverpool, UK	Effect of combined loads in cracked rails using photoelasticity and finite elements <u>G Ramaswamy</u> , K Ramesh, U Saravanan Indian Institute of Technology Madras, India
10:00	Fatigue Crack Detection by Active Infrared Thermography with Low Power Laser <u>Y Murao</u> , D Shiozawa, T Sakagami Kobe University, Japan	Residual Stresses in Inconel 625 Parts Produced Using Atomic Diffusion Additive Manufacturing (ADAM) <u>N Naveed</u> , B Ahmad University of Sunderland, UK	Investigation of the speckle pattern effect for displacement assessments by DIC <u>S Çalışkan</u> , H Akyüz Turkish Aerospace Inc., Turkey
10:20	Assessment of Low Cycle Fatigue Behaviour of OFHC Copper at Room & High Temperatures <u>W Wan Mohammad</u> , M Mokhtarishirazabad, Y Belrhiti, M Mostafavi, C Hamelin, D Knowles University of Bristol, UK	Introduction to Neutron Imaging at IMAT: Radiography, Tomography and Strain Mapping Ruiyao Zhang Science and Technology Facilities Council (STFC), UK	Accurate Strain Distribution Measurement during Large Deformations via Image Scaling Technique <u>S Ri</u> , H Kichijo, M Fikry, S Ogihara National Institute of Advanced Industrial Science and Technology, Japan
10:40	Refreshments – Active Learning Lab, 3rd Floor		
	Hele Shaw Lecture Theatre	Walker Lecture Theatre	Mason Bibby Room
	Session 1.2a Chair: Albert Smith	Session 1.2b Chair:	Session 1.2c Chair:

	Automated high spatial and temporal resolution in-situ testing in the SEM	Infrared and Thermal Methods 1	Testing of Composite Materials 1
11:00	Statistical analysis of micro-deformation mechanisms of HCP zinc coatings by in-situ SEM-DIC aligned to EBSD <u>JPM Hoefnagels</u> , G Slokker, D König, CJA Mornout, T Vermeij Eindhoven University of Technology, The Netherlands	Pervasive Stress Imaging for Experimental Validation of Structural Digital Twins <u>N Rajic</u> , C Brooks, K Khauv, A Mukhaimar, R Tennakoon, F Zambetta, P Marzocca RMIT University, Australia	Compression Fatigue Characterisation of Fibre-Reinforced Polymer Composites <u>MA Battley</u> , N Shepherd, J Rout, TD Allen The University of Auckland, New Zealand
11:20	Slip and slide – capturing early deformation behaviour in copper-base alloys B Poole, D Lunt, C Hardie, C Hamelin, <u>A Harte</u> United Kingdom Atomic Energy Authority, UK	Thermoelastic stress analysis using visible-infrared synchronous measurement for resin materials <u>D Shiozawa</u> , M Tahara, T Sakagami Kobe University, Japan	Investigation of Compressive and Interlaminar Fracture Properties of GF/Acrylic Composites Under SWA Effect <u>N Siddgonde</u> , JA Quinn, M Devine, AK Alapati, CMÓ Brádaigh, D Ray The University of Edinburgh, UK
11:40	Probing the ductile-to-brittle transition in BCC fusion materials <u>F Goodrich</u> , D Lunt, A Smith, A Harte, J Quinta da Fonseca, E Pickering University of Manchester, UK	Stress and Dissipation Assessment During Cyclic Loading Using TSA and HSR A Jury, <u>RC Tighe</u> , X Balandraud University of Waikato, New Zealand	Investigation of bolt torque and environmental conditioning on the mechanical performance of bolted composite laminates S Spyridonidis, T Laux, BC Kim, S Ashworth, <u>N Chandarana</u> University of Bristol, UK
12:00	An investigation into the effect of strain localisation on forged β-annealed Ti-6Al-4V <u>P Curran</u> , P Shanthraj, P Prangnell, N Byres, B Dod, M Atkinson, A Plowman, D Hu, J Quinta da Fonseca University of Manchester, UK	An Optimisation Procedure to Obtain the Coefficients of Thermal Expansion for CFRP laminates based on TSA <u>R Ruiz-Iglesias</u> , G Ólafsson, R Cappello, OT Thomsen, JM Dulieu-Barton University of Bristol, UK	Using fibre optical sensors for validation purposes in GFRP transverse leaf springs <u>T Grünheid-Ott</u> , C David, O Deisser, R Schmidt DLR, Germany
12:20	Lunch – Active Learning Lab, 3rd Floor		
13:20	Plenary Session – Hele Shaw Lecture Theatre Experimental Measurements for Enhanced Insights in Pioneering Fusion Powerplant Development Professor Chris Waldon, FREng, STEP Chief Engineer, UKAEA, University of Liverpool, UK		
	Hele Shaw Lecture Theatre	Walker Lecture Theatre	Mason Bibby Room
	Session 1.3a Chair:	Session 1.3b Chair:	Session 1.3c Chair:
	Ultrasonic Devices	Optical and DIC Techniques 2	Soft matter, electronics and robotics

14:10	High Stiffness Resin for Flexural Ultrasonic Transducers <u>A Hamilton</u> , S Adams, Y Liu, M Hafezi, W Somerset, K Lam, L Kang, S Dixon, S Cochran, A Feeney University of Glasgow, UK	Investigation of Strain Concentration around Geometric Features in Welding <u>K Shao</u> , C Truman, N Larrosa, C Jacquemond University of Bristol, UK	Conductive MRF-Based Flexible Sensor with Magneto-Mechanical Dual-Response and Adjustable Stiffness <u>YX Sun</u> , M Sang, XL Gong University of Science and Technology of China, China
14:30	Effect of organic solvent additives on the enhancement of ultrasonic strength in water for lithium ion battery <u>C Lei</u> , B Jacobson, S Scott, J Hartley, I Sumarlan, T Yingnakorn, K Ryder, A Abbott University of Leicester, UK	Strain Survey on the Pressurized Aircraft Wingbox Structures with the Usage of DIC System AU Balım, <u>E Yalçın</u> , RT Günel Turkish Aerospace Inc, Turkey	Triple-responsive Soft Actuator with Plastically Retentive Deformation and Magnetically Programmable Recovery <u>WW Li</u> , SH Xuan, XL Gong University of Science and Technology of China, China
14:50	Resonance Frequency Stability of a Nitinol Class IV Flextensional Transducer <u>GJ Puthenvila</u> , M Hafezi, A Feeney, M Lucas University of Glasgow, UK	Study of Lüders bands in a bainitic steel <u>J Chatellier</u> , P-O Bouchard, C Pradille, C Kerisit PSL Research University, France	Graphene Oxide Aerogel Metamaterials for future Human machine interface Y Wang, Z Qin, D Wang, D Liu, Z Wang, A Jazzar, P He, Z Guo, X Chen, C Jia, X He, X Zhang, <u>BB Xu</u> , F Chen Northumbria University, UK
15:10	The Thermomechanical Behaviour of Nitinol for Adaptive Ultrasonic Devices <u>M Hafezi</u> , A Feeney University of Glasgow, UK	Equivalence of the multiparameter stress field equations for a bimaterial interfacial crack <u>K Shins</u> , K Ramesh IIT Madras, India	Wearable Safeguarding Leather with Sensing, Thermal Management, and Electromagnetic Interference Shielding <u>ZY Fan</u> , SH Xuan, XL Gong University of Science and Technology of China, China
15:30	Refreshments - Active Learning Lab, 3rd Floor		
	Hele Shaw Lecture Theatre	Walker Lecture Theatre	Mason Bibby Room
	Session 1.4a Chair: Fabrice Pierron	Session 1.4b Chair:	Session 1.4c Chair:
	Material Testing 2.0, Part 1	Condition Monitoring	Impact Blast and High Strain Rate 2
16:00	An alternative to temporal down-sampling of DIC data in mechanical characterization <u>M Halilović</u> , B Starman, S Coppieters University of Ljubljana, Slovenia	Development of a best-practice approach to utilise real-time condition monitoring data in digital twins CA Middleton, <u>T Nguyen</u> , EA Patterson University of Liverpool, UK	Multiaxial rate dependent behaviour of Ti6Al4V <u>G Gour</u> , Y Xu, A Pellegrino University of Oxford, UK
16:20	On the validation of a crystal plasticity-based intragranular stress fields identification framework R Langlois, J Réthoré, <u>R Seghir</u>	AE Based Damage Characterization of CFRP with Considering AE Sensor Response <u>T Sakai</u> , G Ankit Saitama University, Japan	Mechanical Performance Of Carbon Nanotube Film Subjected To Impact Loading <u>W Wang</u> , V Toropov, W Tan Queen Mary University of London, UK

	Nantes Université, France		
16:40	Analysis of a heterogeneous test for calibration of viscoplastic models <u>T Barret</u> , A Andrade-Campos, S Thuillier Univ. Bretagne Sud, France	Development on Diagnosing Method of Fuel Cells using Electromagnetic Field Excited Oscillation <u>T Asai</u> , N Kurimoto, S Saeki Meijo University, Japan	Searching for Elusive Solitons: Optical Detection of Strain Waves Generated by a Pulsed Laser in Acrylic Bars <u>J Vizor</u> , PD Ruiz, KR Khusnutdinova Loughborough University, UK
	Hele Shaw Lecture Theatre	Walker Lecture Theatre	Mason Bibby Room
	Session 1.5a Chair: Fabrice Pierron	Session 1.5b	Session 1.5c
	Material Testing 2.0, Part 2	Impact, Blast, and High Strain Rates 1	Fatigue and Fracture 2
17:00	Experimental validation of the spatial mapping of plastic properties in welds with the VFM <u>R Hamill</u> , A Marek, A Harte, F Pierron University of Southampton, UK	Mechanical Energy Absorption of Metal-Organic Frameworks <u>A Siwji</u> , H Jiang, D Parsons, Y Sun University of Birmingham, UK	Evaluating Fracture Parameters from Phase Field Simulations <u>C Anand</u> , K Ramesh, S Natarajan IIT Madras, India
17:20	Materials Testing 2.0 for Creep <u>R Spencer</u> , L Fletcher, M Gorley, C Hamelin, A Harte United Kingdom Atomic Energy Authority, UK	Influence of gelatine as a transmission layer on the transient response of panels subjected to an explosion <u>EL Osborne</u> , GS Langdon, JW Denny, R Waddoups, SD Clarke University of Sheffield, UK	Challenges in Dynamic Fracture Testing - Validity of Current Standard Methods and Improved Testing Methods <u>BMB Sargeant</u> , CM Davies, PA Hooper Imperial College London, UK
17:40	Optimization of the specimen geometry for one-shot discovery of material models <u>S Ghoul</u> , M Flaschel, S Kumar, L De Lorenzis ETH Zürich, Switzerland	Composite Kevlar Fabric-Based Triboelectric Nanogenerator with Anti-Impact and Sensing Performance <u>WH Wang</u> , S Wang, XL Gong University of Science and Technology of China, China	Temperature and Microstructural Effects on the fracture Toughness Properties of As-Cast DP800 Steel Slabs <u>OD Taiwo</u> , D Farrugia, CM Davies Imperial College London, UK
18:00	Welcome Reception – Victoria Gallery and Museum		

	Wednesday 4th September 2024		
	Hele Shaw Lecture Theatre	Walker Lecture Theatre	Mason Bibby Room
	Session 2.1a Chair:	Session 2.1b Chair:	Session 2.1c Chair: Dr Salaheddin Rahimi
	Components for Nuclear Applications	Biomaterials and Biomechanics	Management of Residual Stress during Manufacturing
09:00	Ultrasonic Welded Straws for High Energy Physics Detectors <u>KE Buchanan</u> , S Sgobba, H Danielsson CERN, Switzerland	Intervertebral disc degeneration affects the distribution of internal stresses and strains within human lumbar vertebrae <u>KA Raftery</u> , A Kargarzadeh, S Tavana, N Newell Imperial College London, UK	Residual Stress Evolution During Forging and Ageing of AD730: A Ni-based Superalloy <u>M King</u> , S Rahimi Advanced Forming Research Centre, UK
09:20	Image-based data pipeline for fusion engineering qualification and model validation <u>A Tayeb</u> , L Fletcher, C Hamelin UK Atomic Energy Authority, UK	Using Digital Image Correlation (DIC) and the Virtual Fields method (VFM) to determine eardrum stiffness <u>P Livens</u> , JJJ Dirckx University of Antwerp, Belgium	Simulation and validation of residual stress generation at an interface of a Direct Energy Deposited (DED) <u>MD Ferguson</u> , T Konkova, I Violatos University of Strathclyde, UK
09:40	Uncertainty quantification on the frequency response of fusion components using digital image correlation <u>A Marsh</u> , L Fletcher, C Hamelin, A Harte UK Atomic Energy Authority, UK	Mechanical Characterisation of Lymph Node Tissue and In-Vivo Needle Insertion for EBUS-TBNA <u>LR Mkoh</u> , S Bicknell, R Sayer, S Cochran, E Henderson University of Glasgow, UK	Prediction and control of residual stress and distortion during machining of Al705 billets <u>I Violatos</u> , S Fitzpatrick, S Rahimi Advanced Forming Research Centre, UK
10:00	Where Experimental Mechanics and Supercomputing Meet: Uncertainty Quantification for Fusion Validation <u>L Fletcher</u> , M Atkinson, A Marsh, A Tayeb, C Hamelin UK Atomic Energy Authority, UK	Nano-bio experimental mechanics at the optical limit EA Patterson, JM Curran, <u>F Giorgi</u> University of Liverpool, UK	Surface Integrity-Informed CPFEM: A Novel Approach to the Prediction of Fatigue Crack Initiation in Ti-6Al-4V <u>MF Arcidiacono</u> , I Violatos, S Rahimi University of Strathclyde, UK
10:20	Exhibitor Introductions – Chair:		
10:40	Refreshments and Exhibition – Active Learning Lab, 3rd Floor		
	Hele Shaw Lecture Theatre	Walker Lecture Theatre	Mason Bibby Room
	Session 2.2a Chair:	Session 2.2b Chair:	Session 2.2c
	Polymer Materials, and Composites at the Microscale	Model Validation	

11:10	Volume decomposition of tomography data to detect damage in mini-composites CA Middleton, <u>K Amjad</u> , WJR Christian, AM Hilmas, C Przybyla, EA Patterson UKAEA, UK	A case study approach to evaluating methods for advanced model validation <u>K Dvurecenska</u> , M Campbell, D Backman University of Liverpool, UK	Quasi-static and High Strain Rate Simple Shear Testing of Inconel 625 Superalloy <u>L Zhang</u> , D Townsend South China University of Technology, China
11:30	Strain Measurement near Fiber-Matrix Interface of CFRP Cross Section Using DIC-FEM Hybrid Method A Nakachi, K Iizuka, <u>S Yoneyama</u> Aoyama Gakuin University, Japan	FE validation from DIC data : a practical case study in bending V Firouzbakht, A Peshave, P Lava, <u>F Pierron</u> MatchID, Belgium	
11:50	Automated Material Characterisation with Dynamic Behaviour of Thermoplastics for Finite Element Simulations <u>A Harrison</u> DLR, Germany	Practical assessment of DIC uncertainties in view of FE model validation A Peshave, <u>P Lava</u> , F Pierron MatchID, Belgium	
12:10	Characterization of strain-Induced crystallization heterogeneities from heat source reconstruction <u>J-B Le Cam</u> , A Tayeb, S Charlès Université of Rennes, France	Testing & modelling of composite substructures: opportunities and challenges <u>T Laux</u> , R Cappello, JS Callaghan, SW Boyd, DA Crump, AF Robinson, OT Thomsen, JM Dulieu-Barton University of Bristol, UK	
12:30	Plenary Session – Hele Shaw Lecture Theatre BSSM Best Paper in ‘Strain’ Fylde Prize for 2023		Chair: Prof Johan Hoefnagels
13:00	Lunch and Exhibition – Active Learning Lab, 3rd Floor Exhibitors: Alemnis, Correlated Solutions, Dantec Dynamics, ISIS Neutron & Muon Source, LAVision UK, MatchID, Photron, Quantum Design UK, Severn Thermal Solutions, Shimadzu, Techni Measure, Vishay Measurements Group, Vision Research/Ametek		

14:00	Plenary Session – Hele Shaw Lecture Theatre		Chair: Neha Chandarana
	BSSM Young Stress Analyst Competition		
	1 Maureen A. Fitzpatrick, University College London, UK Influence of Laser Preheating on Residual Stress in Ti-6Al-4V Laser Powder Bed Fusion (LPBF) 2 Carla N. Villacís Núñez, University of Michigan, USA		

	<p>Intact and Torn Rotator Cuff Behavior Using Magnetic Resonance Imaging and Variational System Identification</p> <p>3 Xavier A. Ojeda, University of Manchester, UK Slip activity in Ti-6Al-4V under cold creep conditions</p> <p>4 Lewis S. Wallace, University of Strathclyde, UK Woven Bio-fabric Material Characterisation and FEA Comparison to Scanned Stents</p>
15:10	<p>Refreshments and Exhibition – Active Learning Lab, 3rd Floor Exhibitors: Alemnis, Correlated Solutions, Dantec Dynamics, ISIS Neutron & Muon Source, LAVision UK, MatchID, Photron, Quantum Design UK and Ireland, Severn Thermal Solutions, Shimadzu, Techni Measure, Vishay Measurements Group, Vision Research/Ametek</p>
15:45	<p>Plenary Session – Hele Shaw Lecture Theatre 60th Anniversary – History of the BSSM Prof Janice Barton, University of Bristol</p>
16:05	<p>BSSM Measurements Lecture 2024 Chair: Dr Hari Arora (Chair of the BSSM)</p> <p>Measuring the behaviour of a soft material: from quasi-static to blast response' Professor Genevieve Langdon, University of Sheffield, UK</p>
18:00	<p>Coaches leave for the Merseyside Maritime Museum</p>
18:30	<p>Pre-dinner drinks</p>
19:00	<p>Chairman's Gala Reception and Awards Ceremony –</p>

	Thursday 5th September 2024		
	Hele Shaw Lecture Theatre	Walker Lecture Theatre	Mason Bibby Room
	Session 3.1a Chair:	Session 3.1b Chair:	Session 3.1c Chair:
	Infrared and Thermal Methods 2	Modal Analysis	Testing of additive materials
09:00	Infrared Imaging of Thermo-Elastic Isentropic Cooling and Heating During Uniaxial Tensile Tests J Carrock, <u>A Dumont</u> , H Kouser, S Burns, C Pratt, A Sefkow Telops, Canada	Modal Coupling Dynamics of a Nitinol Langevin Transducer <u>Y Liu</u> , M Hafezi, A Feeney University of Glasgow, UK	Mechanical properties of Polymer Matrix Composites produced by Fused Deposition Modelling (FDM) method <u>CT Ong</u> , CY Yin, KL Goh, FC Lee Newcastle University Singapore
09:20	Using surface calorimetry to evaluate the crystallinity of CB filled and unfilled NR <u>G Delahaye</u> , B Ruellan, I Jeanneau, J-B Le Cam Continental & Univ. Rennes, France	On the detection of defects employing High Resolution Digital Image Correlation AJ Molina-Viedma, <u>L Felipe-Sesé</u> , JA Almazán-Lázaro, C Huertas-Charriel, E López-Alba, FA Díaz Universidad de Jaén, Spain	Experimental analysis of mechanical properties and microstructure on AlSi10Mg parts produced by means of Selective Laser Melting <u>H Zhang</u> , AT Fry, P Woolliams, K Mingard National Physical Laboratory, UK
09:40	Simultaneous thermal & kinematic full-field measurements on optimal patterns based on LSA and IR thermography <u>T Jailin</u> , A Jury, B Blaysat, A Vinel, X Balandraud, M Grédiac Clermont Auvergne Université, France	A thermoacoustic rig to test materials for challenging environments <u>M Weihrauch</u> , J Lambros, EA Patterson University of Liverpool, UK	Effect of Build Orientation on the Yield Surface of Stainless Steel 316L Fabricated by LPBF-M <u>VP Dubey</u> , M Kopec, M Pawlik, P Wood, ZL Kowalewski Polish Academy of Sciences, Poland
10:00	Validation of a Numerical Model for the Non-adiabatic Thermoelastic Stress Analysis of Composite Laminates <u>R Cappello</u> , R Ruiz-Iglesias, G Ólafsson G Pitarresi, G. Catalanotti, JM Dulieu-Barton University of Bristol, UK	Model Validation for Stator and Rotor of an Electric Vehicle Motor <u>JA Yang</u> , CC Yu, CS Lin National Pingtung University of Science and Technology, Taiwan	Effect of scanning speed on the damage behaviour of SLM printed Inconel 625 <u>RA Yildiz</u> , M Malekan University of Southern Denmark, Denmark
10:20	Refreshments – Active Learning Lab, 3rd Floor		
10:40	Plenary Session – Hele Shaw Lecture Theatre Insights on the use of IR-thermography in damage identification Dr Chiara Colombo, Associate Professor, Politecnico Milano, Italy		Chair:
	Hele Shaw Lecture Theatre	Walker Lecture Theatre	Mason Bibby Room
	Session 3.2a Chair:	Session 3.2b Chair: Matthew Roy	Session 3.2c Chair:
	Testing of Composite Materials 2	Identification of Residual Stresses	Novel Experimental Techniques 1
11:30	Damage evaluation on impacted repaired carbon fibre composites <u>EYH Chai</u> , W-C Wang, WJR Christian University of Liverpool, UK	Quantification of Mesoscale Residual Stress in Crossply Laminar Polymer Composites using Contour Method	Combining the Small Punch Test with the Small Ring Test A Joshi, A Forsey, R Moat, <u>S Güngör</u> The Open University, UK

		Praveen KR, F Hosseinzadeh, PJ Bouchard, F Lefebvre, D Guillon The Open University, UK	
11:50	Experiments and modelling of impact of composites: effect of impact shape and other factors <u>J Dear</u> , Y Ding, AM Joesbury, LT Harper, MS Johnson, H Liu, AJ Kinloch, JP Dear Imperial College London, UK	Residual stress evaluation of laser powder bed fusion benchmarks using the contour method <u>Z Cai</u> , RC Laurence, D Yang, RM Kindermann, J Kurebwa, GN Haribabu, Z Song, R Huo, MJ Roy University of Manchester, UK	Development and validation of human head finite element model for predicting head injuries <u>A Kumagai</u> , S Hayashi, Y Zhang Sophia University, Japan
12:10	Fracture test of Interleaved thermoplastic composites with self-same resin rich layer <u>S Karimi</u> , HS Sas, M Yildiz Sabanci University, Turkey	Determination of Residual Stress in Additively Manufactured Parts by Synchrotron X-ray and Neutron Diffraction <u>RC Laurence</u> , D Canelo-Yubero, E Maawad, G Abreu Faria, P Staron, R Ramadhan, S Cabeza, A Paecklar, T Pirling, MF Slim, T Buslaps, M Sanchez-Poncela, W Cui, PJ Withers, MJ Roy University of Manchester, UK	An optical strain gage for full-field measurements <u>A VineI</u> , M Grédiac, X Balandraud, B Blaysat, T Jailin, F Sur Clermont Auvergne Université, France
12:30	From sea sponge to space: Compressive characterisation of a novel lattice structure for aerospace application <u>T McArdle</u> et al., See abstract for all authors University of Bristol, UK	The manufacture of inherently vibration damped titanium AM structures by encapsulating powder feedstock <u>S Tammias-Williams</u> , C Packer, I Butler, M Baxter, S Islam, L Napper, C Holycross University of Edinburgh, UK	Advanced Measurement Technologies for Smarter Testing: Developing a multi-system setup for large scale testing <u>L Reid</u> Airbus Operations Ltd., UK
12:50	Lunch – Active Learning Lab, 3rd Floor		
	Hele Shaw Lecture Theatre	Walker Lecture Theatre	Mason Bibby Room
	Session 3.3a Chair:	Session 3.3b Chair:	Session 3.3c Chair: Daniel Mulvihill
	Metals and Microstructure	Novel Experimental Techniques 2	Tribology and Contact
14:00	Mechanical response and microstructural evolution of 6061-T6 subjected to dynamic testing at low temperature <u>M Kopec</u> , X Liu, D Gorniewicz, S Jóźwiak, J Janiszewski, ZL Kowalewski Polish Academy of Sciences, Poland	Investigation into the Strength of Adhesive Joints at Cryogenic Temperatures Using a Modified Arcan Fixture <u>DJ Brearley</u> , T Laux, M Lakrimi, JM Dulieu-Barton, OT Thomsen University of Bristol, UK	Investigating Triboelectrification Through Real Contact Area Analysis <u>C Kumar</u> , S Bairagi, G Khandelwal, Y Xu, N Gadegaard, DM Mulvihill University of Glasgow, UK
14:20	In situ Extreme Micromechanics – Recent Innovations and Prospects <u>N Randall</u> , R Pero, J-M Breguet Alemnis AG, Switzerland	A High-throughput Vibration-based Fatigue Assembly to More Quickly Characterize High Cycle Fatigue Life	Investigating Bearing Subsurface Microstructural Damage of White Etching Areas and Butterfly Wing Cracks <u>R Dai</u> , H Long

		RB Berke, BA Furman, JM Wagner, JB Heninger, SC Mulhall Utah State University, USA	The University of Sheffield, UK
14:40	Multiscale Creep Characterisation of CuCrZr Alloy as Heat Sink Used in the Divertor of Nuclear Fusion Tokamak PN Kulkarni, A Forsey, S Gungor, R Moat The Open University, UK	Recent Advances in Ultrasonic Fatigue Testing of Structural Steels and Their Welds <u>Y Gorash</u> , T Comlekci, A Toumpis, L Milne, A England, C Walker University of Strathclyde, UK	Small-scale test of ball-on-curved surface contact to study fretting wear of wind turbine blade pitch bearings <u>ZZ Wu</u> , V Perez Cervantes, E Hurtado, WY Song, HJ Lee, C Ng, H Long The University of Sheffield, UK
15:00	Uniaxial Creep and Creep Crack Growth Testing in 316L Stainless Steel Manufactured by Laser Powder Bed Fusion <u>A Milne</u> , CM Davies Imperial College London, UK	A novel volumetric measurement technique to measure strain in brain phantoms during needle insertion <u>TJ Pritchard</u> , R van Loon, H Arora Swansea University, UK	Bespoke test rig to measure dynamic contact behaviour of railway ballast D Bonafini, <u>BN Madhusudhan</u> , G Watson University of Southampton
15:20	Closing Plenary Session – Hele Shaw Lecture Theatre Conference Chair:		
15:30	Refreshments – Conference Close –		