# MORNING

# TUESDAY 27 NOVEMBER 2018

| | | | | | | |
|---|---|---|---|---|---|---|
| 7:30 | REGISTRATION: HOPE THEATRE | | 7:30 | REGISTRATION: HOPE THEATRE | | |
| 8:30 | OPENING OF CAMS 2018: HOPE THEATRE | | 8:30 | OPENING OF CAMS 2018: HOPE THEATRE | | |
| 9:00 | PLENARY: PROFESSOR EMILY HILDER – HOPE THEATRE | | 9:00 | PLENARY: PROFESSOR EMILY HILDER – HOPE THEATRE. | | |
| 10:00 | MORNING TEA | | 10:00 | MORNING TEA | | |
| BLD 20 | THEATRE 1 - RED | THEATRE 2 - BROWN | BLD 20 | THEATRE 3 - YELLOW | THEATRE 4 - GREEN | THEATRE 5 - BLUE |
| | ADDITIVE AND ADVANCED MANUFACTURING | USE OF WASTE MATERIALS AND ENVIRONMENTAL REMEDIATION | | PHOTONICS, SENSORS, OPTOELECTRONICS AND FERRO ELECTRICS | MATERIALS SIMULATION AND MODELLING | CERAMICS AND COMPOSITE MATERIALS |
| *Chairs* | *Ma Qian – 10:30 - 12:30* | *Pramod Koshy – 10:30 - 12:45* | | *Ginu Rajan – 10:30 - 12:30* | *Greg Lumpkin / Andrew Gillen – 10:30 - 12:45* | *George Franks – 10:30 - 12:30* |
| 10:30 | ***Keynote: Prof. Dietmar Hutmacher***<br>3D Printonomics – why we need to change the current paradigm by changing the question from "what can we do with this fabrication method?" to "how can we change this fabrication process to achieve what we need". | ***Invited: Craig Heidrich***<br>Enhancing the Utilisation of Fly Ash. | | ***Keynote: Prof. Gnagadhara Prusty***<br>Sensing in Polymer Composites using Fibre optics: Applications in Dental to Aerospace. | ***Dr. Baptiste Rouxel***<br>Modeling Al_3(Sc,Zr) core-shell precipitates for new generation of aluminum alloys. | ***Prof. Hiroshi Izui***<br>Dry Sliding Wear Resistance of Titanium Matrix Composites with TiB and TiC Fabricated by Spark Plasma Sintering. |
| 10:45 | | | | | ***Kenneth Tam***<br>Modelling the Effects of Temperature and Texture on the Deformation Mechanism on the Magnesium Alloy AZ31. | ***Dr. Richard Djugum***<br>The Fabrication and Performance of C/C Composites Containing TaC Filler. |
| 11:00 | ***Invited: Dong Ruan***<br>Mechanical Response of Auxetic Structures Fabricated by Additive Manufacturing. | ***Benjamin Fishburn***<br>Development of Industrially-Viable Geopolymer Compositions. | | ***Invited: Dr. Alessio Stefani***<br>Elastic optical fibres for sensing and smart wearables. | ***Dr. Bashir Samsam Shariat***<br>Modelling and experimental evaluation of functionally graded shape memory alloys. | ***Oji Babatunde***<br>Corrosion Behavior of Aluminium 6063 Matrix Hybrid Composite Reinforced with Cassava Peel Ash and Silicon Carbide. |
| 11:15 | | ***Michelle Yeoh***<br>Development of K-Activator Based Geopolymers Cured at Ambient Temperature. | | | ***Rushabh Patel***<br>Deformation Behaviour of Porous PHBV Scaffold In Compression: A Finite Element Study. | ***Kotaro Hattori***<br>Dry Sliding Wear Properties of BN/Ti and BN/Ti-6Al-4V Alloy Composites Prepared by Spark Plasma Sintering Process. |
| 11:30 | ***Dr. Anna Paradowska***<br>Neutrons for Additive Manufacturing. | ***Dr. Pramod Koshy***<br>Geopolymers for Nuclear Waste Storage. | | ***Invited: Dr. Agus Muhamad Hatta***<br>All-fiber multimode-interference based sensors: principles and applications. | ***Hongyang Ma***<br>First-principle Investigation of Tetraethoxysilane Modified Cerium Oxide for Developing Highly Efficient Biocompatible Coating. | ***Takaya Hanzawa***<br>Evaluation of mechanical properties of AlN and B4C reinforced magnesium matrix composites. |
| 11:45 | ***Dr. Joe Elambasseril***<br>Selective laser melting of Al2139 alloy. | ***Dr. Lou Vance***<br>Wasteform candidates for I-129 immobilisation. | | | ***Ruoyu Wang***<br>Numerical analysis of the compressive response of two polymer foams using micro-computed tomography and finite element modelling. | ***Jarret Grout***<br>FTIR mapped progression of stabilization in polyethylene-based carbon fibres. |
| 12:00 | ***Wen Hao Kan***<br>The role of defects and microstructure on mechanical properties of AlSi10Mg fabricated by selective laser melting. | ***Dr. Raymond Longbotton***<br>Enhancing Utilisation of Steelplant By-Products by Characterisation of the Self-Sintering of BOS Dust. | | ***Alex Wong***<br>Strain and Temperature Profile Measurements in Dental Resin Composites using Chirped Fibre Bragg Grating | ***Yongmei Zhang***<br>DEM Simulation of Surface Mechanical Attrition Treatment with Rough Surface Sonotrode. | ***Guolin Yun***<br>Liquid Metal-Filled Magnetorheological Elastomer. |
| 12:15 | | ***Pamela Kahwajy***<br>It keeps getting better: Investigating the multiple recyclability of 3D printed Wood-Plastic Composites made from waste. | | ***Naizhong Zhang***<br>An investigation into the influence of the manufacturing process on the fatigue properties of fibre Bragg gratings. | ***Andrew Gillen***<br>Improving Sintering Processes by up to 60% Using Thermal Analysis and Thermokinetic Modelling Techniques. | ***Aneesa Padinjakkara***<br>Enhancement of impact strength of epoxy thermoset by incorporating modified spherical nano fumed silica. |
| **12:30** | | ***Yerong Huang***<br>Potential of Australian Hardwoods: Effects of Wood Compositions on the Mechanical Properties of 3D Printed Wood-Polymer Composites | **12:30** | | ***Dr. Tesfaye Molla***<br>An Integrated Computational Materials Engineering Framework for Designing Sintered Stainless Steel. | |
| | **LUNCH UNTIL 13:45** | | | | **LUNCH UNTIL 13:45** | |

# AFTERNOON

# TUESDAY 27 NOVEMBER 2018

| BLD 20 | THEATRE 1 - RED | THEATRE 2 - BROWN | BLD 20 | THEATRE 3 - YELLOW | THEATRE 4 - GREEN | THEATRE 5 - BLUE |
|---|---|---|---|---|---|---|
| | **ADDITIVE AND ADVANCED MANUFACTURING** | **USE OF WASTE MATERIALS AND ENVIRONMENTAL REMEDIATION** | | **PHOTONICS, SENSORS, OPTOELECTRONICS AND FERRO ELECTRICS** | **METAL CASTING AND LIQUID METAL PRCESSING** | **CERAMICS AND COMPOSITE MATERIALS** |
| *Chairs* | *Graham Schaffer – 13:45 - 15:15* | *Wen-Fan Chen – 1:45 - 15:30* | *Chairs* | *Agus Hatta – 13:45 - 15:15* | *Buyung Kosasih – 13:45 - 15:15* | *Lou Vance – 13:45 - 15:15* |
| 13:45 | ***Keynote: Prof. Stephen Van Duin***<br>Research and development of Wire Arc Additive Manufactruing funded by DTMC. | ***Oji Babatunde***<br>Influence of Soda- Lime-Silica glass on porosity, crystallization behavior and phase transformation of Ceramics produced from White Corn Cob Ash. | | ***Invited: Dr. Rajesh Ramanathan***<br>Enzyme-mimic nanosensors: detection of small molecules to whole cells. | ***Keynote: Prof. David St John***<br>The Formation of Eutectic Structures in Al-Si Alloys. | ***Dr. Trevor Finlayson***<br>Deformation Studies of Mg-PSZ under Compressive and Tensile Loads. |
| 14:00 | | ***Dr. Wen-Fan Chen***<br>Photocatalysts for Environmental Remediation. | | | | ***Prof. George Franks***<br>Freeze Casting Dense Ceramics: Cracking the Myth of the Crack Origin. |
| 14:15 | ***Invited: Jeff Lang***<br>Industrial Scale Additive Manufacturing by Titomic Kinetic FusionTM. | ***Yue Jiang***<br>Photocatalytic Activity of Mo-doped TiO2/p-PVA Thin Films under Simulated UV light. | | ***Invited: Sumeet Walia***<br>Black Phosphorus: An electronic and optoelectronic elemental analog of graphene. | ***Syeda Mehreen***<br>Elimination of Cu3Sn from the microstructure of a Sn-10wt.%Cu alloy through the addition of Ni. | ***Richard Bowman***<br>The Emperor's New Floors. |
| 14:30 | | ***Yicheng Zhang***<br>Photocatalyic Activity of Tantalum Oxide Coatings Formed by Anodisation. | | | ***Charlotte Wong***<br>The Effect of Cooling Rate on the Solidification Microstructure of Mg-Al-RE alloys. | ***Md Sakinur Rahman***<br>Challenges In Resourcing And Fabrication Of High Thickness Super Duplex Stainless Steels – The Most Widely Used CRA For HPHT Services. |
| 14:45 | ***Eric Newby***<br>Investigation of In-Situ Alloying Grade 23 Ti with 3at.% and 5at.%Cu by Laser Based Powder Bed Fusion for Biomedical Applications. | ***Amanda Chen***<br>Effect of Mo + Cr Codoping Levels and Distribution on the Photocatalytic Performance of TiO2 Thin Films. | | ***Henry Kissick***<br>Modelling and measurement of piezoelectric parameters for Mn-PMN-PZT relaxor ferroelectric disks. | ***Dr. Suk-Chun Moon***<br>Assessment of Cracking Susceptibility of Steel in Continuous Casting Process Employing High-Temperature Laser-Scanning Confocal Microscopy. | ***Dr. Alan Hellier***<br>Fracture Toughness of Cast and Extruded Al6061/15%Al2O3p Metal Matrix Composites. |
| 15:00 | ***Dr. Anders Eklund***<br>Heat Treatment of AM parts by Hot Isostatic Pressing. | ***Zhiyuan Liu***<br>Photocatalytic Performance of Ag+/N3- doped Titanium Dioxide Nanopowders. | | | | |
| **15:15** | **AFTERNOON TEA** | ***Zile Ye***<br>Codoped Nanoceria for Catalytic Applications. | **15:15** | **AFTERNOON TEA UNTIL 15:45** | | |
| | **ADDITIVE AND ADVANCED MANUFACTURING** | **ADVANCES IN MATERIALS CHARACTERISATION** | | **PHOTONICS, SENSORS, OPTOELECTRONICS AND FERRO ELECTRICS** | **METAL CASTING AND LIQUID METAL PRCESSING** | **CORROSION AND DEGRADATION** |
| *Chairs* | *Yvonne Durandet – 15:45 - 17:45* | *Gwenelle Proust – 15:45 - 17:45* | *Chairs* | *Judy Hart – 15:45 - 17:15* | *David St John – 15:45 - 17:45* | *Nick Birbilis / Hongtao Zhu – 15:45 - 17:45* |
| 15:45 | ***Keynote: Prof. Sally McArthur***<br>4D Cell Culture Systems – Manufacturing Challenges and Opportunities. | ***Keynote: Dr. Ruth Knibbe***<br>Development of in-situ TEM techniques. | | ***Invited: Dr. Qi Zhang***<br>Epitaxial (001) BiFeO3 thin-films with excellent ferroelectric properties by chemical solution deposition. | ***Invited: Buyung Kosasih***<br>Jet Wiping Process in Continuous Galvanising Line: Fluid Dynamics Perspective. | ***Assoc. Prof. Colin Hall***<br>Wear and Corrosion Resistance coatings To Replace Electroplated Processes. |
| 16:00 | | | | | | ***Dr. Mobin Salasi***<br>Electrochemical analysis of high-Cr white cast irons abrasion-corrosion and localised corrosion characteristics. |
| 16:15 | ***Invited: Kate Fox***<br>Does diamond improve the SLM titanium implant interface? | ***Invited: Dr. Robert Acres***<br>ANSTO and the Australian Synchrotron: Product development, process improvement and problem solving for materials science and industry. | | ***Invited: Dr. Ying Liu***<br>High Plasticity Observed in Relaxor Ferroelectric PIN-PMN-PT. | ***M Akbar Rhamdhani***<br>Chemically and Electrically Assisted Impurities Control in Liquid Melt. | ***Ai Thi Diem Nguyen***<br>Dynamic Wetting of Liquid CaO-SiO2-MgO-FeOx-Al2O3-MnO-TiO2 on MgO Refractory. |
| 16:30 | | | | | ***Dr. Hiromoto Kitahara***<br>Deformation Behavior of Zn Single Crystals through a Single Pass of ECAP. | ***Mia Maric***<br>The Effect of Cold-Rolling on the Microstructure and Corrosion Behaviour of 316L Alloy in FLiNaK Molten SaltMohsen. |
| 16:45 | ***Invited: Elena Juan Pardo***<br>Melt electrowriting: An emerging additive biomanufacturing technique for soft tissue engineering applications. | ***Invited: Les Moore***<br>To boldly map where no man has mapped before..... | | ***Dr. Habibollah Aminirastabi***<br>Evaluation of Nano Grain Growth of perovskite Fibers fabricated via Sol- Gel Route. | ***Dr. Yansong Shen*** Computational Fluid Dynamics Study of Thermochemical Behavior in a Blast Furnace with Respective Chemical Reactions in Coke and Ore Burden Layers. | ***Mohsen Shahshahan***<br>Photo-Cathodic Protection of 316lc Steel by Coating of Mesoporous TiO2/WO3 Nanostructure. |
| 17:00 | | | | | ***Keynote: Prof. Geoffrey Evans***<br>Sintering and liquid metal processing in iron and steelmaking. | ***Peter Richardson***<br>Bulk Synthesis of MAB Phase Ceramics. |
| 17:15 | ***Jun Zhang***<br>3D printed chitosan hydrogel scaffolds containing silk fillers of different geometries. | ***Dr. Alan Hellier***<br>Residual Stress Effects on Fatigue Crack Growth from a T-Butt Weld Toe. | | | | |
| 17:30 | ***John Mai***<br>Printing parameter optimisation to build custom 3D printed panels with wood-plastic composites. | ***Navjeet Singh***<br>Application of advanced characterisation techniques to evaluate yield strength in Nb-V microalloyed steel. | | | | |
| **18:00** | **POSTER SESSION – FOR MORE INFORMATION SEE PAGE 30** | | **18:00** | **POSTER SESSION – FOR MORE INFORMATION SEE PAGE 30** | | |

# MORNING

# WEDNESDAY 28 NOVEMBER 2018

| | | | | | | |
|---|---|---|---|---|---|---|
| **8:30** | **REGISTRATION: HOPE THEATRE** | | **8:30** | **REGISTRATION: HOPE THEATRE** | | |
| **9:00** | **PLENARY: PROFESSOR SHI XUE DOU – HOPE THEATRE** | | **9:00** | **PLENARY: PROFESSOR SHI XUE DOU – HOPE THEATRE** | | |
| 10:00 | MORNING TEA | | 10:00 | MORNING TEA | | |
| BLD 20 | THEATRE 1 - RED | THEATRE 2 - BROWN | BLD 20 | THEATRE 3 - YELLOW | THEATRE 4 - GREEN | THEATRE 5 - BLUE |
| | **ADDITIVE AND ADVANCED MANUFACTURING** | **ADVANCES IN MATERIALS CHARACTERISATION** | | **NANOSTRUCTURED MATERIALS AND INTERFACES** | **BIOMATERIALS AND NANOMATERIALS FOR MEDICINE** | **ADVANCES IN STEEL TECHNOLOGY** |
| *Chairs* | *Graham Schaffer – 10:30 - 12:30* | *Magnus Garbrecht – 10:30 - 13:00* | | *Xiaozxhou Liao – 10:30 - 12:30* | *Vitor Sencadas / Ling Yin – 10:30 - 12:30* | *Frank Barbaro – 10:30 - 12:30* |
| 10:30 | ***Keynote: Dr. Koji Kekehi***<br>Microstructure and mechanical properties of Ni-base superalloys fabricated by additive manufacturing. | ***Keynote: Assoc. Prof. Philip Nakashima***<br>Measuring chemical bonding around defects and nanostructures in metals and alloys using quantitative convergent-beam electron diffraction. | | ***Keynote: Prof. Simon Ringer***<br>Atom Probe Crystallography: Enabling Interface Engineering. | ***Guang Zeng***<br>Biocompatible Ti-Ta Structures through Cold Spray. | ***Keynote: Prof. Setsuo Takaki***<br>Effect of carbon and grain size on the yield stress. |
| 10:45 | | | | | ***Dr Ming Wu***<br>Wrinkle formation in polymeric drug coatings. | |
| 11:00 | ***Olexandra Marenych***<br>Effect of heat treatment on microstructure, mechanical properties and wear resistance of Ni-Cu alloys fabricated by wire arc additive.manufacturing. | ***Invited: Dr. Hossein Beladi***<br>Three-dimensional interfacial grain boundary network characterisation in polycrystalline materials. | | ***Invited: Assoc. Prof. Jennifer Wong-Leung***<br>III-V Semiconductor Nanowire Heterostructures grown by metal organic chemical vapour deposition. | ***Assoc. Prof. Ling Yin***<br>Nanomechanical Characterization of Pre-Crystallized CAD/CAM Zirconia-Reinforced Lithium Silicate Glass Ceramic. | ***Invited: Chris Killmore***<br>Improved Toughness in a 690 MPa Q&T High Strength Structural Grade based Upon a New Low Mn Alloy Design. |
| 11:15 | ***Halsey Ostergaard***<br>Fatigue Crack Growth in Selective Laser Melted alloy 718 at Ambient and Elevated Temperatures. | | | | ***Ipek Karacan***<br>Design of hydroxyapatite containing poly-lactic acid biocomposite coatings for a new antibiotic delivery system for metallic implants. | |
| 11:30 | ***Dr. Kyall Pocock***<br>From Powder to Part: Microscopy and Measurement Solutions for Additive Manufacturing. | ***Daryn Benecke***<br>Characterisation of material inhomogeneity in fibre reinforced composites using distributed fibre optic sensors. | | ***Invited: Assoc. Prof. Rongkun Zheng***<br>Atomic-scale tomography of semiconductors, superconductors, and magnetic materials. | ***Yuwen Xu***<br>Development of Morphological Phase Diagram of Nanoceria Bioceramics. | ***Invited: Dr. Anna Paradowska***<br>Review of residual stresses measurements techniques and their influence on steel performance in civil applications. |
| 11:45 | ***Dr. Japecaroslav Čapec***<br>Characterization of a Zn wire prepared by one-step direct extrusion using an extrusion ratio of 576. | ***Dr. Rong Liu***<br>Advance secondary ion mass spectrometry (SIMS) techniques and applications in emerging materials and biological science. | | | ***Dr Vitor Sencadas***<br>Electrospun PLLA-Glass Reinforced Hydroxyapatite for Bone Healing Applications. | |
| 12:00 | ***Keynote: Prof. Xinhua Wu***<br>Metallurgical Issues and Quality Control in Selective Laser Melting of Aerospace Materials. | ***Yi-Sheng Chen***<br>Atom probe observation of hydrogen in steel. | | ***Invited: Assoc. Prof. Qjaoliang Bao***<br>Photonic and Optoelectronic Device Applications Based on 2D Materials. | | ***Yuki Seto***<br>Work Hardening and Dislocation Accumulation Behavior in High Nitrogen Austenitic Steel. |
| 12:15 | | ***Invited: George F. Vander Voort***<br>Relooking at the evaluation of Hardness Test Blocks. | | | | ***Shohei Tanaka***<br>Mechanical property of Medium-Mn steel treated with interrupted quenching and intercritical annealing for short time. |
| **12:30** | | | **12:30** | | | ***Dr. Andrii Kostryzhev***<br>Warm deformation of microalloyed bainite – higher properties at lower cost. |
| | **LUNCH UNTIL 13:45** | | | | **LUNCH UNTIL 13:45** | ***Carina Ledermueller***<br>Design of hierarchical microstructures in a modern HSLA steel via advanced thermo-mechanical processing. |

# AFTERNOON

# WEDNESDAY 28 NOVEMBER 2018

| BLD 20 | THEATRE 1 - RED | THEATRE 2 - BROWN | BLD 20 | THEATRE 3 - YELLOW | THEATRE 4 - GREEN | THEATRE 5 - BLUE |
|---|---|---|---|---|---|---|
| | **ADDITIVE AND ADVANCED MANUFACTURING** | **ADVANCES IN MATERIALS CHARACTERISATION** | | **NANOSTRUCTURED MATERIALS AND INTERFACES** | **MATERIALS FOR ENERGY GENERATION, CONVERSION & STORAGE** | **ADVANCES IN STEEL TECHNOLOGY** |
| *Chairs* | *Yvonne Durandet – 13:45 - 15:15* | *Magnus Barbrecht – 1:45 - 15:15* | *Chairs* | *Xianghai An – 13:45 - 15:15* | *Rachel Caruso – 13:45 - 15:00* | *Andrew Kostryzhev – 13:45 - 15:15* |
| 13:45 | ***Keynote: Assoc. Prof. Martin Leary***<br>Bespoke Additive Manufacture: Low-Cost, High-Value Product Design. | ***Keynote: Assoc. Prof. Gwenaelle Proust***<br>Effects of surface mechanical attrition treatment on the microstructure and properties of alloys. | | ***Invited: Prof. Shujun Zhang***<br>Impact of local structural heterogeneity on the piezoelectric properties of perovskite ferroelectrics. | ***Invited: Prof. Maria Forsyth***<br>Novel solid state electrolytes - enabling future energy technologies. | ***Invited: Dr. Debalay Chakrabarti***<br>Combined effect of microstructure, particles and crystallographic texture on the impact transition behaviour of low-C ferritic steels. |
| 14:00 | | | | | | |
| 14:15 | ***Ian Van Zyl***<br>Laser Based Powder Bed Fusion of Pure Platinum: Hierarchical Approach for Optimal Processing. | ***Invited: Dr. Ahmed Saleh***<br>Experimental characterization and self-consistent modelling of deformation mechanisms in TWIP steel. | | ***Invited: Prof. Jan Seidel***<br>Domain walls and phase boundaries as nanoscale functional elements. | ***Dr. Mohammad Rejaul Kaiser***<br>Electrolytes & Other Least Focused Areas for Li/S system. | ***Dr. Ingrid McCarroll***<br>Effects of Co-Precipitation of Carbides and Copper Clusters on Hydrogen Trapping in Martensitic Steels. |
| 14:30 | ***Keynote: Prof. Baohua Jia***<br>Laser nanofabrication of 2D materials for functional optoelectronics applications. | | | | ***Prof. Kazuyoshi*** Sato Growth of La0.6Sr0.4Co0.2Fe0.8O3/Gd0.2Ce0.8O1.9 nanocomposite as cathode material of intermediate-temperature solid oxide fuel cell. | ***Prof. Rian Dippenaar***<br>A study of microstructure and phase transformation of high carbon steel. |
| 14:45 | | ***Felix Theska***<br>Atom probe characterisation of strengthening effects in Ni-based alloy 718. | | ***Invited: Dr. Zibin Chen***<br>In-situ Transmission Electron Microscopy Investigation of Ferroelectric Domain Switching. | ***Weiguang Huw***<br>Effects of atomic layer deposition temperature on photoelectrochemical performance of SnxSy thin film. | ***Muhammad Rizwan***<br>Thermal cutting effect on microstructure and hardness of Ti microalloyed wear resistant steels. |
| 15:00 | ***Caizhi Liao***<br>Maskless 3D Ablation of Precise Microhole Structures in Plastics Using Femtosecond Laser Pulses. | ***Dr. Sam Yang***<br>Non-destructive quality evaluation of additively-manufactured materials. | | | | ***Dr. Lee Clemon***<br>Design for metallurgical study of steel powders in laser processing. |
| **15:15** | **AFTERNOON TEA** | | **15:15** | **AFTERNOON TEA UNTIL 15:45** | | |
| | **ADDITIVE AND ADVANCED MANUFACTURING** | **ADVANCES IN MATERIALS CHARACTERISATION** | | **NANOSTRUCTURED MATERIALS AND INTERFACES** | **MATERIALS FOR ENERGY GENERATION, CONVERSION & STORAGE** | **ADVANCES IN STEEL TECHNOLOGY** |
| *Chairs* | *Yvonne Durandet – 15:45 - 17:45* | *Ahmed Saleh – 15:45 - 17:45* | | *Zibin Chen – 15:45 - 17:00* | *Jiazhao Wang – 15:45 - 17:00* | *Chris Jones – 13:45 - 18:00* |
| 15:45 | ***Keynote: Dr. Wyman Zhuang***<br>Fatigue Performance of Additive Manufactured Alloys: Challenges and Opportunities for Aerospace Applications. | ***Keynote: Dr. Ross Marceau***<br>APT studies of carbon-related materials. | | ***Invited: Prof. Tom Wu***<br>Heterostructure-Based "Binary Materials" for Photodetection from Mid-Infrared, Visible, to X-ray. | ***Invited: Prof. Udo Bach***<br>Back-Contact Perovskite Solar Cells. | ***Invited: Assoc. Prof. Turbadrakh Chuluunbat***<br>Investigation of Fracture Initiation in Pipeline Steel Using Acoustic Emission Monitoring. |
| 16:00 | | | | | | |
| 16:15 | ***Invited: Prof. Tim Sercombe***<br>Anti-bacterial Titanium produced using Selective Laser Melting. | ***Invited: Dr. Magnus Garbrecht***<br>Aberration-corrected S/TEM methods as ultra-precise tools in materials characterisation at the atomic scale. | | ***Invited: Dr. Daniel Sando***<br>Tuning functional properties of BiFeO3 films using strain and growth chemistry. | ***Alan Cen***<br>Nanostructured Metal Oxides for Supercapacitor Applications. | ***Invited: Dr. Mayorkinos Papaelias***<br>Online assessment of the structural integrity of railway crossings using high frequency acoustic emission sensors. |
| 16:30 | | | | | ***Dr. Hanjuan Ren***<br>Manipulation of Charge Transport by Metallic V13O16 Decorated on Bismuth Vanadate Photoelectrochemical Catalyst. | |
| 16:45 | ***Dr. Alejandro Vargas-Uscategui***<br>Cold spray additive manufacturing of titanium parts. | ***Jeremy Kieruj***<br>The influence of plasticity on crack-tip location using thermoelasticity. | | ***Dr Liangzhi Kou***<br>Multiferronic coupling in two dimensional materials. | ***Sajjad Mofarah***<br>Novel Ultrathin Redox Pseudocapacitor CeO2-x for energy storage applications. | ***Dr. Suk-Chun Moon***<br>The Influence of Cooling Rate on the δ-to-γ Phase Transformation in a Selected Ferritic Stainless Steel. |
| 17:00 | ***Invited: Dr. Dong Qiu***<br>Developing high performance titanium-copper alloys enabled by additive manufacturing. | ***Ryan Demott***<br>The influence of plasticity on crack-tip location using thermoelasticity. | | | | ***Baojun Zhao***<br>EH40 Offshore Steel for High Heat Input Welding. |
| 17:15 | | | | | | ***Dr. Maina Garcia***<br>Improved Charpy Toughness in the Inter-critically reheated Coarse Grained HAZ of High Strength Steel Welds. |
| 17:30 | ***Dr. Anders Eklund***<br>Optimizing HIP and printing parameters for EBM Ti-6Al-4V. | | | | | ***Muhammad Hussain***<br>Improved Heat Treatment to Prevent Premature Weld Failure and Extend Component Life. |
| **18:30** | **CONFERENCE DINNER - FOR MORE INFORMATION SEE PAGE 15** | | **18:30** | **CONFERENCE DINNER - FOR MORE INFORMATION SEE PAGE 15** | | |

# MORNING

# THURSDAY 29 NOVEMBER 2018

| 8:30 | REGISTRATION: HOPE THEATRE | | 8:30 | REGISTRATION: HOPE THEATRE | | |
|---|---|---|---|---|---|---|
| 9:00 | PANEL DISCUSSION – HOPE THEATRE | | 9:00 | PANEL DISCUSSION "ADVANCED ADDITIVE MANUFACTURING + REMANUFACTURING" – HOPE THEATRE | | |
| 10:00 | MORNING TEA | | 10:00 | MORNING TEA | | |
| BLD 20 | THEATRE 1 - RED | THEATRE 2 - BROWN | BLD 20 | THEATRE 3 - YELLOW | THEATRE 4 - GREEN | THEATRE 5 - BLUE |
| | ADDITIVE AND ADVANCED MANUFACTURING | SURFACES THIN FILMS AND COATINGS | | NANOSTRUCTURED MATERIALS AND INTERFACES | MATERIALS FOR ENERGY GENERATION, CONVERSION & STORAGE | LIGHT METALS DESIGN |
| *Chairs* | *Ma Qian – 10:30 - 12:30* | *Mingxing Zhang / Avi Bendavid – 10:30 - 12:45* | | *Ying Chen – 10:30 - 12:30* | *Wenbin Luo – 10:30 - 13:00* | *Jian-Feng Nie – 10:30 - 12:45* |
| 10:30 | ***Keynote: Prof. Graham Schaffer***<br>Heuristics for the design of new materials. | ***Keynote: Prof. Mingxing Zhang***<br>New Approach to Wear-resistant Coating through Metal 3D Printing. | | ***Keynote: Prof. Dmitri Goldberg***<br>New Possibilities of Transmission Electron Microscopy: in situ Studies. | ***Invited: Dr. Qinfen GU***<br>Effective Gas Separation/Storage Performance Enhancement Obtained by Constructing Advanced Porous Materials. | ***Keynote: Dr. Matthew Barnett***<br>Some Challenges In Measuring And Simulating Strength Due To Twinning In Mg Alloys. |
| 10:45 | | | | | | |
| 11:00 | ***Invited: Dr. Dylan Agius***<br>A Defect Analysis Tool to Map Fatigue Critical Regions in AM Components. | ***Invited: Dr. Avi Bendavid***<br>Surface Engineering Research at CSIRO Manufacturing Business Unit. | | ***Invited: Prof. Han Huang***<br>Characterisation of interfacial forces of nanowires. | ***Bosi Huang***<br>DFT study of various tungstates for photocatalytic water splitting. | ***Invited: Prof. Qiuming Peng***<br>Achieving High Strength And High Ductility Of Ultrahigh Pressure Mg Alloys. |
| 11:15 | | | | | ***Wenhan YI***<br>The structural and electronic properties of doped BiVO4 related to photocatalytic water splitting. | |
| 11:30 | ***Dr. James Best***<br>Advanced structure-property investigation of a SLM-processed Zr-Cu-Al-Nb bulk metallic glass. | ***Dr. Dongyi Seo***<br>Microstructures of EBPVD Thermal Barrier Coatings Produced from Ceramic Ingots with Various Compositions. | | ***Invited: Prof. John Bell***<br>Atypical Defect Motions in Brittle Layered Sodium Titanate Nanowires. | ***Pariasadat Musavigharavi***<br>Understanding the Origins of High Visible-Light Photoactivity in ZnS/GaP Multilayer Film. | ***Invited: Prof. Julie Cairney***<br>Atomic scale analysis of corrosion products – light metals and more |
| 11:45 | ***Dr. Mitchell Sesso***<br>3D Printed Multiscale Porous Ultra-High Temperature Ceramics. | ***Invited: Dr. Abdul Khaliq***<br>A Novel Approach to Investigating the Dissolution of Fe-based Intermetallic Compounds (IMCs) in a Commercial Steel Strip Coating Process, | | | ***Dr. Mengjun Li***<br>CO2 hydrogenation to methanol over catalysts derived from ultra-thin (CuZn)1-xGax-CO3 layered double hydroxides precursors. | |
| 12:00 | ***Hoda Eskandari***<br>Mechanical Properties and Microstructural Characterization of Direct Metal Laser Sintered 17-4 Precipitation Hardening Stainless Steel. | | | ***Ranming Niu***<br>Combined Effect of Stacking Fault Energy and Specimen Size on the Mechanical Behaviors of Single Crystalline Face-Centered Cubic Metals. | *Invited: Dr. Danielle Kennedy*<br>High throughput development of methanation catalysts for CO2 utilisation. | ***Seyed Hadi Mohamadi Azghandi***<br>Characterizing The Effect Of Grain Refinement On Failure In Mg Alloys. |
| 12:15 | ***Dr. Kristin Carpenter***<br>Effects Of Multiple Pad Weld Repairs To The Base Metal Properties Of A High Strength, Quench And Tempered Steel. | ***Dr. Dongdong Qu***<br>On the distribution of the trace elements Cr and V in Al-Zn-Si alloy coatings on steel substrates. | | ***Shun Kuwabara***<br>Growth of Al2O3/CeO2-ZrO2 nanocomposites through a colloidal approach. | | ***Prof. Shinji Ando***<br>Twinning In Compression And Tensile Tests Of Magnesium Single Crystals. |
| 12:30 | ***Pshtiwan Shakor***<br>Wettability, flowability and porosity in the inkjet 3DP for the gypsum and cement mortar materials. | ***Imrana Kabir***<br>Effects of Substrate Contamination of Photocatalytic TiO2 Thin Films. | | | | ***Dr. Suqin Zhu***<br>Enhanced Plasticity In Structural Magnesium Alloys. |
| 12:45 | LUNCH UNTIL 13:45 | | 12:15 | LUNCH UNTIL 13:45 | | |

# AFTERNOON

# THURSDAY 29 NOVEMBER 2018

| BLD 20 | THEATRE 1 - RED | THEATRE 2 - BROWN | BLD 20 | THEATRE 3 - YELLOW | THEATRE 4 - GREEN | THEATRE 5 - BLUE |
|---|---|---|---|---|---|---|
| | | **SURFACES THIN FILMS AND COATINGS** | | **NANOSTRUCTURED MATERIALS AND INTERFACES** | **MATERIALS FOR ENERGY GENERATION, CONVERSION & STORAGE** | **LIGHT METALS DESIGN** |
| *Chairs* | | *Yue Zhao / Sina Jamali – 13:45 - 15:30* | *Chairs* | *Yuantong Gu – 13:45 - 15:00* | *Rachel Caruso – 13:45 - 15:15* | *Xiao-Bo Chen – 13:45 - 15:15* |
| 13:45 | | ***Invited: Dr. Yue Zhao***<br>Corrosion and biocompatibility of Ta and TaN films deposited on Ti6Al4V by cathodic arc deposition. | | ***Invited: Prof. Ying Chen***<br>Boron Nitride Nanotube-Metal Composites and Interface Reactions. | ***Invited: Adam Best***<br>From Lithium Metal Powder to High Energy Electrodes. | ***Invited: Prof. Zhiqing Yang***<br>Dislocations And Their Interaction With Other Defects In Mg Alloys. |
| 14:00 | | | | | | |
| 14:15 | | ***Invited: Dr. Sina Jamali***<br>Silane organic-inorganic thin film as tie layer for excellent adhesion between galvanized steel surface and UV curable organic coating. | | ***Invited: Prof. Milos Toth***<br>Quantum emitters in hexagonal boron nitride. | ***Invited: Dr. Neeraj Sharma***<br>Elucidating the phase, composition and structural evolution of layered positive electrodes for battery applications using in situ diffraction. | ***Invited: Prof. Xiaojun Wang***<br>Processing, Microstructure And Properties Of Carbon Nanomaterials Reinforced Mg Matrix Composites. |
| 14:30 | | | | | | |
| 14:45 | | ***Ping Ping Chung***<br>Electrochemical noise measurement as a non-destructive test method for evaluation of surface coatings. | | ***Invited: Dr. Siva Karuturi***<br>InP Nanopillar Photoelectrodes for Efficient Solar Hydrogen Generation. | ***Invited: Prof.Shujun Zhang***<br>Development of lead free dielectrics for energy storage application. | ***Invited: Dr. Yuman Zhu***<br>Atomic-scale HAADF-STEM Study of {10-11} Twin Interface in Magnesium Alloys |
| 15:00 | | ***Thomas Jurak***<br>Effects of Heat Treatment on Mechanically Plated Zinc Coatings. | | | | |
| **15:15** | **AFTERNOON TEA** | | **15:15** | **AFTERNOON TEA UNTIL 15:45** | | |
| | | **SURFACES THIN FILMS AND COATINGS** | | **NANOSTRUCTURED MATERIALS AND INTERFACES** | **MATERIALS FOR ENERGY GENERATION, CONVERSION & STORAGE** | **LIGHT METALS DESIGN** |
| *Chairs* | | *Huiliang Cao / Brianna Knowles – 15:45 - 18:00* | *Chairs* | *Daniel Sando – 15:45 - 17:30* | *Jiazhao Wang – 13:45 - 17:45* | *Jian-Feng Nie – 13:45 - 18:00* |
| 15:45 | | ***Invited: Assoc. Prof. Huiliang Cao***<br>Surface Modification of Biomaterials by Plasma Immersion Ion Implantation and Deposition. | | ***Invited: Prof. YuanTong Gu***<br>Mechanical Characteristics of Diamond nanothread (DNT)--A new carbon nanotube brother. | ***Invited: Prof. John Andrews***<br>Novel material and manufacturing requirements of the proton battery.. | ***Invited: Prof. Keke Deng***<br>Dynamic recrystallization behavior of fine-grained Mg matrix influenced by SiC particles. |
| 16:00 | | | | | | |
| 16:15 | | ***Invited: Brianna Knowles***<br>Hydrophilic Antifouling Surface Coatings. | | ***Invited: Dr. Xianghai An***<br>Hierarchical nanostructures enabling excellent mechanical properties in CoCrFeNiMn high-entropy alloy additively manufactured by selective laser melting. | ***Dr. Bing Sun***<br>Porous Carbon Materials for Rechargeable Aprotic Alkaline Metal-oxygen Batteries. | ***Invited: Prof. Daokui Xu***<br>Fatigue behavior and crack initiation mechanisms of Mg alloys. |
| 16:30 | | | | | ***Vahide Ghanooni Ahmadabadi***<br>Enhanced rate performance in ball-milled graphite anode with high surface area for lithium-ion batteries. | |
| 16:45 | | ***Dr. Benjamin Pace***<br>Optimum Tantalum coating methods for industrially produced NiTi wires used in biomedical implants. | | ***Bosong Li***<br>Thermal cycling of a Zr-based bulk metallic glass to control structure and improve fracture toughness. | ***Invited: Dr. Zhaojun Han***<br>Vertical Graphene-based Nanostructures for Energy Storage Applications. | ***Dr. Steven Babaniaris***<br>Understanding the effect of adding Mg and Si on the as-cast microstructure of Al-Sc alloys. |
| 17:00 | | ***Dr. Kaludewa De Silva***<br>Copper-15 at.% aluminium: A surprising new option for plasmonic devices. | | ***Hao Wang***<br>Crystalline to amorphous phase transformation at crack tips in an ultrafine-grained FeCoCrNiMn high-entropy alloy. | | ***Kourosh Tavighi***<br>Twinning in hot-rolled Mg-0.8Zn-0.5Ca alloy subjected to cyclic 4-point bending. |
| 17:15 | | ***Yitian Zhao***<br>Functionally graded titanium oxide coatings on Ti-6Al-4V alloy. | | | ***Dr. Dhriti Bhattacharyya***<br>Testing for mechanical property changes due to ion irradiation at the micron scale. | ***Dr. Steven Babaniaris***<br>Developing an optimised homogenisation process for Sc and Zr containing Al-Mg-Si alloys. |
| 17:30 | | ***Ghazaleh Bahmanrokh***<br>Use of Cerium Doping to Manipulate the Band Position and Band Gap in Anatase TiO2 Thin Films. | | | ***Dr. Tao Wei***<br>Development of ion and neutron irradiation capabilities at ANSTO in structural materials. | ***Dr. Suqin Zhu***<br>Ion Beam Induced Formation of Face-Centred Cubic Titanium. |
| 17:45 | | ***Zenghao Wei***<br>Enhancing the photoelectrochemical performance of zinc oxide thin films by defect engineering. | | | | ***Jiangqi Zhu***<br>Characterization of plastically deformed AlSi10Mg fabricated by selective laser melting. |