TENTATIVE PROGRAM: ICPDF 2026, Geelong Australia, Jan. 3-8
Ver.5, January 07, 2026

We are delighted to be welcoming you to the International Conference on Plasticity, Damage, and Fracture 2026 Geelong on January 3 to 8, 2026.

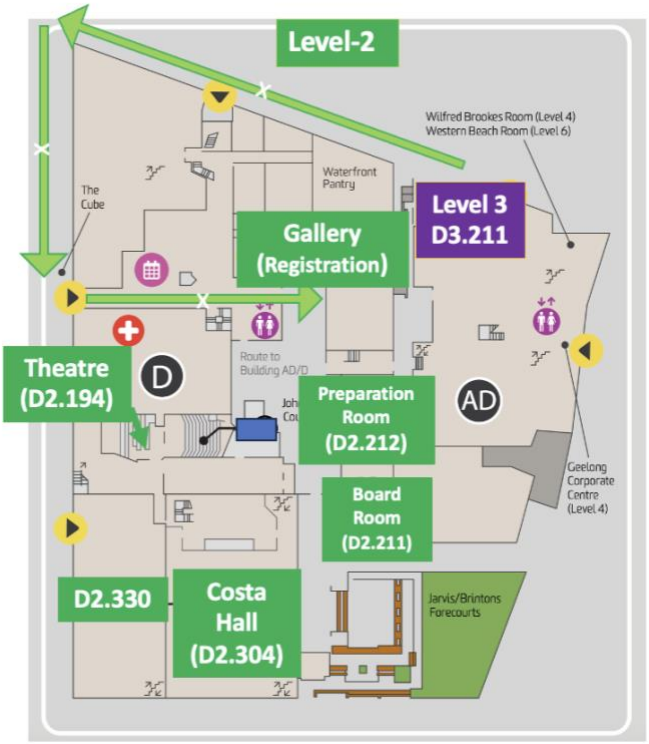
Conference Venue - 3 to 4 January
Address: Novotel Geelong,
10/14 Eastern Beach Rd,
Geelong, Victoria 3220

Conference Venue - 5 to 7 January
Address: Deakin University Waterfront Campus,
1 Gheringhap Street, Geelong, Victoria 3220

(Novotel Geelong → Eastern / Western Beach Road → Gheringhap St)

Deakin Venue Map

Novotel Geelong → Eastern / Western Beach Rd. → Gheringhap St

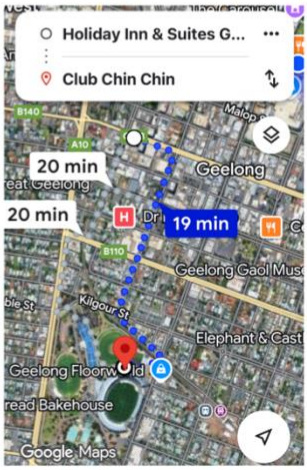


Banquet on Jan.6

(Geelong Stadium at Club Chin Chin)

Novotel → Cub Chin Chin
- Walk : 25 mins. (1.8 km)
- Uber : $13 (AUD)

Holiday Inn → Cub Chin Chin
- Walk : 19 mins. (1.4 km)
- Uber : $13 (AUD)



Banquet on Jan.6

Bar is opened at 6:30 PM

Group Photo at 7:00 PM

Banquet starts at 7:15 PM.

Registration desk

The registration desk will be open daily from 8:30am to 5pm on Saturday 3 January, and from 8am to 5pm on the remaining conference days for registration and questions. **If you have not provided the conference secretary with a copy of your passport, please have this ready for presentation upon registration.**

Accommodation

If you have not yet arranged your accommodation, we urge you to do so as soon as possible. Please kindly refer the discount codes sent by the conference secretary.

Presentation

If you are presenting at the conference, please upload a copy of your presentation slides here. To assist us, please save your file with your presentation time and full name eg: Saturday_1100_JohnSmith. If you are unable to upload via Dropbox, please email your slides or bring them to the registration desk on a USB device. **All presentations will be deleted after presentations on a daily basis.**

Transfer from Melbourne Airport to Geelong

Gull bus operates regular shuttle bus services between Melbourne Airport and Geelong with a one-way adult fare of $35 (AUD). You can reserve Gull Bus at https://gull.com.au/ Please consult a driver for the closest stop from your hotel location. Geelong Railway Station is the closest to Novotel Geelong (10 mins. walk).

Cultural Excursion on 8 January

The conference offers Cultural Excursion to Great Ocean Road on 8 January. It is complimentary and limited to two buses. Application is available by noon Jan.7 at the registration desk.

Saturday, Jan. 3, 2026

08:30 - 10:30 Registration and Coffee

10:30 - 10:50 Orientation on Novotel Venue by Chair …….. Room (Peninsula)

Room	**Peninsula**	**Bellarine**	**Ceres**
	(Sym) Characterization of Plasticity and Failure under Linear and Non-linear Loading Path (I)	***(Sym) Material Transformations and Plasticity (I)***	***(Sym) Integrating Length Scales: Constitutive Modeling and Plasticity Strategies (I)***
Chairs	***Yanshan Lou ++ & Zhidong Chang***	***Qingping Sun & Jian-Feng Nie***	***Giang Nguyen & Ibrahim Jawahir***
11:00 ~ 11:30	* Songchen Wang, Jeong Whan Yoon, **Yanshan Lou** LODE-DEPENDENT FUNCTION FOR CHARACTERIZATION OF ANISOTROPY, STRENGTH DIFFERENTIAL EFFECT AND YIELD SURFACE EVOLUTION	*** Qingping SUN** CYCLIC TRANSFORMATION-INDUCED PLASTICITY, ELASTOCALORIC COOLING AND SYSTEM PERFORMANCE DEGRADATION	*** Giang D. Nguyen**, Ha H. Bui BRIDGING THE SCALES IN CONSTITUTIVE MODELLING OF GEOMATERIALS -
11:30 ~ 11:45	+ **Zhidong Chang**, JunGongwei Shi, Ziying Ding, Dayong An, Yongbing Li, Jun Chen ROOM-TEMPERATURE PRECIPITATION STRENGTHENING IN AL-2.5MG-0.4FE SHEET INDUCED BY CYCLIC SEVERE PLASTICITY DEFORMATION	*** Levente Balogh**, Lucas Ravkov, Thalles Lucas, Shengze Yin, Arash Nikniazi, Vahid Fallah USING HIGH-RESOLUTION SYNCHROTRON X-RAY DIFFRACTION TO CHARACTERIZE DISLOCATION CELLS IN ADDITIVELY MANUFACTURES HASTELLOY-X	+ **Wonjin Park**, Youngung Jeong, Jeong Whan Yoon ANISOTROPY PREDICTION OF SHEET METALS WITH A TEXTURE-BASED POTENTIAL MODEL
11:45 ~ 12:00	+ **Jiajun Chen**, Xiongqi Peng AN ANISOTROPIC CONSTITUTIVE MODEL FOR CARBON FABRIC-REINFORCED SHAPE MEMORY POLYMER COMPOSITES BASED ON PHASE TRANSITION CONCEPT		+ **Dat G. Phan**, Giang D. Nguyen, Ha H. Bui, Terry Bennett CONSTITUTIVE MODEL FOR CAPTURING PRE AND POST-LOCALISATION RESPONSES OF PARTIALLY SATURATED SOILS
12:00 ~ 12:15	+ **Xinxi Liu**, Dayong An, Xifeng Li, Jun Chen MICROSTRUCTURE AND PROPERTY CONTROL OF METALLIC MATERIALS VIA THERMOMECHANICAL-COUPLED INCREMENTAL FORMING	*** Jian-Feng Nie** FORMATION AND STRENGTEHNING MECHANISMS OF PLATE-SHAPED PRECIPITATES IN LIGHT ALLOYS	+ **Yin Du**, Hanming Wang, Tao Yang, Qing Zhou, Haifeng Wang INVESTIGATION INTO THE EFFECT OF CRYOGENIC TEMPERATURES ON WEAR BEHAVIORS OF EUTECTIC ALCOCRFENI2.1 HIGH ENTROPY ALLOY (Cancelled)
12:15 ~ 12:30	+ Xiaoguang Fan, Li Wang, **Yunteng Xiao**, Mei Zhan MACRO-MICRO ANISOTROPY INDUCED BY LOADING PATH VARIATION IN HOT WORKING OF TITANIUM ALLOYS: INTERPRETABLE AND PHYSICS-INFORMED MODELING		* Alper Uysal, **Ibrahim Jawahir** A VARIABLE FLOW STRESS SLIP-LINE MODEL AND EXPERIMENTAL VALIDATION FOR MACHINING PROCESSES
12:30 ~ 12:45	-	*** Donald Brown**, D.T. Carver, B. Clausen, D.J. Savage, N. Peterson, C.R. Lear, S. Checchia, M. Di Michiel HEATING RATE DEPENDENT RECOVERY AND RECRYSTALLIZATION OF ROLLED TITANIUM AND AM'ed Ti-6Al-4V	
12:45 ~ 13:00			-

13:00 – 14:00 Lunch

Room	**Peninsula**	**Bellarine**	**Ceres**
	(Sym) Characterization of Plasticity and Failure under Linear and Non-linear Loading Path (II)	***(Sym) Material Transformations and Plasticity (II)***	***(Sym) Hydrogen Effects on Deformation, Fatigue and Fracture (I)***
Chairs	***Qi Hu ++ & Baodong Shi***	***Valery Levitas ++ & Wayne Chen***	***Wen Meng & Donald Brown***
14:00 ~ 14:30	*** Qi Hu**, Jeong Whan Yoon, Takeshi Nishiwaki, Jun Chen AN EXTENDED ANISOTROPIC DISTORTIONAL HARDENING MODEL FOR THE FLEXIBLE BAUSCHINGER EFFECT UNDER NONLINEAR STRAIN PATHS	***** Valery I. Levitas** RECENT ADVANCES IN SEVERE PLASTIC DEFORMATIONS, STRAIN-INDUCED PHASE TRANSFORMATIONS, AND MICROSTRUCTURE EVOLUTION AT HIGH PRESSURE	*** W.J. Meng**, B. Zhang, C.F.O. Dahlberg, J.W. Hutchinson, W. Xu, A. Kaveh PROBING MICRON SCALE PLASTIC RESPONSE UNDER NON-PROPORTIONAL LOADING AND HYDROGEN CHARGING EFFECTS USING SMALL SCALE MECHANICAL TESTING
14:30 ~ 14:45	+ **Zexiong Zhang**, Chun-mei Liu, Xun-zhong Guo, Tao Tao, Wang Yun RESEARCH ON DOUBLE-SIDED INCREMENTAL AND ELECTRO-AGING FLEXIBLE FORMING TECHNOLOGY FOR Al-Li ALLOY		+ **Liangyun Lan**, Xiangwei Kong, Andrej Atrens HYDROGEN AFFECTED FRACTURE TOUGHNESS OF X52 PIPELINE STEEL WITH ITS MECHANISM OF PLASTICITY DEGRADATION
14:45 ~ 15:15	*** Yong Hou**, Zhenkai Mu, Wei Wang, Shuangjie Zhang, Baoyu Wang, Shibo Ma A NOVEL HILL48 YIELD CRITERION FRAMEWORK USING STRESS ADJUSTMENT TO CAPTURE STRESS-STATE-DEPENDENT PLASTIC ANISOTROPY	*** Wayne Chen**, Andrew Roginski, Cody Kirk MONITORING PHASE TRANSITION DURING HIGH-RATE PLASTIC DEFORMATION	* Lawrence Cho, Yuran Kong, Pawan Kathayat, John G. Speer, Kip O. Findley, **Donald W. Brown**, Samantha K. Lawrence, Bjørn Clausen, Sven C. Vogel, Joseph A. Ronevich, Chris W. San Marchi, Levente Balogh, Lucas Ravkov UNDERSTANDING THE ROLE OF HYDROGEN ON THE DEFORMATION MECHANISMS AND DISLOCATION STRUCTURE EVOLUTION IN HIGH MN AUSTENITIC STEELS THROUGH NEUTRON DIFFRACTION LINE PROFILE ANALYSIS
15:15 ~ 15:30	*** Baodong Shi** ANISOTROPIC YIELD LOCI AND INVERSE SWIFT EFFECT IN EXTRUDED AZ31 MG ALLOY	*** Klaus Hackl**, Philipp Junker A RELAXATION-BASED APPROACH TO DAMAGE MODELING	+ Hyoungryul Park, Yifan Wang, Inseo Woo, Wei Cai, J.C Stinville, **Keonwook Kang** THE EFFECT OF AN ATOMIC HYDROGEN ON THE KINK MIGRATION IN A <111>{110} SCREW DISLOCATION IN BCC TUNGSTEN: ATOMISTIC STUDY
15:30 ~ 15:45			
15:45 ~ 16:15	* Yue Wu, Chenxin Gao, Renhao Wu, **Haiming Zhang** MICROSTRUCTURE-RESOLVED PLASTICITY HETEROGENEITIES AND DAMAGE INITIATION IN NEAR-A Ti60 UNDER NON-LINEAR LOADING PATHS	-	-

19:00 – 21:00 Welcome Dinner (Novotel Peninsula)

*** 45 minutes Distinguished keynote lecture, * 30 minutes keynote lecture,

+ 15 minutes invited presentation, ++ Symposium Organizer

Sunday, Jan. 4, 2026

Room	**Peninsula**	**Bellarine**	**Ceres**
	(Sym) AI Modeling for Plastic Forming with Multi-Energy Fields (I)	***(Sym) Material Transformations and Plasticity (II)***	***(Sym) Integrating Length Scales: Constitutive Modeling and Plasticity Strategies (II)***
Chairs	***Lin Hua ++ & Fei Chen***	***Yann Le Godec & Alexander Soldatov***	***Hyuk Jong Bong & Dongchan Jang***
8:30 ~ 9:00	*** Fei Yin, **Lin Hua** PHYSICS-INFORMED MACHINE LEARNING OF THERMAL STABILITY IN GRADIENT NANOCRYSTALLINE 316L STAINLESS STEEL	*** Yann Le Godec** EXPLORING EXTREME CHEMISTRY AND EARTH PROCESSES WITH NEXT-GENERATION PORTABLE LARGE VOLUME HIGH P-T-STRESS SYNCHROTRON CELLS	*** Hyuk Jong Bong**, Kyung Mun Min, Seonghwan Choi ON THE DIRECTION-DEPENDENT FORMABILITY OF AN ULTRA-THIN COMMERCIALLY PURE TITANIUM SHEET
9:00 ~ 9:15		*** Alexander V. Soldatov** GRAPHITE UNDER SEVERE SHEAR DEFORMATION-ENROUTE SYNTHESIS OF HEXAGONAL DIAMOND	*** Yuqiang Chen** CONTRIBUTION OF LATTICE ROTATION AND RECRYSTALLIZATION MECHANISM TO THE TRANSFORMATION OF ORIENTATION PREFERENCE IN ALUMINUM SINGLE CRYSTAL DURING ECAP
9:15 ~ 9:30	＋**Qifa Chen**, Tao Wang, Jinyu Zhao INVAR 36 ALLOY ULTRA-THIN STRIP ROLLING PROCESS AND THE INFLUENCE MECHANISM OF SURFACE DEFECTS ON THE HOLE FORMATION RATE		
9:30 ~ 10:00	*** Fei Chen** MACHINE LEARNING FRAMEWORK TO PREDICT THE COARSE GRAIN FORMATION DURING HOT WORKING	* Haoxiang Liu, Xudong Liu, Yaoqing Zhang, **Yixuan He** EVADING STRENGTH-DUCTILITY TRADE-OFF IN EUTECTIC HIGH ENTROPY ALLOYS THROUGH HETERIGENEOUS STRUCTURE INDUCED MARTENSITIC TRANSFOAMATION	*** Dongchan Jang**, Hadi Ghaffarian, Daehyeok Ahn DEFECT-DRIVEN PLASTICITY IN IRRADIATED NANOTWINNED Cu
10:00 ~ 10:15	＋**Wei Feng**, Ruikun Wang, Yuhao Zhang, Xinghui Han, Lin Hua EFFECT OF HIGH TEMPERATURE QUENCHING TEMPERATURE ON THE WEAR PERFORMANCE OF AVIATION GEAR STEEL 15Cr14Co12Mo5Ni2	-	-
10:15 ~ 10:30	＋**Zhihui Gao**, Tao Wang, Hui Niu, Qingshan Ding COUPLED STRENGTHENING MECHANISMS IN Ti/Al CLADDING TUBES WITH DUAL HETEROGENEOUS STRUCTURES FABRICATED BY THREE-ROLL SKEW ROLLING		

10:30 – 11:00 Coffee Break

Room	**Peninsula**	**Bellarine**	**Ceres**
	(Sym) AI Modeling for Plastic Forming with Multi-Energy Fields (II)	***(Sym) Physics-Based Modelling and AI-enabled simulation (I)***	***(Sym) Multiscale Plasticity of Materials Under Extreme Conditions (I)***
Chairs	***Junying Min & Tao Wang***	***Yinan Cui ++ & Heng Li***	***Yao Shen & Jia Li***
11:00 ~ 11:30	*** Junying Min**, Xianglu Zhang, Xiaolong Ma, Bo Chen HARNESSING ELECTRICAL ASSISTANCE IN FORMING OF ULTRA-THIN TITANIUM SHEETS	***** Yinan Cui**, Xin Liu, Fushang Tan, Zhun Liang, Enrique Martinez Saez, Yang Li, Nikhil Chandra Admal, Giacomo Po DATA-DRIVEN MULTISCALE MODELING OF HETEROGENEITY EFFECTS ON ALLOY STRENGTH AND FATIGUE	* Shuqing Yang, Guisen Liu, **Yao Shen**, Jianbo Hu, Wenjun Zhu A POLYCRYSTALLINE THERMO-ELASTO-PLASTIC CONSTITUTIVE MODEL BASED ON EULERIAN STRAIN FRAMEWORK: THEORY, NUMERICAL IMPLEMENTATION, AND APPLICATION FOR SHOCK AND QUASI-ISENTROPIC LOADING
11:30 ~ 11:45	+ **Xiaomiao Niu**, Chenchen Zhao, Tao Wang, Qingxue Huang EFFECT OF PULSED CURRENT ON THE DEFORMATION AND INTERFACIAL BONDING OF COPPER/STAINLESS STEEL STRIPS IN ROLLING		+ Tianyou Wang, Qiankun Li, **Li Jin**, Chuanlai Liu, Jian Zeng, Fulin Wang, Shuai Dong, Fenghua Wang, Jie Dong INTERPRETABLE MACHINE LEARNING FOR PREDICTING TENSILE TWINNING AND REVEALING MICROSTRUCTURAL INFLUENCES IN PURE Mg
11:45 ~ 12:15	*** Tao Wang** ROLLING TECHNOLOGIES AND EXTREME MANUFACTURING	*** Heng Li**, Ronghai Wu, Zhao Zhang MECHANICAL RESPONSE-MICROSTRUCTURE-CRACKING RELATION OF POWDER METALLURGY NI-BASED SUPERALLOYS UNDER LOW CYCLE FATIGUE	*** Jia Li**, Weizheng Lu, Xiaoai Yi, Yuan Chen, and Qihong Fang MULTISCALE DEFORMATION MECHANISMS IN HIGH-ENTROPY ALLOYS FOR ENHANCED STRENGTH AND DUCTILITY
12:15 ~ 12:30	+ **Yan Wen,** Chang Liu, Fei Yin, Lechun Xie, Lin Hua IN-SITU MANIPULATING MECHANISM OF ELECTROMAGNETIC FIELD ON THE MICROSTRUCTURE AND HARDNESS OF TITANIUM ALLOY DURING LASER MELTING DEPOSITION	*** Chaoyang Sun**, Huijun Liang, Lingyun Qian, Chunhui Wang, Peipei Li A PHYSICAL-BASED CRYSTAL PLASTICITY MODEL FOR HIGH-MANGANESE STEEL CONSIDERING γ-ε-α' MARTENSITIC TRANSFORMATION	+ **Guisen Liu**, Yao Shen MESOSCALE MODELING ON IRRADITION HARDENING OF METALLIC MATERIALS
12:30 ~ 12:45	+ **Luoqi Wu**, Xiaobin Feng, Guodong Li SYNERGISTICAL IMPROVEMENT OF STRENGTH AND PLASTICITY OF CADMIUM TELLURIDE SEMICONDUCTOR MATREILAS THROUGH INTERFACE MODIFICATION ENGINEERING SUCH AS GRADIENT STRUCTURE AND ALLOYING		-
12:45 ~ 13:00	+ **Daohan Lin**, Yixi Zhao, Xuan Cheng, Dan Shao, Jianzhi Sun PATH-PLANNING FOR INDUCTION STRAIGHTENING PROCESS BASED ON REINFORCEMENT LEARNING APPROACH	+ **Xiaoqing Shang**, Shengyi Zhong, Xiaoqin Zeng UNVEILING DEFORMATION MECHANISM OF METAL COMPOSITE USING COMBINED IN-SITU DIFFRACTION EXPEREIMENTS AND FULL-FIELD CRYSTAL PLASTICITY MODELING	
13:00 ~ 13:15	+ **Huiling Wang**, Dongsheng Qian, Feng Wang, Lin Hua DAMAGE EVOLUTION OF MULTI-TYPE VOIDS DURING PLASTIC DEFORMATION OF HIGH-CARBON STEEL USING CRYSTAL PLASTICITY FINITE ELEMENT MODELING	+ **Xinxin Sun**, Wentao Yan, Ming Wang Fu A FULLY COUPLED MULTI-PHYSICS MULTI-PHASE FIELD CRYSTAL PLASTICITY FINITE ELEMENT MODEL (MPF-CPFEM) FOR PREDICTING MICROSTRUCTURE EVOLUTION AND THERMOMECHANICAL BEHAVIOR IN ADDITIVE MANUFACTURING	

13:15 – 14:15 Lunch

Room	**Peninsula**	**Bellarine**	**Ceres**
	(Sym) Characterization of Plasticity and Failure under Linear and Non-linear Loading Path (III)	***(Sym) Multi-Scale Insights into Strengthening, Plasticity, and Damage in Multi-Principal Element Alloys (I)***	***Fatigue & Fracture***
Chairs	***Jeong Whan Yoon & Zhutian Xu***	***Jichao Qiao ++ & Yajuan Duan***	***Satyam Suwas & Wei Lu***
14:15 ~ 14:45	***** Jeong Whan Yoon** ADVANCES IN MATERIALS CHRACTERIZATION	*** Jichao Qiao** INTEGRATED MULTISCALE MODEL FOR THE VISCOELASTIC BEHAVIOR AND MICROSTRUCTURAL EVOLUTION OF METALLIC GLASSES: INSIGHTS FROM CYCLIC LOADING, CREEP AND THERMO-MECHANICAL COUPLING	*** Satyam Suwas**, S. Tejanath Reddy, K.U. Yazar, A. Bhattacharjee MICROSTRUCTURAL ORIGIN OF DWELL-FATIGUE DEBIT IN NEAR- α TITANIUM ALLOYS
14:45 ~ 15:00		+ **Yajuan Duan**, Jichao Qiao, Eloi Pineda ON THE CONNECTION BETWEEN MECHANICAL RELAXATION AND EQUILIBRATION KINETICS IN A HIGH-ENTROPY METALLIC GLASS	+ **Di Song**, Heinz Thomas Beier, Michael Vormwald UNIFIED LOW-CYCLE FATIGUE BEHAVIOR AND LIFE PREDICTION OF HIGH-MANGANESE TWIP STEELS UNDER COMPLEX LOADING CONDITIONS
15:00 ~ 15:15	*** Zhutian Xu**, Chuanzheng Li, Linfa Peng FRACTURE OF NANO-COATINGS ON POLYCRYSTALLINE METALLIC SUBSTRATES IN PLASTIC DEFORMATION AND ITS MODELING	+ Yixuan He, **Haoxiang Liu**, Xudong Liu TAILORING MARTENSITIC TRANSFORMATION KINETICS IN Co36.8Ni39.2Al24 HYPEREUTECTIC MEDIUM ENTROPY ALLOY THROUGH HEAT TREATMENT	+ **Jiangshuai Meng**, Xu Li, Sheng Jiang, Daniel Dias-da-Costa, Luming Shen IMAGE-BASED QUANTIFICATION OF FRAGMENT KINETIC ENERGY IN DYNAMIC FAILURE OF BRITTLE MATERIALS
15:15 ~ 15:30		+ **Guo-Jian Lyu** STUDY ON THE COUPLING MECHANISM OF DYNAMIC RELAXATION AND INELASTIC DEFORMATION IN METALLIC GLASSES	+ **Thomas Virazels**, Navab Hosseini, Nicolas Jacques, José A. Rodríguez Martínez THE EFFECT OF MICROSTRUCTURAL INERTIA ON PLASTIC LOCALIZATION AND VOID GROWTH IN POROUS SOLIDS
15:30 ~ 15:45	+ **Guofeng Han**, Jeong Whan Yoon EVALUATING SHEAR STRAIN UNDER NONIDEAL SIMPLE SHEAR DEFORMATION	+ **Bing Wang**, Jinyi Zhang, Jichao Qiao REJUVENATION MECHANISM INDUCED BY CYCLIC LOADING IN SIMULATION	*** Wei Lu** ELECTRODE FRACTURE AND ITS EFFECT ON BATTERY PERFORMANCE
15:45 ~ 16:00	+ **Enzhen Ren**, Ji He MACHINE LEARNING-ASSISTED NON-PARAMETRIC FULL-FIELD STRESS-STRAIN IDENTIFICATION FOR HIGH-THROUGHPUT DATA ACQUISITION OF SHEET METALS	-	
16:00 ~ 16:15	+ **Jianyu Wang**, Feifan Li, Shifeng Wen MULTI-SCALE INVESTIGATIONS ON DAMAGE AND ANISOTROPIC TENSILE BEHAVIOR OF TITANIUM MATRIX COMPOSITES WITH A NOVEL TIB-NETWORK ARCHITECTURE AT HIGH TEMPERATURE		+ **Thomas Virazels**, Javier García-Molleja, Juan Carlos Nieto-Fuentes, Manny Gonzales, Federico Sket, José A. Rodríguez-Martínez HIGH-VELOCITY FRAGMENTATION AND SPALL FRACTURE OF STEEL AF9628
16:15 ~ 16:30	+ **Kehuan Wang**, Wentao Chen, Gang Liu BREAKING THE STRENGTH-DUCTILITY TRADE-OFF IN 600 ℃ HIGH-TEMPERATURE TITANIUM ALLOYS VIA RAPID HEATING		-

*** 45 minutes Distinguished keynote lecture, * 30 minutes keynote lecture,
+ 15 minutes invited presentation, ++ Symposium Organizer

Monday, Jan. 5, 2026

08:00 - 08:20 Orientation on Deakin Venue by Chair …… Room (D2.304 Costa Hall Lecture Theatre)

Room	**D2.304 Costa Hall Lecture Theatre**	**D2.194 Lecture Theatre**	**D2.330 Classroom**	**D3.211 Classroom**
	(Sym) Characterization of Plasticity and Failure under Linear and Non-linear Loading Path (IV)	***(Sym) Numerical Strategies for Nonlinear Coupled Hydro-Poromechanics and Thermo-Mechanics Problems***	***(Sym) Integrating Length Scales: Constitutive Modeling and Plasticity Strategies (III)***	***(Sym) Cyclic Plasticity and Fatigue: Mechanisms, Modeling, and Design (I)***
Chairs	***Cunsheng Zhang & Thomas Stoughton***	***Valentina Salomoni ++ & Massimiliano Ferronato ++***	***Eun-Ho Lee & Dayong Li***	***Guozheng Kang ++ & Yanyao Jiang***
08:30 ~ 09:00	* **Cunsheng Zhang**, Zinan Cheng EXTENSIVE MODIFICATION AND APPLICATION OF VISCOPLASTIC SELF-CONSISTENT MODEL IN VARIOUS FIELDS	* **Valentina A. Salomoni**, Gianluca Mazzucco, Giovanna Xotta, Riccardo Fincato, Beatrice Pomaro, Nico De Marchi, Jiangkun Zhang, Alberto Antonini MODELING POROUS/NON-POROUS MEDIA AT DIFFERENT SCALES FOR SUSTAINABLE APPLICATIONS	* **Eun-Ho Lee**, Sung-Hyun Oh, Jae-Uk Lee, Hyun-Dong Lee, Hoo-Jeong Lee CONSTITUTIVE MODELING FOR MULTI-SCALE SIMULATION OF BUMPLESS HYBRID BONDING PROCESSES IN SEMICONDUCTOR DIE STACKING FOR HIGH-PERFORMANCE COMPUTING SYSTEM	*** **Guozheng Kang**, Yu Lei, Ziyi Wang, Binghui Hu, Chao Yu EXPERIMENTAL AND THEORETICAL STUDY ON TEMPERATURE-DEPENDENT RATCHETTING-FATIGUE INTERACTION OF EXTRUDED AZ31 MAGNESIUM ALLOYM ALLOY
09:00 ~ 09:15	+ **Wen Zhang**, Huan Wu, Xincun Zhuang, Zhen Zhao A DAMAGE EVOLUTION FRAMEWORK BASED ON SHAPE AND VOLUME CHANGES OF SPHERICAL VOIDS UNDER NON-PROPORTIONAL LOADING CONDITIONS	* **Massimiliano Ferronato**, Eduardo Da Silva Castro, Andrea Franceschini, Daniele Moretto MULTI-PHYSICS AND MULTI-DOMAIN SIMULATIONS OF COUPLED PROCESSES IN POROUS MEDIA	* Guowei Zhou, Qi Wang, **Dayong Li**, Peidong Wu NEURAL NETWORK BASED MESOSCALE PLASTICITY MODEL FOR HCP MATERIAL WITH SLIP AND TWINNING MECHANISMS	
09:15 ~ 09:30	+ **Yue Liu**, Kang Zhanga, Kaichao Zhangb, Na Xiaoc, Hongshou Huangd, Hao Wange SHEAR-TAILORED MACROSCOPIC HETEROGENEOUS STRUCTURE DELIVERS EXCEPTIONAL SUPERPLASTICITY IN DUAL-PHASE TITANIUM ALLOYS			+ **Hyemin Ryu**, Jiaqi Dong, Kelvin Y. Xie, Gi-Dong Sim PHASE TRANSFORMATION-MEDIATED TRANSITION FROM LOW- TO HIGH-CYCLE FATIGUE IN Ni-RICH NiTi THIN FILMS
09:30 ~ 09:45	* **Thomas B. Stoughton**, Jeong-Whan Yoon APPLICATION OF DIGITAL IMAGE CORRELATION TECHNOLOGY FOR CHARACTERIZATION OF ELASTO-PLASTICITY, NECKING, AND FRACTURE PROPERTIES OF SHEET METAL	+ **Yukai Xiong**, Xu Zhang COUPLED CRYSTAL PLASTICITY-PHASE FIELD MODELING OF MULTI-MECHANISM DEFORMATION IN FCC METALS: INSIGHTS INTO TWINNING-MEDIATED PLASTICITY	* **Guowei Zhou**, Dayong Li, Peidong Wu MODELLING OF CONTINUOUS DYNAMIC RECRYSTALLIZATION OF ALUMINUM ALLOY WITH CRYSTAL PLASTICITY FINITE ELEMENT CONSIDERING EXPLICIT SUBGRAIN STRUCTURE EVOLUTIONS	* **Yanyao Jiang**, Yuxuan Song, Zengliang Gao MATAL FATIGUE AND CYCLIC PLASTICITY: FROM A MACROSCOPIC PERSPECTIVE
09:45 ~ 10:00		+ **Mei-Cen Chen**, Eun-Ho Lee MODELING OF INTERFACIAL FRACTURE IN STACKED THIN FILMS WITH STRAIN-RATE AND HYGROTHERMAL EFFECTS		
10:00 ~ 10:15	+ Jing-Hua Zheng, **Yueyulong Fang**, Ruodie Yu, Qian Bai, Kailun Zheng A NOVEL CONSTITUTIVE MODEL FOR ALUMINUM ALLOYS UNDER COMPRESSION & SHEAR COUPLED DEFORMATION	-	* **Xincun Zhuang**, Ruizhi Deng, Huachao Yang, Wen Zhang, Zhen Zhao EFFECTS OF TENSION-COMPRESSION ASYMMETRY IN R-VALUE ON PLASTIC FLOW BEHAVIOR: EXPERIMENTS AND MODELING	+ **Sita Choudhary**, Prasanth Soundappan, Aarya Kedar Sathe, I. Balasundar, Satyam Suwas MICROMECHANICAL RESPONSE OF AN ADDITIVELY MANUFACTURED NEAR-α Ti-6242 ALLOY UNDER CYCLIC LOADING: INSIGHTS FROM EXPERIMENTS AND CRYSTAL PLASTICITY SIMULATIONS
10:15 ~ 10:30	+ **Daecheon Cho**, Heonyong Lim, Kanghyeok Choi, Jeong-Whan Yoon INVESTIGATION OF THE MECHANISM FOR EDGE CRACK REDUCTION AND ANALYSIS OF THE EFFECT OF MAJOR PROCESS VARIABLES IN EQUAL-SPEED ASYMMETRIC ROLLING			-

10:30 – 11:00 Coffee Break

Room	**D2.304 Costa Hall Lecture Theatre**	**D2.194 Lecture Theatre**	**D2.330 Classroom**	**D3.211 Classroom**
	Deformation Mechanisms in Hexagonal Metals	***(Sym) Multi-Scale Insights into Strengthening , Plasticity, and Damage in Multi -Principal Element Alloys (II)***	***(Sym) Integrating Length Scales: Constitutive Modeling and Plasticity Strategies (IV)***	***(Sym) Multiscale Plasticity of Materials Under Extreme Conditions (II)***
Chairs	**Matthew R. Barnett & Orcun K. Celebi**	**Zhangwei Wang & Laichang Zhang**	**Heung Nam Han & R.E. Jones**	**Fulin Wang & Jiao Luo**
11:00 ~ 11:30	*** **Mhatthew R. Barnett**, Jun Wang, Peter Lynch, Andrew Stevenson OBSERVING CO-ORDINATED BURSTS OF PLASTICITY IN BULK MAGNESIUM ALLOYS	* **Zhangwei Wang** COMPOSITIONALLY COMPLEX ALLOYS—TOWARD THE DESIGN OF EXCEPTIONAL MATERIALS	* **Heung Nam Han**, Kyung Mun Min, Seonghwan Choi, Jee Hyuk Ahn, Hyuk Jong Bong, Myoung-Gyu Lee TOWARD AN INTEGRATED MODELING FRAMEWORK FOR RECRYSTALLIZATION-DRIVEN MICROSTRUCTURE CONTROL	* **Fulin Wang**, Fenghua Wang, Jian Zeng, Chuanlai Liu, Shuai Dong, Li Jin, Jie Dong LOCAL STRAIN MODULATION BY THE LPSO PHASE OF LAMELLAR AND BLOCKY MORPHOLOGY IN MG ALLOYS (Cancelled)
11:30 ~ 11:45				
11:45 ~ 12:00	+ **Orcun K. Celebi**, Tolga B. Celebi, Daegun You, Ashley Bucsek, Huseyin Sehitoglu CROSS-SLIP AND EASY-GLIDE CRSS DETERMINATION IN TITANIUM: THEORETICAL PREDICTIONS AND IN-SITU EXPERIMENTAL MEASUREMENTS	* **Laichang Zhang** ADDITIVE MANUFACTURING AND MECHANICAL BEHAVIOR OF TINBTAZRMO REFRACTORY HIGH-ENTROPY ALLOY	* **R.E. Jones**, J.N. Fuhg, D.T. Seidl A NEURAL NETWORK FRAMEWORK FOR THERMOVISCOPLASTICITY	* **Anirban Patra**, Namit Pai, Youngung Jeong, Carlos N. Tomé ELASTO-VISCOPLASTIC MODELING OF DEFORMATION IN DUAL PHASE STEELS: FROM MICROSTRUCTURES TO COMPONENTS
12:00 ~ 12:15	+ **Daegun You**, Ahmed Sameer Khan Mohammed, Minoru Nishida, Huseyin Sehitoglu ORIGIN OF TWINNING MODE HIERARCHY IN NITI – A CRITICAL UNDERSTANDING	+ **Yang Chen**, Shuo Wang, Jing Peng, Qihong Fang ON THE INVESTIGATION OF STRENGTHENING AND IRRADIATION DAMAGE IN MULTI-PRINCIPAL ELEMENT ALLOYS: MULTISCALE DISLOCATIONS DYNAMICS SIMULATIONS	+ **Zeran Hou**, Jinheung Park, Yong Hou, Yushi Yang, Myoung-Gyu Lee, Junying Min A TEMPERATURE-EXPLICIT CRYSTAL PLASTICITY FRAMEWORK FOR PREDICTING MECHANICAL BEHAVIOR OF QP1500	+ **Jingyu Zhang**, Mingxin Huang STRAIN-RATE EFFECTS ON THE STRENGTH AND FRACTURE OF ADVANCED HIGH-STRENGTH STEELS
12:15 ~ 12:30	+ **Hao Wang**, Jinhu Zhang, Xuexiong Li, Jianke Qiu, Shujun Li, Jianrong Liu, Dongsheng Xu, Rui Yang DESIGN OF TITANIUM ALLOYS INTEGRATING MECHANISM AND INTELLIGENCE	+ **LingYun Qian**, JiaXiang Zhang, Jie Xu, XinYu Liu, ChaoYang Sun ESTABLISHMENT OF A UNIFIED ELASTOPLASTIC CONSTITUTIVE MODEL FOR SiC/AL COMPOSITES AND THREE-DIMENSIONAL FINITE ELEMENT MODELING BASED ON MICROSTRUCTURE	+ **Mohamed Magdy**, Xianglu Zhang, Junying Min INTEGRATED CRYSTAL PLASTICITY-PHASE FIELD FRAMEWORK FOR PREDICTING ELECTRICALLY INDUCED RECRYSTALLIZATION AND GRAIN GROWTH IN POLYCRYSTALLINE TITANIUM	+ **Chengyi Dan** IN SITU HIGH THROUGHPUT CHARACTERIZATION AND ANALYSIS OF ALUMINUM ALLOYS
12:30 ~ 12:45		* **Qing Zhou** REVEALING THE MECHANISMS OF DISLOCATION-GRAIN BOUNDARY INTERACTIONS IN A COCRNI MEDIUM-ENTROPY ALLOY: A COMBINED SIMULATION AND EXPERIMENTAL STUDY (15 mins. Presentation by Shuo Li)	+ **Jong-Hyeok Kwon**, Dae-Seo Kwon, Dong-Kyu Kim AI-ASSISTED UNVEILING MICROMECHANICAL FAILURE MECHANISMS IN METAL MATRIX COMPOSITE: IN SITU ACOUSIC EMISSION AND NEUTRON DIFFRACTION	* Ke Chen, **Jiao Luo**, Junjie Li, Jin Yang MULTISCALE MODELING AND SIMULATION OF γ PHASE DURING GRADIENT STRAIN AND TEMPERATURE OF GH4586 SUPERALLOY USING INTEGRATED FINITE ELEMENT AND PHASE-FIELD METHOD (Cancelled)
12:45 ~ 13:00			+ Zhiyu Xiang, Hongwei Li, **Xin Zhang** MULTISCALE MODELING OF ELECTRICALLY ASSISTED DEFORMATION IN Ni-BASED SUPERALLOY ALLOY THROUGH ELECTRON-ATOM COLLISION MECHANISM (Cancelled)	
13:00 ~ 13:15		-	-	+ **Jingya Wang**, Hongwei Xiong, Javier LLorca, Xiaoqin Zeng OVERCOMING THE SPECIFIC STIFFNESS/DUCTILITY TRADE-OFF IN ZX50/SIC MAGNESIUM COMPOSITES THROUGH SOLUTE-SEGREGATION INTERFACE STRENGTHENING (Cancelled)

13:00 – 14:15 Lunch

Room	**D2.304 Costa Hall Lecture Theatre**	**D2.194 Lecture Theatre**	**D2.330 Classroom**	**D3.211 Classroom**
	(Sym) Khan Medal Symposium in Honor of Irene Beyerlein: Understanding Deformation Mechanisms at the Mesoscale via Modelling and Experiments (I)	***(Sym) AI Modeling for Plastic Forming with Multi-Energy Fields (III)***	***(Sym) Hydrogen Effects on Deformation, Fatigue and Fracture (II)***	***High Entropy Alloys***
Chairs	**Irene J. Beyerlein & Gi-Dong Sim ++**	**Khanh Chau Le & Lechun Xie**	**Wei Cai ++ & Shigenobu Ogata**	**Alan Xu & Li Li**
14:15 ~ 14:45	***** Irene J. Beyerlein** FUNDAMENTAL PROPERTY EFFECTS ON CRITICAL RESOLVED SHEAR STRESSES IN REFRACTORY MULTI-PRINCIPAL ELEMENT ALLOYS	*** Khanh Chau Le** DATA-DRIVEN APPROACH TO DISLOCATION MEDIATED PLASTICITY	*** Muhammad Arafin** RECENT DEVELOPMENT ON LINEPIPE FOR HYDROGEN TRANSPORTATION	*** Alan Xu**, Michael Moschetti, David Miskovic, Tao Wei, Mihail Ionescu, Zhiyang Wang, Tim Palmer, Dhriti Bhattacharyya, Peidong He, Xiaopeng Li, Bernd Gludovatz, Michael Ferry IMPROVED IRRADIATION RESISTANCE OF A LOW ACTIVATION REFRACTORY MEDIUM ENTROPY ALLOY, VCrFeW0.2, FOR FUSION APPLICATIONS DEMONSTRATED BY MICRO-TENSILE TESTING
14:45 ~ 15:00		+ **Lechun Xie**, Jian Zhou, Fei Yin, Lin Hua THE STUDY OF MICROPILLAR CYCLIC COMPRESSION DEFORMATION BEHAVIOR OF Ti-6.5Al-3.5Mo-1.5Zr-0.3Si ALLOY AFTER ELECTROMAGNETIC SHOCK TREATMENT	* Wurong Jian, **Wei Cai** HYDROGEN EFFECT ON DISLOCATION MOBILITY IN SINGLE CRYSTAL NICKEL	*** Wei Jian** PLASTIC BEHAVIOR OF REFRACTORY HIGH ENTROPY ALLOYS FROM NANOSCALE PERSPECTIVE
15:00 ~ 15:15	*** Dongwoo Lee**, Taeyeop Kim, Daegun You COMBINATORIAL EXPERIMENTAL STUDY ON THE MECHANICAL BEHAVIOR OF Mo–Nb–Ti AND Ta–Nb–Ti COMPLEX-CONCENTRATED ALLOY THIN FILMS	+ **Zhang Han**, Liu Yanxiong DEFORMATION BEHAVIOR AND MICROSTRUCTURAL EVOLUTION OF HIGH-STRENGTH AND LOW-PLASTICITY MATERIALS UNDER COMPRESSION PROCESS WITH CONFINING PRESSURE		
15:15 ~ 15:30		+ **Xiong Zhou**, Fengrui Chen, Guodong Li, Zhixiang Qi, Guang Chen QUANTITATIVE EXPLANATION OF TWIN BOUNDARY INDUCED DUCTILITY IN γ-TiAl BASED ON THE COMPETITIVE MECHANISM OF DISLOCATION NUCLEATION	*** Jörg Neugebauer**, Ali Tehranchi, Tilmann Hickel HYDROGEN ENHANCED CROSS SLIP (HECS): A NOVEL ATOMISTIC MECHANISM FOR HYDROGEN ASSISTED EMBRITTLEMENT IN NICKEL GRAIN BOUNDARIES	*** Li Li**, Yang Chen, Qihong Fang, Jia Li AN ATOMICALLY INFORMED FINITE ELEMENT FRAMEWORK FOR LATTICE-DISTORTION-INDUCED STRAIN HARDENING IN HIGH-ENTROPY ALLOYS
15:30 ~ 15:45	*** Amit Misra** EXPERIMENTAL CHARACTERIZATION OF GRAIN BOUNDARY STRENGTHENING IN POLYCRYSTALLINE MAGNESIUM ALLOYS	+ **Yanqiu Yang**, Yanchao Zhao, Zhenwei Li, Li Yang, Zhixun Wen HOT CORROSION-CREEP DEFORMATION BEHAVIOR OF NI-BASED SINGLE CRYSTAL SUPERALLOY CONSIDERING THE STRESS DEPENDENCE AND FILM COOLING HOLE		
15:45 ~ 16:00		**+ Min Yi** AN ELECTRO-THERMO-MECHANICALLY COUPLED CRYSTAL PLASTICITY MODEL FOR ELECTROPLASTICITY	*** Shigenobu Ogata** ATOMISTIC MODELING OF HYDROGEN IMPACT ON DEFECT KINETICS IN MATALS	+ **Qishan Huang**, Yixuan Zeng, Haofei Zhou GRAIN BOUNDARY SEGREGATION-INDUCED TRANSITION OF DEFORMATION MECHANISMS IN FENICRCOCU HIGH-ENTROPY ALLOY
16:00 ~ 16:15	*** Gi-Dong Sim**, Injong Oh, Zion Lee, Hojang Kim ALUMINUM-CARBON THIN FILMS WITH HIGH STRENGTH AND DUCTILITY	-		-
16:15 ~ 16:30			+ **Frank W. DelRio**, Manuel Schmitz-Elbers, Uwe Strohmeier, Thomas Straub LOCAL FAILURE STRAIN AND REDUCTION OF AREA PROVIDE EARLY METRICS FOR HYDROGEN EMBRITTLEMENT IN MICROSCALE TENSILE SPECIMENS	

*** 45 minutes Distinguished keynote lecture, * 30 minutes keynote lecture,
+ 15 minutes invited presentation, ++ Symposium Organizer

Tuesday, Jan. 6, 2026

Room	**D2.304 Costa Hall Lecture Theatre**	**D2.194 Lecture Theatre**	**D2.330 Classroom**	**D3.211 Classroom**
	(Sym) Khan Medal Symposium in Honor of Irene Beyerlein: Understanding Deformation Mechanisms at the Mesoscale via Modelling and Experiments (II)	***Multiscale Modeling (I)***	***(Sym) Hydrogen Effects on Deformation, Fatigue and Fracture (III)***	***Crystal Plasticity***
Chairs	***Abigail Hunter ++ & Keonwook Kang***	***Yoshiteru Aoyagi & Frank William DelRio***	***Neeraj S. Thirumalai & T. A. Venkatesh ++***	***Chuanlai Liu & Bjørn Holmedal***
08:30 ~ 09:00	***** Abigail Hunter** MESOSCALE INVESTIGATION OF DISLOCATION-GRAIN BOUNDARY INTERACTIONS IN METALS AND ALLOYS	*** Yoshiteru Aoyagi** MULTISCALE MODELING OF NONLINEAR VISCOELASTIC-VISCOPLASTIC BEHAVIOR IN GLASSY POLYMERS BASED ON INTRAMOLECULAR CHAIN ROTATION	*** Neeraj S. Thirumalai** HYDROGEN EMBRITTLEMENT IN ENERGY INDUSTRY: PERSPECTIVE ON MECHANISMS AND EMERGING CHALLENGES IN H2 and CO2 TRANSPORTATION	*** Chuanlai Liu** MICROSTRUCTURE-SENSITIVE CRYSTAL PLASTICITY AND PHASE-FIELD MODELING OF PLASTIC DEFORMATION, FRACUTRE, RECRYSTALLIZATION IN Mg ALLOYS
09:00 ~ 09:15		*** Frank William DelRio**, William M. Mook, Paul G. Kotula, Jeffery A. Greathouse, Eric D. Hintsala, Douglas D. Stauffer, Henry Q. Afful, Corinne E. Packard, Anastasia G. Ilgen VISUALIZING THERMOMECHANICAL WEAKENING OF MUSCOVITE MICA VIA MICROSCALE SHEAR TESTING	*** T. A. Venkatesh**, Xiaoli Wang, Guang Cheng, Wei Cai, Ming Dao THE EFFECTS OF HYDROGEN TRAPPING AT GRAIN-BOUNDARIES AND PRECIPITATE INTERFACES ON MECHANICAL PROPERTIES: A MOLECULAR DYNAMICS STUDY	*** Bjørn Holmedal**, Hassan M. Asadkandi, Tomáš Mánik, Arash Imani Aria, Odd Sture Hopperstad HIGH-RESOLUTION CRYSTAL-PLASTICITY SIMULATIONS OF INNER YIELD SURFACES AFTER PRE-DEFORMATION
09:15 ~ 09:30	**+ Deunbom Chung**, Minwoo Park, Wanchuck Woo, Seungcheol Oh, Kyeongjae Jeong, Heung Nam Han FE-CNN FRAMEWORK FOR NON-DESTRUCTIVE CHARACTERIZATION OF RESIDUAL STRESS VIA SPHERICAL INDENTATION			
09:30 ~ 09:45	* Hyunggyu Lee , Jie Nan, Younggak Shin, Byeongchan Lee, **Keonwook Kang** ATOMISTIC STUDIES OF CUMULATIVE IRRADIATION DAMAGES IN SINGLE-CRYSTILLINE TUNGSTEN AND EVOLUTION OF SECONDARY DEFECTS	**+ S. Caleb Foster**, Justin W. Wilkerson, José A. Rodríguez-Martínez A MULTISCALE FINITE ELEMENT ANALYSIS OF THE DYNAMIC FRAGMENTATION OF ADDITIVELY MANUFACTURED POROUS METAL RINGS	*** Mira Todorova**, Sudarsan Surendralal, Florian Deißenbeck, Stefan Wippermann, Jing Yang and Jörg Neugebauer AB-INITIO INSIGHTS INTO THE INTERACTIONS OF HYDROGEN WITH METALS IN ELECTROCHEMICAL ENVIRONMENT	**+ Haruki Ohashi**, Hojun Lim, Yoshiteru Aoyagi, Aashique A. Rezwan CRYSTAL PLASTICITY – PHASE FIELD DAMAGE SIMULATION: INVESTIGATING DUCTILE FRACTURE BEHAVIOR INDUCED BY CRYSTALLOGRAPHIC ORIENTATION AND PRECIPITATED PARTICLE
09:45 ~ 10:00		**+ Nomun Gerel-Erdene**, Yoshiteru Aoyagi MULTISCALE PLASTICITY SIMULATION OF POLYLACTIC ACID SPHERULITES USING THREE-DIMENSIONAL LAMINATE THEORY INCORPORATING CRYSTALLINITY AND MICROSTRUCTURE		**+ Rui Zhao**, Changke Li, Qiji Guo, Yimeng Xu, Min Wan MACRO-MICRO ANISOTROPIC ANALYSIS OF BASED ON CRYSTAL PLASTICITY FINITE ELEMENT METHOD (Online Presentation-Recording)-Cancelled
10:00 ~ 10:15	*** Leyun Wang**, Dongfang Shi, Xiaoqin Zeng, Huamiao Wang+, Zhefeng Zhang ENHANCED PYRAMIDAL SLIP IN MAGNESIUM ALLOYS VIA GADOLINIUM ALLOYING AND ITS EFFECT ON PLASTIC DEFORMATION	**+ Yuntong Huang**, Shuyang Dai, Chuqi Chen, Yang Xiang A MULTI-SCALE PHASE FIELD MODEL FOR AMORPHIZATION AS A DEFORMATION MECHANISM IN NANOCRYSTALLINE MATERIALS	*** Rama Srinivas Varanasi** HYDROGEN-INDUCED FAST FRACTURE IN A 1.5 GPa DUAL-PHASE STEEL	-
10:15 ~ 10:30		**+ Cheng Luo**, Huang Yuan, Xingxing Zhang ANISOTROPIC MULTISCALE PLASTICITY BEHAVIORS OF ADDITIVELY MANUFACTURED SUPERALLOYS: SYNCHROTRON X-RAY DIFFRACTION AND DISLOCATION-BASED CRYSTAL PLASTICITY MODELING		

10:30 – 11:00 Coffee Break

Room	**D2.304 Costa Hall Lecture Theatre**	**D2.194 Lecture Theatre**	**D2.330 Classroom**	**D3.211 Classroom**
	(Sym) Khan Medal Symposium in Honor of Irene Beyerlein: Understanding Deformation Mechanisms at the Mesoscale via Modelling and Experiments (III)	***Plasticity at High Strain Rate***	***(Sym) Integrating Length Scales: Constitutive Modeling and Plasticity Strategies (V)***	***Polymer & Composite***
Chairs	***Curt A. Bronkhorst & Lei Cao***	***Henryk Paul & Justin S. Wark***	***Myoung-Gyu Lee & Shihoon Choi ++***	***Guoqiang Li & Theo Tervoort***
11:00 ~ 11:30	*** **Curt A. Bronkhorst**, Noah J. Schmelzer, Sam D. Dunham, Raymond Rasmussen, Stephen Yang, Janith Wanni, Charles Adkins, Dan J. Thoma STATISTICAL THERMOMECHANICS OF DUCTILE DAMAGE FOR DYNAMIC LOADING CONDITIONS	* **Henryk Paul**, Sandra Puchlerska, Robert Chulist ROLE OF LATTICE RE-ORIENTATION IN THE FORMATION OF SHEAR BANDS DURING HIGH STRAIN-RATE DEFORMATION	* **Myoung-Gyu Lee**, Seonghwan Choi, Seungwoo Kim, Jehyun You UNDERSTANDING ANISOTROPIC PLASTICITY IN POLYCRYSTALLINE METALS THROUGH MICROSTRUCTURE-PROPERTY RELATIONSHIPS	* **Guoqiang Li** CONSTITUTIVE MODELING OF SHAPE MEMORY POLYMERS
11:30 ~ 11:45		* **Makoto Uchida**, Mei Toji, Keito Oya, Yoshihisa Kaneko NUMERICAL MODELING OF THERMAL HISTORY– AND STRAIN RATE– DEPEDENT DOUBLE YIELDING BEHAVIOR OF SEMI-CRYSTALLINE POLYMER	* Hyeonbin Moon, Donghyuk Cho, Jeong Whan Yoon, **Seunghwa Ryu** PHYSICS-INFORMED DISCOVERY OF YIELD FUNCTIONS IN PLASTICITY USING PHYSICS-INFORMED NEURAL NETWORKS	* **Theo Tervoort**, Arturo Winters, Jan Vermant AN ELASTO-VISCOPLASTIC APPROACH TO POLYMER RHEOLOGY
11:45 ~ 12:00	+ **Ronghai Wu**, Heng Li PREDICTING DISLOCATION PATTERNS AND DISCOVERING THE LAW OF SIMILITUDE BY MACHINE LEARNING			
12:00 ~ 12:15	* **Lei Cao** TRANSFORMATION-ASSISTED TWIN NUCLEATION IN METALS	* **Justin S. Wark**, Patrick G. Heighway FEMTOSECOND X-RAY DIFFRACTION STUDIES OF PLASTICITY AT EXTREME PRESSURES AND STRAIN RATES	* Saurabh Pawar, K. U. Yazar., Khushahal Thool, Wi-Geol Seo, Chang-Gon Jeong, Yoon-Uk Heo, **Shi-Hoon Choi** ANISOTROPIC COMPRESSION BEHAVIOR OF 316L STAINLESS STEEL AT CRYOGENIC TEMPERATURE	+ **Ji Lin**, Rui Xiao A THREE-DIMENSIONAL SHEAR TRANSFORMATION ZONE THEORY FOR GLASSY POLYMERS
12:15 ~ 12:30				+ **Zefeng Yu**, Shan Tang MDVP: A MECHANISM-BASED DATA-DRIVEN VISCOPLASTIC CONSTITUTIVE MODEL FOR GLASSY POLYMERS
12:30 ~ 12:45	* **Saryu Fensin**, Avanish Mishra INFULENCE OF INTERFACE ROUGHNESS AND ORIENTATION ON THE DEFORMATION MECHANISMS OF Al-Ti BIMETALS (NEW : Moved from Jan.7 at 14:00)	+ **Hamed Sadeghi**, Jiayu Chen, Keith Davey, Yongxiang Hu SIZE EFFECTS IN HIGH-STRAIN RATE BEHAVIOR OF SINGLE CRYSTAL ALUMINUM: A FINITE SIMILITUDE APPROACH (Cancelled)	+ Yong Hou, **Jinheung Park**, Junying Min, Zhenkai Mu, Yannis Korkolis A SIMPLE YET FLEXIBLE POLY6 YIELD CRITERION FOR PLASTIC ANISOTROPY IN SHEET METALS	-
12:45 ~ 13:00		-	+ **Yao Xiao**, Yunhui Geng, Chao Yu TAILORING THE THERMAL EXPANSION PERFORMANCE OF NiMnGa FERROMAGNETIC SHAPE MEMORY ALLOY THROUGH ROTARY MAGNETIC FIELD: EXPERIMENT AND THEORETICAL MODEL	
13:00 ~ 13:15	-		+ **Yixing Zhao**, Jeong-Hwan Moon, Min-Seong Kim, Meiling Geng, Lihong Cai, Namsu Park, Jinwoo Lee, Sung-Tae Hong CRYOGENIC DEFORMATION BEHAVIOR AND MICROSTRUCTURAL MECHANISMS IN AA6061T6 (Online Presentation-**Live**)	

13:15 – 14:15 **Lunch**

Room	**D2.304 Costa Hall Lecture Theatre**	**D2.194 Lecture Theatre**	**D2.330 Classroom**	**D3.211 Classroom**
	(Sym) Advances in ML-based Applications for Plasticity, Damage and Fracture (I)	***Constitutive Modeling (I)***	***Novel Experiment & Modeling / Additive Manufacturng***	***Damage in Plasticity***
Chairs	***Alfonso H.W. Ngan & Hansohl Cho***	***Lidiia Nazarenko & Arash Yavari***	***J.A. Rodriguez-Martinez & Chaoyue Jin***	***Rui Xiao & Katarzyna Kowalczyk-Gajewska***
14:15 ~ 14:45	*** **Alfonso H.W. Ngan**, Wei Li, Shuang Lyu, Yuanhang Xia, Mengzhen Cao, Yue Chen, Yuqi Zhang DISLOCATIONS IN COMPLEX CONCENTRATED ALLOYS – STATISTICAL MECHANICS AND MACHINE LEARNING OF RESISTANCES	* **Lidiia Nazarenko**, Aleksandr Yurievich Chirkov, Holm Altenbach MIXED FINITE ELEMENT METHOD FOR A SIMPLIFIED GRADIENT ELASTIC-PLASTIC MODEL: FORMULATION, IMPLEMENTATION, AND APPLICATION TO REPRESENTATIVE PROBLEMS	* **J. A. Rodríguez-Martínez**, T. Virazels, J. García-Molleja, B. Lukić, A. Rack, S. Puerta*, D. Pedroche, F. Sket REAL-TIME IN-SITU X-RAY IMAGING OF PORE COMPACTION AND SPALL FRACTURE IN PLATE IMPACT TESTS ON ADDITIVELY MANUFACTURED METALS"	* **Rui Xiao** DAMAGE OF TOUGH ELASTOMERS AND GELS: INSIGHTS FROM MECHANOCHEMISTRY
14:45 ~ 15:00		* **Arash Yavari** NONLINEAR CAUCHY ELASTICITY	+ **Chaoyue Jin**, Shurong Ding, Xiaobin Jian ON THE MECHANICAL PROPERTY DEGRADATION OF POST-IRRADIATED U-MO ALLOYS	* **Katarzyna Kowalczyk-Gajewska**, Saketh Virupakshi, Xinzhu Zheng, Michał Kursa, Sandra Musiał, Michał Maj, Ibrahim Karaman, Ankit Srivastava FULL-FIELD ANALYSES OF PLASTICITY AND VOID GROWTH IN MATERIALS DEFORMING BY SLIP AND TWINNING
15:00 ~ 15:15	* **Abhijit Brahme**, Johann B. Scheepers, Kaan Inal DEEP LEARNING BASED SURROGATE MODELING FOR CRYSTAL-PLASTICITY DRIVEN PREDICTION OF ALUMINUM ALLOY FRACTURE SURFACES		+ **Zion Lee**, Hojang Kim, Sunkun Choi, Injong Oh, Jaehong Park, Gi-Dong Sim ACHIEVING HIGH STRENGTH IN 6061 ALUMINUM ALLOY THIN FILMS THROUGH INTERSTITIAL CARBON INCORPORATION.	
15:15 ~ 15:30		+ **Jiawen Zhang**, Zhangtao Li, Yuwei Zhang, Yinan Cui, Xufei Fang, Wenjun Lu SCALE-BRIDGING DISLOCATION PLASTICITY IN MGO AT ROOM TEMPERATURE (Cancelled)	+ **Wenbho Sha**, Jun Yua, Xin Lina, Lilin wanga, Liang Maa, Yang Zhoua, Yufeng Zhanga, Shuoqing Shia, Qiaodan Yana MOLTEN POOL SHAPE AND IN-SITU NANO (Nb,Ti)C PRECIPITATION ON MECHANICAL PROPERTIES IN LASER DIRECTED ENERGY DEPOSITED IN718/TICP COMPOSITE	+ **Bingxin Zhao** THERMO-MECHANICAL DEFORMATION AND EARLY-STAGE DAMAGE IN ROTATING COMPOSITE SPACE STRUCTURES
15:30 ~ 15:45	* **Hansohl Cho**, Seunghyeon Lee, Thao Nguyen, Darby J. Luscher, Saryu J. Fensin, John S. Carpenter STATISTICAL INFERENCE AND UNCERTAINTY QUANTIFICATION FOR MODELING OF BODY-CENTERED-CUBIC SINGLE CRYSTALS	+ **Xiao-Lei Cui**, Qianxi Sun, Shijian Yuan OVERCOMING LIMITATIONS IN PREDICTING BIAXIAL TENSION OF ANISOTROPIC ALUMINUM ALLOY TUBES USING BARLAT89 YIELD CRITERION	+ **Yuguang Chen**, Wei Fan, Hua Tan, Xin Lin COUPLING OPTIMIZED SOLIDIFICATION AND HEAT TREATMENT ENABLES SUPERIOR STRENGTH-DUCTILITY SYNERGY IN ADDITIVE MANUFACTURED NiTi ALLOYS	-
15:45 ~ 16:00		-	+ **Qian Wang**, Meng Wang, Yufan Shen, Xin Lin MICROSTRUCTURE AND MECHANICAL PROPERTY OPTIMIZATION OF ADDITIVELY MANUFACTURED TI-MODIFIED HIGH-STRENGTH AL ALLOYS VIA MULTI-STAGE HEAT TREATMENT	

16:15 – 17:15 Khan International Medal/Award Lecture by Ming Wang Fu :

"Damage and Fracture in the Deformation of Materials"

(Chair: Huseyin Sehitoglu, Room: D2.304 Costa Hall Lecture Theatre)

19:00 – 21:30 Conference Banquet (Geelong Stadium, Club Chin Chin)

*** 45 minutes Distinguished keynote lecture, * 30 minutes keynote lecture,
+ 15 minutes invited presentation, ++ Symposium Organizer

Wednesday, Jan. 7, 2026

10:30 – 11:00 Morning Break

Room	**D2.304 Costa Hall Lecture Thetre**	**D2.194 Lecture Theatre**	**D2.330 Classroom**	**D3.211 Classroom**
	(Sym) Advances in ML-based Applications for Plasticity, Damage and Fracture (II)	***(Sym) Hydrogen Effects on Deformation, Fatigue and Fracture (IV)***	***(Sym) Cyclic Plasticity and Fatigue: Mechanisms, Modeling, and Design (II)***	***Temperature Dependent Behaviors & Ni-based Alloy***
Chairs	***Christian C. Roth & Rui Barreira***	***Ming Dao ++ & Guang Cheng***	***J.C. Stinville & Xu Zhang ++***	***Seid Koric & Zhuo Feng Lee***
11:00 ~ 11:30	*** Christian C. Roth**, Thomas Beerli, Xueyang Li, Vincent Grolleaua, Dirk Mohr RATE-DEPENDENT DUCTILE FRACTURE OF DP-STEELS: STATIC AND DYNAMIC HIGH-THROUGHPUT EXPERIMENTS AND NEURAL NETWORK MODELING STATIC AND DYNAMIC HIGH-THROUGHPUT EXPERIMENTS AND NEURAL NETWORK MODELING	***** Ming Dao**, Ting Yang, Cheng-Yuan Tsai, Wurong Jian, Yamini Mann, Wei Cai, T.A. Venkatesh CRACK INITIATION OF HYDROGEN-CHARGED 304 STAINLESS STEELS UNDER MONOTONIC AND CYCLIC LOADING	* Dhruv Anjaria, Milan Heczko, Daegun You, Mathieu Calvat, Shuchi Sanandiya, Maik Rajkowski, Aditya Srinivasan Tirunilai, Huseyin Sehitoglu, Guillaume Laplanche, **J.C. Stinville** FATIGUE-RESISTANT ALLOYS THROUGH DYNAMIC PLASTIC DEFORMATION DELOCALIZATION ACTIVATION	*** Seid Koric**, Qibang Liu, Jaewan Park, Amar A. Koric, Diab W. Abueidda SEQUENTIAL DEEP OPERATOR NEURAL NETWORKS FOR PLASTIC AND THERMO-VISCOPLASTIC MATERIAL BEHAVIOR
11:30 ~ 11:45	**+ Rui Barreira**, Marino Möckli, Mohr, Dirk MINIMAL STATE CELL RNN SURROGATE MODEL FOR ELASTOPLASTIC POROUS DUCTILE SOLIDS		*** Xu Zhang**, Yukai Xiong PLASTIC DEFORMATION AND DAMAGE MECHANISMS IN PARTICLE-REINFORCED METAL MATRIX COMPOSITES: A CRYSTAL PLASTICITY-PHASE FIELD STUDY	**+ Zhuo Feng Lee**, Hojang Kim, Yuhyun Park, Gi-Dong Sim A HIGH-THROUGHPUT APPROACH TO ACQUIRE TENSILE AND COMPRESSIVE RESPONSES OF THIN FILMS AT ELEVATED TEMPERATURES
11:45 ~ 12:00	**+ Sandipkumar Dayani**, Waqas Muhammad, Abhijit Brahme, Kaan Inal THERMODYNAMICALLY CONSISTENT CRYSTAL PLASTICITY MODEL COUPLING MARTENSITIC TRANSFORMATION AND DAMAGE EVOLUTION IN QP STEELS	*** Guang Cheng**, Kaiyuan Chen, Xuan Ding, Yajun Zhang, Jing Yang, Xiaolin Wang HYDROGEN EMBRITTLEMENT UNDER EQUIVALENT HYDROGEN FUGACITY: A COMPARISON OF HYDROGEN CHARGING METHODS		**+ Xinyuan Yang**, Xiaoqing Shang, Shilong Liu, Haiming Zhang, Shengyi Zhong CREEP MODELING FOR NICKEL-BASED SUPERALLOY ALIGNING GRAIN BOUNDARY EFFECT AND DISLOCATION MOVEMENT
12:00 ~ 12:15	**+ Xueyang Li**, Christian C. Roth, Vincent Grolleaua, Dirk Mohr DETERMINING THE TAYLOR–QUINNEY COEFFICIENT AND ISOTHERMAL-TO-ADIABATIC TRANSITION FUNCTIONS FROM DYNAMIC IN-PLANE TORSION EXPERIMENTS ISOTHERMAL-TO-ADIABATIC TRANSITION FUNCTIONS FROM DYNAMIC IN-PLANE TORSION EXPERIMENTS		**+ Zinan Wang**, Xiangwei Kong, Chengying Zhao, Liu Cheng, Liyang Xie AN ENHANCED MEAN STRESS EFFECT CORRECTION MODEL FOR FATIGUE LIFE PREDICTION OF NOTCHED COMPONENTS	**+ Van Cong Phan**, Tu-Anh Bui-Thi, Thanh Thuong Do, Su Hyeon Choo, Jang Hyun Bae, Moon-Jo Kim, Changjoo Lee, Ki Seok Nam, Sung-Tae Hong ELECTRICALLY ASSISTED SOLID-STATE SPOT JOINING OF A CAST A365 ALLOY: IMPROVEMENT OF JOINT PROPERTY BY LOCAL RAPID HEAT TREATMENT
12:15 ~ 12:30	*** Yue Fan** MACHINE LEARNING-AUGMENTED MODELING ON THE FORMATION OF NON-CONVENTIONAL NANO-PRECIPITATES IN FAST SOLIDIFIED Al ALLOYS (Cancelled)		**+ Mengwei Zhang**, Weiping Hu, Zhixin Zhan, Qingchun Meng A FREQUENCY-DOMAIN AND ENERGY-BASED DAMAGE MODEL FOR FATIGUE IN SPACECRAFT STRUCTURES INDUCED BY RANDOM VIBRATION	**+ Qunzhi Zhai**, Dafan Du, Anping Dong, Jiaqi Ouyang, Baode Sun MICROSTRUCTURAL EVOLUTION AND ENHANCED TENSILE PROPERTIES OF Ni-BASED SUPERALLOYS: A COMPARATIVE STUDY OF COUNTER-GRAVITY CASTING AND GRAVITY CASTING VIA IN-SITU SYNCHROTRON RADIATION (Online Presentation-Live)
12:30 ~ 12:45			-	-

12:30 – 14:00 Lunch

Room	**D2.304 Costa Hall Lecture Thetre**	**D2.194 Lecture Theatre**	**D2.330 Classroom**	**D3.211 Classroom**
	(Sym) Advances in ML-based Applications for Plasticity, Damage and Fracture (III)	***Dislocation Plasticity***	***(Sym) Khan Medal Symposium in Honor of Irene Beyerlein: Understanding Deformation Mechanisms at the Mesoscale via Modelling and Experiments (IV)***	***(Sym) Physics-Based Modelling and AI-enabled simulation (II)***
Chairs	***Tomáš Mánik & Dirk Mohr ++***	***Huseyin Sehitoglu & Weizhong Han***	***Alejandro Strachan & Michael Chandross***	***Giacomo Po & Xin Yan***
14:00 ~ 14:30	*** Kaan Inal** ADVANCES IN MACHINE LEARNING-BASED MICROMECHANICS: TOWARDS GENERALIZABLE MODELS FOR CRYSTAL PLASTICITY (Online Presentation-**Live**)	***** Huseyin Sehitoglu**, D. You, Gorkem Gengor a, O. Celebi, S. Pekol a, A.S.K. Mohammed ATOMISTICS INFORMED CONTINUUM STRAIN FIELD OF DISLOCATIONS	*** Alejandro Strachan**, Jason Wilkening STEADY-STATE ELASTIC PLASTIC SHOCK WAVES IN A LOW-SYMMETRY MOLECULAR CRYSTAL	*** Giacomo Po**, Yang Li MICROMECHANICS OF PLASTICITY IN HIGH-TEMPERATURE MATERIALS
14:30 ~ 14:45	*** Dirk Mohr**, Julian Heidenreich TOWARDS IDENTIFYING DATA-DRIVEN CONSTITUTIVE MODELS FROM ROBOT-ASSISTED EXPERIMENTS: MINIMAL STATE CELL–BASED MODELING ENHANCED BY MULTI-TASK AND TRANSFER LEARNING		*** Michael Chandross**, Ian S. Winter, David Montes de Oca Zapain, John F. Curry GRAIN BOUNDARY SEGREGATION IN NANOCRYSTALLINE ALLOYS	**+ Xin Yan**, Yi Huang, Shiteng Zhao ANISOTROPIC SHOCK RESPONSE AND TWIN-BOUNDARY-MEDIATED SPALLATION IN CrCoNi MEDIUM-ENTROPY ALLOY INSTRUCTIONS
14:45 ~ 15:00		+ **Mengzhen Cao**, Yuqi Zhang, David J Srolovitz, Alfonso H W Ngan CORRELATING DISLOCATION WAVINESS AND STRENGTH WITH COMPOSITIONAL HETEROGENEITY VIA CONTINUOUS DISLOCATION DYNAMICS WITH SUB-CORE RESOLUTION (Online Presentation-**Live**)		+ **Rui Barreira**, Marino Möckli, Dirk Mohr EVOLUTION OF POLYCRYSTALLINE TEXTURES WITH MINIMAL STATE CELL RNN
15:00 ~ 15:30	*** Tomáš Mánik**, Bjørn Holmedal FACET 2.0 – A NEURAL NETWORK-BASED YIELD SURFACE: A FLEXIBLE AND EFFICIENT CALIBRATIONS TO CRYSTAL PLASTICITY DATA	*** Weizhong Han** RELATIVE MOBILITY OF SCREW VERSUS EEDGE DISLOCATIONS CONTROLS THE DUCTILE-TO-BRITTLE TRANSITION IN METALS	*** Jianfeng Wang** X-RAY MICROTOMORGRAPHY INVESTIGATIONS OF SAND PARTICLE BREAKAGE AIDED BY DISCRETE PARTICLE TRACKING	**+ Huanbo Weng**, Cheng Luo, Huang Yuan MECHANISM-INFORMED NEURAL NETWORK MODELING OF RAFTED NICKEL-BASED SINGLE CRYSTAL ALLOYS
15:30 ~ 16:00	*** Yan Wang** APPLICATION OF DEEP NEURAL NETWORK MOLECULAR DYNAMICS TO ELUCIDATE THE ATOMISTIC MECHANISMS OF LASER PROCESSING OF TWO-DIMENSIONAL MATERIALS	*** Jianquan Wan**, Xiaowei Zuo EXCELLENT CRYOGENIC-TEMPERATURE STRENGTH AND DUCTILITY REALISED BY COUPLING DELTA PHASE AND TRIP EFFECT		-
16:00 ~ 16:15	-	+ **Ao Li**, Weiping Hu, Zhixin Zhan, Qingchun Meng A DISLOCATION DENSITY-BASED CP-MPF UNIFIED FRACTURE MODEL OF NBSX ACROSS WIDE TEMPERATURE RANGES	-	

16:20 – 17:50 Farewell Party (The Waterfront Café)

*** 45 minutes Distinguished keynote lecture, * 30 minutes keynote lecture,
+ 15 minutes invited presentation, ++ Symposium Organizer

Thursday, Jan. 8, 2026

08:30 – 18:30 Cultural Excursion to Great Ocean Road
(Departing from Novotel Geelong)

- The conference offers Cultural Excursion to Great Ocean Road on 8 January. It is complimentary and limited to max. 50 people. Application is available on 3 and 4 January at the registration desk.

Meeting Point: 65 Brougham St., Geelong, VIC 3220 (On the top of the back stairs from Novotel Geelong)

Meeting Time: 8:15 AM.