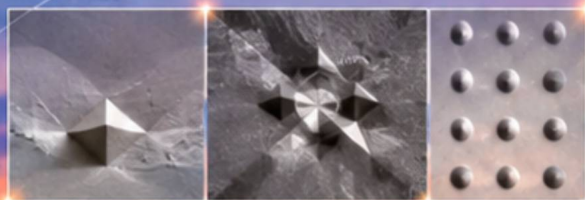


8th International Indentation Workshop IIW8

November 1 -5, 2026

KINTEX, Goyang, Republic of Korea

Program Book



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Program Overview

Technical Sessions

AS Advanced Structural Alloys
EE Extreme Environments (Rate & Temp)
HI Effects of Hydrogen & Irradiation
MS Methodologies & Standards
SE Semiconductors & Electronic Materials

CC Ceramics & Composites
GA Glasses & Amorphous Materials
IC In-Situ Characterization
SA Simulations & AI
TF Thin Films & Multilayers

Presentation Types

Keynote Talk : 40 min.
Invited Talk : 25 min.
Oral Presentation : 20 min.

Sun, November 1, 2026

Time	Room 304
17:00–19:00	Registration Desk Open
18:00–20:00	Welcome Reception

Mon, November 2, 2026

Time	Room 306	Room 307	Room 305
09:00–17:00	Registration		
10:00–10:10	Opening Ceremony		
10:10–11:30	Chair Ju-Young Kim		
	Keynote Talk I John B. Pethica Nanoindentation - Origins and Two Recent Developments		
	Keynote Talk II Christopher A. Schuh Indentation at Extreme Strain Rates and the Quantitative Study of Phonon Drag-Limited Plasticity		
11:30–13:30	Group Photo & Lunch		
13:30–15:10	Chair Dongchan Jang	Chair Yu Zou	Chair Junggho Shin
	MS Dongil Kwon From Mechanical Properties to Material State: A Standardized Multi-Scale Indentation Approach	SE Bo-Shiuan Li Nanomechanics for Semiconductor Industries - Case Studies in Hybrid Bonding and Wafer Machining	HI Ruth Schwaiger A Multi-Technique Micromechanical Study of Hydrogen Effects in Austenitic Stainless Steel
	MS Nathan Mara Structure-Mechanical Property Correlations in Pharmaceutical Crystals: Insights from Nanomechanical and Impact Testing	SE Yang Lu Nanoindenter-Based Deep Elastic Strain Engineering of Semiconductors	HI Dong-Hyun Lee Nanoindentation-Based Evaluation of Hydrogen Diffusivity in Advanced Alloys: Methodology and Case Studies
	MS Jiri Nohava The Challenges of Low Load Nanoindentation and Property Mapping for Reliable Understanding Materials Behavior	SE Atsutomo Nakamura Photoindentation of Semiconductors: Light-Environment Effects on Dislocation Nucleation and Motion	HI Yakai Zhao Small-Scale Mechanical Testing for Unraveling Hydrogen Embrittlement in Advanced Alloys
15:10–15:30	MS Xiaodong Hou Recent Developments of ISO 14577 for Instrumented Indentation Testing	SE Haechan Jo Mechanical Strengthening of Ti Protective Coatings for PEMWE Bipolar Plates Through Residual Stress Control	HI Seung-gun Lee Evaluation of Hydrogen Embrittlement and Microstructural Response via Instrumented Indentation Testing
	Coffee break		
15:30–17:10	Chair Yue Liu	Chair Bo-Shiuan Li	Chair Yakai Zhao
	MS Mathias Göken Probing Mechanical Properties and Back Stress in Heterogeneous Lamellar Composites by Nanoindentation	SE Yang-Tse Cheng Instrumented Indentation Studies of Materials for Advanced Batteries	HI Jorge Alcalá Cabrelles Assessing Hydrogen Embrittlement and Hydrate Formation in BCC-Fe Through Nanoindentation
	MS Shinya Sasaki Nanoindentation in Tribology: Its Importance and Practical Applications	SE You Shuting Multi-Scale Insights into the Enhanced Electrical Conductivity of Copper by Nitrogen-Doped Graphene: Competing Mechanisms of Carrier Concentration and Mobility	HI Kotaro Murakami Instrumented Indentation Study on the Hydrogen Effect in Additively Manufactured CoCrNi Alloy
	MS Diancheng Geng Understanding the Indenter Wear Effect in Nanoindentation with Continuous Stiffness Measurement	SE Wonjun Shin Evolutionary Design Framework for Anisotropic Mechanical Metamaterials with Tailored Directional Stiffness	HI Dongchan Jang Defect-Driven Plasticity in Irradiated Nanotwinned Cu
	MS Xianghai An Play with Defects: New Insights into the Small-Scale Plasticity	SE Yu Zou Nanomechanical Testing of Semiconductors under an Electric Field or Light Illumination	HI Hoe-Yeon Jeong Precipitation Effect on the Mechanical Properties and Microstructure of NiCuAl Alloys for Spent Nuclear Fuel Canisters

Time	Room 306	Room 307	Room 305
08:30–09:40	Chair Jeffrey M. Wheeler	Chair Gi-Dong Sim	Chair Jong-hyoung Kim
	MS Seok-Woo Lee Finite-Size Scaling as a Unified Framework for Strengthening and Hardening in Micropillar Plasticity	SE Seung-Kyun Kang Application of Small-Scale Mechanics in Soft, Biodegradable Electronics	HI Ryuta Kasada Nanoindentation of Ion-Irradiated Materials: From Depth-Sensing Measurements to Reliable Fusion Materials Evaluation
	MS Yue Liu From Nanoindentation-Derived Strain-Rate Sensitivity to Dislocation-Mediated Plasticity Across Interfaces and Slip Systems	SE Yingwen Zhu Nanoscale Characterization of Local Electronic States at Defects via Kelvin Probe Force Microscopy	HI Jungho Shin Depth-Resolved Evaluation of Irradiation Hardening in Electron-Beam-Welded XM-19 Stainless Steel
	MS Edoardo Rossi A New Depth of Information: 4D Nanoindentation Mapping of Microstructures	SE Yuichi Hirai Nanomechanical Characterization of Stimuli-Responsive Molecular Crystals	HI Henri Nela Micromechanical Evaluation of Interfacial Properties in SiC/SiC Composites for Fusion Environments
09:40–10:00	Coffee Break		
10:00–11:30	Chair Seok-Woo Lee	Chair Seung-Kyun Kang	Chair Ryuta Kasada
	IC Takahito Ohmura Micro Plasticity Probing Through TEM in-Situ Straining	AS Qian Zhang Micro-/Nanoscale Plasticity and Super-Elongation in Single-Crystalline High-Entropy Alloy Pillars	SA Dan Mordehai A Combined Experimental-Computational Study of the Compression of Nanoporous Gold Nanoparticles
	IC Jeffrey M. Wheeler Operando Correlated Mechanical Microscopy	AS Jin Wang Indentation and Micromechanical Analysis of Room-Temperature Plasticity in Refractory Compositionally Complex Alloys	SA Ill Ryu Defect Dynamics Modeling of Incipient Plasticity under Nanoindentation: From Single Crystals to Polycrystalline Metals
	IC Shreehard Sahu Challenges in in-Situ Small-Scale Mechanics of Iron Oxides: From FIB-Induced Artefacts to High-Temperature Phase Stability	AS Gi-Dong Sim Yield Point Phenomenon in Al-C Thin Films	SA Xu Long Phase-Field Simulation of Indentation-Induced Fracture in Brittle Materials
	IC Alexey Useinov Mapping of Phase and Morphological Changes in-Situ under the Local Loading using a Transparent Diamond Indenter	AS Qian Zhang Chemical Local-Range Order Mediated Dislocation Nucleation in High-Entropy Alloys	SA Jong-hyoung Kim AI-Based Indentation–Tensile Conversion Considering Measurement Uncertainty
11:30–12:30	Lunch		
12:30–14:00	Poster Presentation		
14:00–15:10	Chair Kyeongjae Jeong	Chair Siyuan Wei	Chair Won-Seok Ko
	IC Jaafar A. El-Awady Microscale Fatigue Damage Evolution in Wire-Arc Additive Manufactured Nickel-Aluminum Bronze Revealed by in Situ Microcantilever Testing	AS Yinmin (Morris) Wang High-Throughput Indentation Characterization of Additively Manufactured Metals: Location Dependence and Tabor Equation	SA Quan Jiao A Machine Learning Perspective on the Inverse Indentation Problem
	IC Jixiang Cai A Novel in Situ TEM Platform for Nanoindentation, Multi-Field Coupling, And Atomic-Scale Observation	AS Subin Lee Effects of Residual Elements in Martensitic Steels using Nanoindentation-Based Approaches	SA Xiaochuan Sun Nanoindentation-Derived Strain-Rate Sensitivity for Dislocation-Informed Constitutive Modeling and AI-Assisted Prediction
	IC Nicholas Randall Recent Innovation in in-Situ Extreme Mechanics at the Micro and Nanoscale	AS Jaroslav Cech Characterization of Pseudoelastic Behavior and Functional Fatigue in NiTi Shape Memory Alloys via Nanoindentation	SA Tae Joo Lee Data-Driven Analysis and Machine Learning-Based Property Prediction for Ni- and Co-Based Superalloys
15:10–15:30	Poster Awards Announcement & Coffee Break		
15:30–17:10	Chair Nicholas Randall	Chair Subin Lee	Chair Ill Ryu
	GA Upadrasta Ramamurty Statistical Aspects of the Elastic-Plastic Transition in Metallic Glasses and High Entropy Alloys Probed using Nanoindentation	AS Yasuhito Kawahara Relationship Between Serrated Load-Displacement Curves and Dislocation Structures Underneath Indents in Al-Mg Alloys	SA Won-Seok Ko Atomistic Simulations of Phase Transformation and Deformation Behaviors of Shape-Memory Alloys at the Nanoscale
	GA Reza Rashidi From Nanoindentation to 4D-STEM: The Structural Origin of Elastic Fluctuations in Metallic Glasses	AS Siyuan Wei Interface-Mediated Plasticity in CoCrFeNi Multi-Principal Element Alloys Revealed by Nanoindentation-Based Micromechanics	SA Jaehun Kim A Local Thermo-Mechanical Field-Based Framework for Single-Test Constitutive Model Calibration
	GA R. Lakshmi Narayan Effect of Cryo-Thermal Cycling-Induced Structural State Modulation on the Pressure-Sensitivity of a Bulk Metallic Glass	AS Sun Guanghua Indentation Energy Method for in-Situ Evaluation of Multiple Post-Weld Heat Treatment Effects in Pressure Vessel Welds	SA Tae Young Go Physics-Informed Neural Posterior Estimation of Stress-Strain Curves from Indentation via a Mechanism-Based Constitutive Model
	GA Silvia Pomes Nanoindentation Reveals Local Anelasticity in Metallic Glasses	AS Bokyu Kim Nanoindentation-Based Surface Response Evaluation of Pure Al and 6061 Al Alloys	SA Kyeongjae Jeong Advancing Indentation-Based Mechanical Characterization with AI
	IC In-Suk Choi Electron-Beam-Driven in-Situ Modification of Small Scale Plasticity in Oxide Ceramics	AS David Ugi Concurrent Acoustic Emission Monitoring of PLC-Related Plastic Instabilities During Nanoindentation and Micropillar Compression	
17:10–18:30	Break Time		
18:30–20:30	Conference Banquet (Sono Calm Goyang)		

Wed, November 4, 2026

Time	Room 306	Room 307	Room 305
08:30–09:40	Chair Finn Giuliani	Chair Kwang Seok Lee	Chair Rajaprakash Ramachandramoorthy
	GA Morten M. Smedskjaer Visualizing Indentation-Induced Deformation in Glasses using Nanofocus X-Ray Scattering	AS Jiangwei Wang Dislocation Evolution in Cyclic-Loaded Cu Nanopillars with Different Configurations	SA Yoon Suk Choi A Comprehensive Microstructure-Based Fatigue Life Prediction Methodology for Hypo-Eutectoid Steels
	GA Theany To Indentation as a Crack Initiator for Studying Crack Propagation Resistance in Glasses	AS Priyanka Saini Impression Creep Behavior of Twin Roll Cast A356–5 Wt.% SiCp Composites	SA Minwoo Park Indentation-Based Characterization of the Bauschinger Effect using Physics-Guided Deep Learning
	GA Johan F. S. Christensen Probing Local Deformation and Directional Strain in Glasses During Indentation by X-Ray Scattering	AS Byung-Gil Yoo Nanoindentation-Guided Development of 2.0 GPa Hot Stamping Steel for Enhanced Crash Performance	SA Shinae Lee Orientation-Dependent Nanoindentation Analysis using CPFEM and Machine Learning
09:40–10:00	Coffee Break		
10:00–11:30	Chair Theany To	Chair Jiangwei Wang	Chair Byung-Gil Yoo
	GA Timothy Gross Damage Resistant Glasses with Mixed Indentation Deformation Modes	AS Jin-Yoo Suh Development of Nb-Based Alloys with Enhanced Strength–Ductility Balance Through Solid-Solution and Interstitial Control	EE Verena Maier-Kiener The Loading/ Unloading Stiffness Ratio-Real-Time Materials Insights under Extreme Conditions
	GA Finn Giuliani The Effect of Beam Damage on Small Scale Mechanical Properties of Forsterite Glass	AS Florian Tropper Nanoindentation-Induced Dislocation Structures in BCC Tungsten Observed via ECCI	EE Ben Beake An Experimental Capability for Nanomechanical Measurements at Cryogenic Temperatures
	GA Nathan Kail Probing Local Structural Variation of Glass Beneath a Vickers Imprint using Electron Diffraction (E-PDF) and M-Raman Spectroscopy	AS Kwang Seok Lee The Influence of Process Variables on the Interface Properties of Several Clad Sheets	EE Rajaprakash Ramachandramoorthy Nanoindentation at Extreme Conditions: High Strain Rates & Cryogenic Temperatures
	GA Yong Hao Sun Nanoindentation Reveals Universal Scaling of Pop-in Plasticity in Metallic Glasses		EE Anwesha Kanjilal In-Situ Micromechanical Deformation of Chemical Interfaces from Cryogenic to Elevated Temperatures
11:30–12:30	Lunch		
12:30–14:00	Poster Presentation		
14:00–15:10	Chair Hiroshi Masuda	Chair Seung Min Han	Chair Hansol Jeon
	GA Tanguy Rouxel What We Can Learn from Raman Scattering Spectroscopy About the Indentation Deformation Mechanisms in Oxide Glasses?	AS Dongwoo Lee Combinatorial Nanoindentation and Strengthening Analysis of Refractory Complex Concentrated Alloys of Mo–Nb–Ti and Ta–Nb–Ti	EE Karsten Durst Probing Thermally Activated Dislocation Mechanisms in MgO and BCC Metals by High Temperature Scanning Indentation
	GA Gustavo Alberto Rosales-Sosa Role of Plastic Flow on Crack Initiation by Vickers Indentation in Oxide Glasses	AS Jeongseok Kim Indentation-Based Multiscale Analysis of Deformation and Fracture Mechanisms in Potassium-Doped Tungsten	EE Bryan A. Crawford Spatially Resolved Strain Rate Sensitivity in a Dissimilar Steel Weld: Insights from High-Rate Nanoindentation
	GA Wenjuan Cheng Design of Theta Device for the Micro Tensile Testing of Silica	AS Sukwon Hong Ligament Reattachment and Connectivity-Driven Mechanical Behavior in Nanoporous Gold	EE Edyta Wyszowska Nanoindentation for Mechanical Characterization under Elevated Temperatures and Irradiation
15:10–15:30	Poster Awards Announcement & Coffee Break		
15:30–17:10	Chair Gustavo Alberto Rosales-Sosa	Chair Jin-Yoo Suh	Chair Dongwoo Lee
	CC Frantisek Lofaj Mapping of Nanoindentation Behavior of TiZrHf-Boride, -Carbide and Dual-Phase-Boride/Carbide Coatings	TF Seung Min Han 3D Architected Ni-Al2O3 Nanocomposite via Proximity-Field Nanopatterning	EE Thomas Edwards High Temperature Nanomechanical Testing of High Entropy Materials: Recent Efforts & Ongoing Challenges
	CC Oriol Gavalda Diaz FRACTURE OF BRITTLE MATERIALS AND INTERFACES AT THE NANOSCALE	TF Geummi Lee Investigation of Mechanical Properties of Ni-Co-Cr Thin Film using a High-Throughput Combinatorial Method	EE Kevin Schmalbach Probing Tungsten Deformation at Extreme Conditions Through High-Temperature, High-Strain-Rate Nanoindentation
	CC Hiroshi Masuda Indentation-Induced Plasticity in Oxide Ceramics: From Nanoindentation to Shot Peening	TF Kan Zhang Design of Strengthened and Toughened Thin Film Materials Based on Nano-Ordered Structures	EE Jian Chen Microscale Impact Deformation Mechanisms in FCC Single Crystals and Medium-Entropy Alloys
	CC Tamás Csanádi Influence of the Multi-Metal Environment on the Fracture Toughness of ZrHfNbTaC4 High-Entropy Carbide Grains	TF Hansol Jeon Effect of Structural Hierarchy on Mechanical Behavior of Nanoporous Gold	EE Kenji Matsuda Evaluation of Low-Temperature Embrittlement of Metallic Materials in Rebound Hardness Testing

Thu, November 5, 2026

Time	Room 306	Room 307	Room 305
09:00–10:10	Chair Wei Li	Chair Zaoli Zhang	Chair Dong-Hyun Lee
	CC Sung-Gyu Kang Electron–Matter Interactions in Silicon Oxides: From Irradiation-Induced Viscoplasticity to Mechanical Amorphization	TF Giovanni Maizza Mechanical Performance of an Electrodeposited Ni–Fe Film using the Loading Secant Stiffness Method of the Instrumented Indentation Test	EE Tea-Sung Jun Mechanistic Understanding of Time-, Orientation-, and Temperature-Dependent Deformation in Titanium using Nanoindentation
	CC Oliver Preuss Let's Get to the Point (Defect): How Oxygen Vacancies Alter Dislocation Mechanics in Oxides	TF Hyemin Ryu Understanding Fatigue Behavior in NiTi Thin Films for Reliable Elastocaloric Cooling	EE Hossein Besharatloo From High-Speed Mechanical Mapping to High-Temperature Micropillar Compression: Multiscale Mechanical Characterization of Ti(C,N)-FeNi Cermets
	CC Xufei Fang Enabling Dislocation Engineering in Ceramics: An Indentation-Based Deformation Toolbox and Mechanism Map	TF JungHun Park Simultaneously High Tensile and Fatigue Strengths in Thin Films with Atomic-Scale Planar Defects	EE Jeongin Paeng Seeded Dislocations Facilitate Plasticity in Strontium Titanate Micropillars under High Strain Rate Loading
10:10–10:30	Coffee Break		
10:30–11:40	Chair Sung-Gyu Kang	Chair Tea-Sung Jun	
	CC Wei Li Nanoindentation of Coordination Polymers and Hybrid Metal Halides: Selected Case Studies	TF Zaoli Zhang Atomic-Resolution Study on Nanoscale Multilayer Deformation	
	CC Eunsu Lee Orientation-Dependent Electron-Beam-Induced Plasticity in Single-Crystalline ZnO Micropillars	TF Zion Lee Achieving High Strength in 6061 Aluminum Alloy Thin Films Through Interstitial Carbon Incorporation.	
		TF Zhuo Feng Lee Membrane Deflection for High-Throughput Thin Film Tensile Characterization Across Temperatures	
11:40–12:30	Closing & Lunch		

Monday, November 2, 2026 | Room 306 + 307

Opening Remarks

10:00 AM-10:10 AM

Jae-il Jang (Chair of IIW8, Hanyang University)

Hyoung Seop Kim (President of the Korean Institute of Metals and Materials, POSTECH)

Keynote Presentation

Chair: Ju-Young Kim (UNIST)

10:10 AM-10:50 AM

[KEYNOTE] Nanoindentation - Origins and Two Recent Developments

John B. Pethica (Trinity College Dublin / University of Oxford)

10:50 AM-11:30 AM

[KEYNOTE] Indentation at Extreme Strain Rates and the Quantitative Study of Phonon Drag-Limited Plasticity

Christopher A. Schuh (Northwestern University)

Group Photo · Lobby · Following the Keynote Session

Oral Presentation

November 2-5, 2026

Monday, November 2, 2026

Session MS | 1:30 PM - 3:05 PM | Room 306

Chair: Dongchan Jang (KAIST)

1:30 PM-1:55 PM

[INVITED] From Mechanical Properties to Material State: A Standardized Multi-Scale Indentation Approach

Dongil Kwon (Seoul National University), Jung-wha Hong (Frontics Inc.)

1:55 PM-2:20 PM

[INVITED] Structure-Mechanical Property Correlations in Pharmaceutical Crystals: Insights from Nanomechanical and Impact Testing

Nathan Mara (University of Minnesota), Soumyadeep Sen (University of Minnesota), Jiahua Lu (University of Minnesota), Sushmita Majumder (University of Minnesota), Tianyi Xiang (Purdue University), Najma Jamac (University of Minnesota), Changquan Calvin Sun (Purdue University)

2:20 PM-2:40 PM

The Challenges of Low Load Nanoindentation and Property Mapping for Reliable Understanding Materials Behavior

Jiri Nohava (Anton Paar TriTec SA), Petr Hausild (Czech Technical University in Prague), Jaroslav Cech (Czech Technical University in Prague)

2:40 PM-3:05 PM

[INVITED] Recent Developments of ISO 14577 for Instrumented Indentation Testing

Xiaodong Hou (National Institute of Metrology)

Monday, November 2, 2026

Session SE | 1:30 PM - 3:05 PM | Room 307

Chair: Yu Zou (University of Toronto)

1:30 PM-1:55 PM

[INVITED] Nanomechanics for Semiconductor Industries - Case Studies in Hybrid Bonding and Wafer Machining

Bo-Shiuan Li (National Sun Yat-sen University)

1:55 PM-2:20 PM

[INVITED] Nanoindenter-Based Deep Elastic Strain Engineering of Semiconductors

Yang Lu (The University of Hong Kong)

2:20 PM-2:45 PM

[INVITED] Photoindentation of Semiconductors: Light-Environment Effects on Dislocation Nucleation and Motion

Atsutomo Nakamura (The University of Osaka)

2:45 PM-3:05 PM

Mechanical Strengthening of Ti Protective Coatings for PEMWE Bipolar Plates through Residual Stress Control

Haechan Jo (Sungkyunkwan University), Gi-Dong Sim (KAIST), Dongwoo Lee (Sungkyunkwan University)

Monday, November 2, 2026

Session HI | 1:30 PM - 3:10 PM | Room 305

Chair: Jungho Shin (Kangwon National University)

1:30 PM-1:55 PM

[INVITED] A Multi-Technique Micromechanical Study of Hydrogen Effects in Austenitic Stainless Steel

Ruth Schwaiger (Forschungszentrum Jülich)

1:55 PM-2:20 PM

[INVITED] Nanoindentation-Based Evaluation of Hydrogen Diffusivity in Advanced Alloys: Methodology and Case Studies

Hyun Jeong (Chungnam National University), Hwan-Sik Sim (Chungnam National University), Yakai Zhao (Institute of Materials Research and Engineering (IMRE)), Hyun You Kim (Chungnam National University), Soo Yeol Lee (Chungnam National University), **Dong-Hyun Lee** (Chungnam National University)

2:20 PM-2:45 PM

[INVITED] Small-Scale Mechanical Testing for Unraveling Hydrogen Embrittlement in Advanced Alloys

Yakai Zhao (A*STAR)

2:45 PM-3:10 PM

[INVITED] Evaluation of Hydrogen Embrittlement and Microstructural Response via Instrumented Indentation Testing

Seung-gun Lee (Korea Institute of Materials Science), Si-whan Lee (Korea Institute of Materials Science), Jung-yun Won (Korea Institute of Materials Science)

Monday, November 2, 2026

Session MS | 3:30 PM - 5:05 PM | Room 306

Chair: Yue Liu (Shanghai Jiao Tong University)

3:30 PM-3:55 PM

[INVITED] Probing Mechanical Properties and Back Stress in Heterogeneous Lamellar Composites by Nanoindentation

Mathias Göken (Friedrich Alexander University Erlangen-Nürnberg)

3:55 PM-4:20 PM

[INVITED] Nanoindentation in Tribology: Its Importance and Practical Applications

Shinya Sasaki (Tokyo University of Science)

4:20 PM-4:40 PM

Understanding the Indenter Wear Effect in Nanoindentation with Continuous Stiffness Measurement

Diancheng Geng (Tohoku University), Hao Yu (Tohoku University), Sosuke Kondo (Tohoku University), Ryuta Kasada (Tohoku University)

4:40 PM-5:05 PM

[INVITED] Play with Defects: New Insights into the Small-Scale Plasticity

Xianghai An (The University of Sydney)

Monday, November 2, 2026

Session SE | 3:30 PM - 5:00 PM | Room 307

Chair: Bo-Shiuan Li (National Sun Yat-sen University)

3:30 PM-3:55 PM

[INVITED] Instrumented Indentation Studies of Materials for Advanced Batteries

Yang-Tse Cheng (University of Kentucky)

3:55 PM-4:15 PM

Multi-Scale Insights into the Enhanced Electrical Conductivity of Copper by Nitrogen-Doped Graphene: Competing Mechanisms of Carrier Concentration and Mobility

Wang Yu (Shanghai Jiao Tong University), **You Shuting** (Shanghai Jiao Tong University)

4:15 PM-4:35 PM

Evolutionary Design Framework for Anisotropic Mechanical Metamaterials with Tailored Directional Stiffness

Wonjun Shin (Jeonbuk National University), Jong-Soo Bae (Jeonbuk National University), Jihoon Han (Jeonbuk National University)

4:35 PM-5:00 PM

[INVITED] Nanomechanical Testing of Semiconductors under an Electric Field or Light Illumination

Yu Zou (University of Toronto)

Monday, November 2, 2026

Session HI | 3:30 PM - 5:00 PM | Room 305

Chair: Yakai Zhao (A*STAR)

3:30 PM-3:55 PM

[INVITED] Assessing Hydrogen Embrittlement and Hydrate Formation in BCC-Fe through Nanoindentation

Jan Ocenasek (University of West Bohemia in Pilsen), Ting Yang (MIT), Cheng-Yuan Tsai (MIT), T. Venkatesh (Stony Brook University), Ming Dao (MIT), **Jorge Alcalá Cabrelles** (Polytechnic University of Catalonia)

3:55 PM-4:15 PM

Instrumented Indentation Study on the Hydrogen Effect in Additively Manufactured CoCrNi Alloy

Kotaro Murakami (Kagoshima University), Shin-ichi Komazaki (Kagoshima University), Zhe Gao (Hanyang University), Jae-Hyeok Choi (Hanyang University), Jae-il Jang (Hanyang University)

4:15 PM-4:40 PM

[INVITED] Defect-Driven Plasticity in Irradiated Nanotwinned Cu

Daehyeok Ahn (KAIST), Hadi Ghaffarian (KAIST), **Dongchan Jang** (KAIST)

4:40 PM-5:00 PM

Precipitation Effect on the Mechanical Properties and Microstructure of NiCuAl Alloys for Spent Nuclear Fuel Canisters

Hoe-Yeon Jeong (UNIST), Seonyeong Yang (UNIST), Jeong-Hyun Woo (KAERI), Hansol Jeon (Keimyung University), Ju-Young Kim (UNIST)

Tuesday, November 3, 2026

Session MS | 8:30 AM - 9:45 AM | Room 306

Chair: Jeffrey M. Wheeler (EMPA)

8:30 AM-8:55 AM

[INVITED] Finite-Size Scaling as a Unified Framework for Strengthening and Hardening in Micropillar Plasticity

Seok-Woo Lee (University of Connecticut)

8:55 AM-9:20 AM

[INVITED] From Nanoindentation-Derived Strain-Rate Sensitivity to Dislocation-Mediated Plasticity across Interfaces and Slip Systems

Yue Liu (Shanghai Jiao Tong University)

9:20 AM-9:45 AM

[INVITED] A New Depth of Information: 4D Nanoindentation Mapping of Microstructures

Edoardo Rossi (Roma Tre University), Harita Seekala (University of Hyderabad), P. Sudharshan Phani (University of Hyderabad), Marco Sebastiani (Roma Tre University), Tiberio Cuppone (University of Firenze), Giovanni Pratesi (University of Firenze)

Tuesday, November 3, 2026

Session SE | 8:30 AM - 9:40 AM | Room 307

Chair: Gi-Dong Sim (KAIST)

8:30 AM-8:55 AM

[INVITED] Application of Small-Scale Mechanics in Soft, Biodegradable Electronics

Seung-Kyun Kang (Seoul National University)

8:55 AM-9:15 AM

Nanoscale Characterization of Local Electronic States at Defects via Kelvin Probe Force Microscopy

Yingwen Zhu (Shanghai Jiao Tong University)

9:15 AM-9:40 AM

[INVITED] Nanomechanical Characterization of Stimuli-Responsive Molecular Crystals

Yuichi Hirai (National Institute for Materials Science)

Tuesday, November 3, 2026

Session HI | 8:30 AM - 9:40 AM | Room 305

Chair: Jong-hyoung Kim (Pukyong National University)

8:30 AM-8:55 AM

[INVITED] Nanoindentation of Ion-Irradiated Materials: From Depth-Sensing Measurements to Reliable Fusion Materials Evaluation

Ryuta Kasada (Tohoku University), Diancheng Geng (Tohoku University), Sumin Lee (Tohoku University), Sosuke Kondo (Tohoku University)

8:55 AM-9:20 AM

[INVITED] Depth-Resolved Evaluation of Irradiation Hardening in Electron-Beam-Welded XM-19 Stainless Steel

Jungho Shin (Kangwon National University)

9:20 AM-9:40 AM

Micromechanical Evaluation of Interfacial Properties in SiC/SiC Composites for Fusion Environments

Henri Nela (Imperial College London)

Tuesday, November 3, 2026

Session IC | 10:00 AM - 11:35 AM | Room 306

Chair: Seok-Woo Lee (University of Connecticut)

10:00 AM-10:25 AM

[INVITED] Micro Plasticity Probing through TEM In-Situ Straining

Takahito Ohmura (National Institute for Materials Science)

10:25 AM-10:50 AM

[INVITED] Operando Correlated Mechanical Microscopy

Jeffrey M. Wheeler (EMPA)

10:50 AM-11:10 AM

Challenges in In-Situ Small-Scale Mechanics of Iron Oxides: From FIB-Induced Artefacts to High-Temperature Phase Stability

Shreehard Sahu (Max Planck Institute for Sustainable Materials), Gang Liu (Max Planck Institute for Sustainable Materials), Vivek Devulapalli (Max Planck Institute for Sustainable Materials), Saba Saood (Max Planck Institute for Sustainable Materials), James P. Best (Max Planck Institute for Sustainable Materials), Gerhard Dehm (Max Planck Institute for Sustainable Materials), Anwesha Kanjilal (Max Planck Institute for Sustainable Materials)

11:10 AM-11:35 AM

[INVITED] Mapping of Phase and Morphological Changes In-Situ under the Local Loading Using a Transparent Diamond Indenter

Alexey Useinov (HPPI RAS), Sergey Votyakov (HPPI RAS), Gulnaz Sultanova (HPPI RAS)

Tuesday, November 3, 2026

Session AS | 10:00 AM - 11:30 AM | Room 307

Chair: Seung-Kyun Kang (Seoul National University)

10:00 AM-10:25 AM

[INVITED] Chemical Local-Range Order Mediated Dislocation Nucleation in High-Entropy Alloys

Qian Zhang (Taiyuan University of Technology), Yakai Zhao (A*STAR), Junwei Qiao (Taiyuan University of Technology), Upadrasta Ramamurty (Nanyang Technological University)

10:25 AM-10:45 AM

Indentation and Micromechanical Analysis of Room-Temperature Plasticity in Refractory Compositionally Complex Alloys

Jin Wang (Forschungszentrum Jülich), Ruth Schwaiger (Forschungszentrum Jülich)

10:45 AM-11:10 AM

[INVITED] Yield Point Phenomenon in Al-C Thin Films

Injong Oh (KAIST), Zion Lee (KAIST), Hojang Kim (KAIST), **Gi-Dong Sim** (KAIST)

11:10 AM-11:30 AM

Micro-/nanoscale Plasticity and Super-Elongation in Single-Crystalline High-Entropy Alloy Pillars

Qian Zhang (The University of Hong Kong), Xiaoyan Li (Tsinghua University)

Tuesday, November 3, 2026

Session SA | 10:00 AM - 11:35 AM | Room 305

Chair: Ryuta Kasada (Tohoku University)

10:00 AM-10:25 AM

[INVITED] A Combined Experimental-Computational Study of the Compression of Nanoporous Gold Nanoparticles

Ben Engelman (Technion-Israel Institute of Technology), Santhosh Mathesan (Technion-Israel Institute of Technology), Tatyana Fedyaeva (Technion-Israel Institute of Technology), Anuj Bisht (Technion-Israel Institute of Technology), Eugen Rabkin (Technion-Israel Institute of Technology), **Dan Mordehai** (Technion-Israel Institute of Technology)

10:25 AM-10:50 AM

[INVITED] Defect Dynamics Modeling of Incipient Plasticity under Nanoindentation: From Single Crystals to Polycrystalline Metals

Ill Ryu (Seoul National University)

10:50 AM-11:10 AM

Phase-Field Simulation of Indentation-Induced Fracture in Brittle Materials

Xu Long (Northwestern Polytechnical University), Ahmad Muhammad Usman (Northwestern Polytechnical University), Percy M. Iyela (Northwestern Polytechnical University)

11:10 AM-11:35 AM

[INVITED] AI-Based Indentation-Tensile Conversion Considering Measurement Uncertainty

long-hyoung Kim (Pukyong National University), Si Hyun Park (Pukyong National University), Hyun-Wook Cho (Pukyong National University), Im-Deok Kim (Seoul National University), Seung-Kyun Kang (Seoul National University), Joost J. Vlassak (Harvard University)

Tuesday, November 3, 2026

Session IC | 2:00 PM - 3:10 PM | Room 306

Chair: Kyeongjae Jeong (Sungkyunkwan University)

2:00 PM-2:25 PM

**[INVITED] Microscale Fatigue Damage Evolution in Wire-Arc Additive
Manufactured Nickel-Aluminum Bronze Revealed by in Situ Microcantilever
Testing**

Faizan Hijazi (Johns Hopkins University), Mostafa M. Omar (Johns Hopkins University), Mo-Rigen He (Johns Hopkins University), **Jaafar A. El-Awady** (Johns Hopkins University)

2:25 PM-2:45 PM

**A Novel in Situ TEM Platform for Nanoindentation, Multi-Field Coupling, and
Atomic-Scale Observation**

Jixiang Cai (Beijing University of Technology)

2:45 PM-3:10 PM

**[INVITED] Recent Innovation in In-Situ Extreme Mechanics at the Micro and
Nanoscale**

Nicholas Randall (Alemnis AG)

Tuesday, November 3, 2026

Session AS | 2:00 PM - 3:10 PM | Room 307

Chair: Siyuan Wei (IMRE)

2:00 PM-2:25 PM

[INVITED] High-Throughput Indentation Characterization of Additively Manufactured Metals: Location Dependence and Tabor Equation

Yinmin (Morris) Wang (University of California Los Angeles)

2:25 PM-2:50 PM

[INVITED] Effects of Residual Elements in Martensitic Steels Using Nanoindentation-Based Approaches

Eloho Okotete (Karlsruhe Institute of Technology), **Subin Lee** (Karlsruhe Institute of Technology), Christoph Kirchlechner (Karlsruhe Institute of Technology)

2:50 PM-3:10 PM

Characterization of Pseudoelastic Behavior and Functional Fatigue in NiTi Shape Memory Alloys via Nanoindentation

Jaroslav Cech (Czech Technical University in Prague)

Tuesday, November 3, 2026

Session SA | 2:00 PM - 3:05 PM | Room 305

Chair: Won-Seok Ko (Korea University)

2:00 PM-2:25 PM

[INVITED] A Machine Learning Perspective on the Inverse Indentation Problem

Quan Jiao (Liaoning Academy of Materials)

2:25 PM-2:45 PM

Nanoindentation-Derived Strain-Rate Sensitivity for Dislocation-Informed Constitutive Modeling and AI-Assisted Prediction

Xiaochuan Sun (Kobe University), Yue Liu (Shanghai Jiao Tong University)

2:45 PM-3:05 PM

Data-Driven Analysis and Machine Learning-Based Property Prediction for Ni- and Co-Based Superalloys

Tae Joo Lee (Pusan National University), Yoon Suk Choi (Pusan National University)

Tuesday, November 3, 2026

Session GA | 3:30 PM - 5:25 PM | Room 306

Chair: Nicholas Randall (Alemnis)

3:30 PM-3:55 PM

[INVITED] Statistical Aspects of the Elastic-Plastic Transition in Metallic Glasses and High Entropy Alloys Probed Using Nanoindentation

Upadrasta Ramamurty (Nanyang Technological University)

3:55 PM-4:15 PM

From Nanoindentation to 4D-STEM: The Structural Origin of Elastic Fluctuations in Metallic Glasses

Reza Rashidi (Federal Institute of Materials Research and Testing (BAM)), Birte Riechers (Federal Institute of Materials Research and Testing (BAM)), Robert Maass (Federal Institute of Materials Research and Testing (BAM))

4:15 PM-4:40 PM

[INVITED] Effect of Cryo-Thermal Cycling-Induced Structural State Modulation on the Pressure-Sensitivity of a Bulk Metallic Glass

Shantanu Jain (Indian Institute of Technology Delhi), Naresh V. Datla (Indian Institute of Technology Delhi), Long Zhang (Beijing Institute of Technology), **R. Lakshmi Narayan** (Indian Institute of Technology Delhi), Upadrasta Ramamurty (Nanyang Technological University)

4:40 PM-5:00 PM

Nanoindentation Reveals Local Anelasticity in Metallic Glasses

Silvia Pomes (Federal Institute of Materials Research and Testing), Birte Riechers (Federal Institute of Materials Research and Testing), Reza Rashidi (Federal Institute of Materials Research and Testing), Takahito Ohmura (National Institute for Materials Science), Robert Maass (Federal Institute of Materials Research and Testing)

5:00 PM-5:25 PM

[INVITED] Electron-Beam-Driven In-Situ Modification of Small Scale Plasticity in Oxide Ceramics

In-Suk Choi (Seoul National University)

Tuesday, November 3, 2026

Session AS | 3:30 PM - 5:20 PM | Room 307

Chair: Subin Lee (Karlsruhe Institute of Technology)

3:30 PM-3:55 PM

[INVITED] Relationship between Serrated Load-Displacement Curves and Dislocation Structures Underneath Indents in Al-Mg Alloys

Yasuhito Kawahara (Kyushu University), Hidenari Takagi (Nihon University), Takahito Ohmura (National Institute for Material Science), Shigeto Yamasaki (Kyushu University), Masaki Tanaka (Kyushu University), Satoshi Hata (Kyushu University)

3:55 PM-4:20 PM

[INVITED] Interface-Mediated Plasticity in CoCrFeNi Multi-Principal Element Alloys Revealed by Nanoindentation-Based Micromechanics

Siyuan Wei (IMRE)

4:20 PM-4:40 PM

Indentation Energy Method for In-Situ Evaluation of Multiple Post-Weld Heat Treatment Effects in Pressure Vessel Welds

Sun Guanghua (China University of Petroleum (East China))

4:40 PM-5:00 PM

Processing Nanoindentation Data for Machine Learning in Additively Manufactured 17-4PH Stainless Steel

Bokyu Kim (Kangwon National University), Jaewoo Kim (Seoul National University), Sunghee Han (Kangwon National University), Daehyun Kim (Kangwon National University), Junhee Han (Kangwon National University), Su Bin Yun (Kangwon National University), Byung-chul Choi (Korea Institute of Industrial Technology), In-Suk Choi (Seoul National University), Jungho Shin (Kangwon National University)

5:00 PM-5:20 PM

Concurrent Acoustic Emission Monitoring of PLC-Related Plastic Instabilities During Nanoindentation and Micropillar Compression

David Ugi (Eötvös Lotánt University)

Tuesday, November 3, 2026

Session SA | 3:30 PM - 5:00 PM | Room 305

Chair: Ill Ryu (Seoul National University)

3:30 PM-3:55 PM

[INVITED] Atomistic Simulations of Phase Transformation and Deformation Behaviors of Shape-Memory Alloys at the Nanoscale

Won-Seok Ko (Korea University)

3:55 PM-4:15 PM

A Local Thermo-Mechanical Field-Based Framework for Single-Test Constitutive Model Calibration

Jaehun Kim (POSTECH), Rae Eon Kim (POSTECH), Jumi Choi (POSTECH), Tae Young Go (POSTECH), Hyejin Seo (POSTECH), Hyoung Seop Kim (POSTECH)

4:15 PM-4:35 PM

Physics-Informed Neural Posterior Estimation of Stress-Strain Curves from Indentation via a Mechanism-Based Constitutive Model

Tae Young Go (POSTECH), Renhao Wu (Tohoku University), Chuangming Li (Tohoku University), Soo Vin Ha (POSTECH), Jeong Ah Lee (POSTECH), Jihye Kwon (POSTECH), Hyoung Seop Kim (POSTECH)

4:35 PM-5:00 PM

[INVITED] Advancing Indentation-Based Mechanical Characterization with AI

Kyeongjae Jeong (Sungkyunkwan University), Minwoo Park (Seoul National University), Heung Nam Han (Seoul National University)

Wednesday, November 4, 2026

Session GA | 8:30 AM - 9:40 AM | Room 306

Chair: Finn Giuliani (Imperial College London)

8:30 AM-8:55 AM

[INVITED] Visualizing Indentation-Induced Deformation in Glasses Using Nanofocus X-ray Scattering

Morten M. Smedskjaer (Aalborg University)

8:55 AM-9:20 AM

[INVITED] Indentation as a Crack Initiator for Studying Crack Propagation Resistance in Glasses

Theany To (École Centrale Nantes)

9:20 AM-9:40 AM

Probing Local Deformation and Directional Strain in Glasses During Indentation by X-ray Scattering

Johan F. S. Christensen (Aalborg University), M. Faizal Ussama Jalaludeen (Aalborg University), Søren S. Sørensen (Aalborg University), David L. Christensen (Aalborg University), Sourav Sahoo (Aalborg University), Jonas A. Finkler (Aalborg University), Anton Davydok (Helmholtz-Zentrum Hereon), Christina Krywka (Helmholtz-Zentrum Hereon), Henning F. Poulsen (Technical University of Denmark), Etienne Barthel (CNRS/ESPCI/PSL/Sorbonne Université), Gustavo A. Rosales-Sosa (Nippon Electric Glass Co.), Morten M. Smedskjaer (Aalborg University)

Wednesday, November 4, 2026

Session AS | 8:30 AM - 9:40 AM | Room 307

Chair: Kwang Seok Lee (Korea Institute of Materials Science)

8:30 AM-8:55 AM

[INVITED] Dislocation Evolution in Cyclic-Loaded Cu Nanopillars with Different Configurations

Jiangwei Wang (Zhejiang University)

8:55 AM-9:15 AM

Impression Creep Behavior of Twin Roll Cast A356-5 Wt.% SiCp Composites

Rishikesh Patel (National Institute of Technology Rourkela), J. Sivasubramanian (National Institute of Technology Rourkela), Bushra (National Institute of Technology Rourkela), Anindya Basu (National Institute of Technology Rourkela), **Priyanka Saini** (National Institute of Technology Rourkela)

9:15 AM-9:40 AM

[INVITED] Nanoindentation-Guided Development of 2.0 GPa Hot Stamping Steel for Enhanced Crash Performance

Byung-Gil Yoo (Hyundai Steel), Seok Min Hwang (Hyundai Steel), Jewoosoo Kim (Hyundai Steel)

Wednesday, November 4, 2026

Session SA | 8:30 AM - 9:35 AM | Room 305

Chair: Rajaprakash Ramachandramoorthy (Max Planck Institute for Sustainable Materials)

8:30 AM-8:55 AM

[INVITED] A Comprehensive Microstructure-Based Fatigue Life Prediction Methodology for Hypo-Eutectoid Steels

Yoon Suk Choi (Pusan National University), Jonghoon Shin (Hanwha Aerospace), Taeyang Bang (Pusan National University), Dae-Geun Nam (Korea Institute of Industrial Technology)

8:55 AM-9:15 AM

Indentation-Based Characterization of the Bauschinger Effect Using Physics-Guided Deep Learning

Minwoo Park (Seoul National University), Deunbom Chung (Seoul National University), Seok Hyun Choi (Seoul National University), Jaeyoung Park (Hanwha Aerospace), Fusahito Yoshida (Hiroshima University), Heung Nam Han (Seoul National University)

9:15 AM-9:35 AM

Orientation-Dependent Nanoindentation Analysis Using CPFEM and Machine Learning

Shinae Lee (Pusan National University), Ji Hoon Kim (Pusan National University)

Wednesday, November 4, 2026

Session GA | 10:00 AM - 11:30 AM | Room 306

Chair: Theany To (Nantes Université)

10:00 AM-10:25 AM

[INVITED] Damage Resistant Glasses with Mixed Indentation Deformation Modes

Timothy Gross (Corning Incorporated)

10:25 AM-10:50 AM

[INVITED] The Effect of Beam Damage on Small Scale Mechanical Properties of Forsterite Glass

Lucas Li (Imperial College London), Siyang Wang (Imperial College London), Katharina Marquardt (University of Oxford), Tanguy Rouxel (Université de Rennes), **Finn Giuliani** (Imperial College London)

10:50 AM-11:10 AM

Probing Local Structural Variation of Glass Beneath a Vickers Imprint Using Electron Diffraction (e-PDF) and μ -Raman Spectroscopy

Nathan Kail (Université libre de Bruxelles), François Boland (AGC Technovation Center), Stéphane Godet (Université libre de Bruxelles), Theany To (Nantes Université), Tanguy Rouxel (Université de Rennes), Claire Fourmentin (Université libre de Bruxelles)

11:10 AM-11:30 AM

Nanoindentation Reveals Universal Scaling of Pop-in Plasticity in Metallic Glasses

Yong Hao Sun (Institute of Physics)

Wednesday, November 4, 2026

Session AS | 10:00 AM - 11:10 AM | Room 307

Chair: Jiangwei Wang (Zhejiang University)

10:00 AM-10:25 AM

[INVITED] Development of Nb-Based Alloys with Enhanced Strength-Ductility Balance through Solid-Solution and Interstitial Control

Kwang-Hyeok Lim (Korea Institute of Science and Technology), Muhammad Salman Johry (Korea Institute of Science and Technology), Wi-Geol Seo (Sunchun National University), Sang-Min Lee (Korea Institute of Science and Technology), Shi-Hoon Choi (Sunchun National University), Jin-Yoo Suh (Korea Institute of Science and Technology)

10:25 AM-10:45 AM

Nanoindentation-Induced Dislocation Structures in BCC Tungsten Observed via ECCI

Florian Tropper (NIMS), Takahito Ohmura (NIMS)

10:45 AM-11:10 AM

[INVITED] The Influence of Process Variables on the Interface Properties of Several Clad Sheets

Kwang Seok Lee (Korea Institute of Materials Science)

Wednesday, November 4, 2026

Session EE | 10:00 AM - 11:30 AM | Room 305

Chair: Byung-Gil Yoo (Hyundai Steel)

10:00 AM-10:25 AM

[INVITED] The Loading/ Unloading Stiffness Ratio - Real-time Materials Insights under Extreme Conditions

Verena Maier-Kiener (Montanuniversität Leoben), Stefan Zeiler (Montanuniversität Leoben)

10:25 AM-10:45 AM

An Experimental Capability for Nanomechanical Measurements at Cryogenic Temperatures

Ben Beake (Micro Materials Ltd.), Adrian Harris (Micro Materials Ltd.), Andrew Bird (Micro Materials Ltd.), Hannah Zhang (National Physical Laboratory), Stefan Stoica (National Physical Laboratory)

10:45 AM-11:10 AM

[INVITED] Nanoindentation at Extreme Conditions: High Strain Rates & Cryogenic Temperatures

Rajaprakash Ramachandramoorthy (Max Planck Institute For Sustainable Materials)

11:10 AM-11:30 AM

In-Situ Micromechanical Deformation of Chemical Interfaces from Cryogenic to Elevated Temperatures

Leiming Du (Max Planck Institute for Sustainable Materials), Hendrik Holz (Max Planck Institute for Sustainable Materials), Gerhard Dehm (Max Planck Institute for Sustainable Materials), **Anwesha Kanjilal** (Max Planck Institute for Sustainable Materials)

Wednesday, November 4, 2026

Session GA | 2:00 PM - 3:10 PM | Room 306

Chair: Hiroshi Masuda (The University of Tokyo)

2:00 PM-2:25 PM

[INVITED] What We Can Learn from Raman Scattering Spectroscopy About the Indentation Deformation Mechanisms in Oxide Glasses?

Nathan Kail (Université libre de Bruxelles), Claire Fourmentin (Université libre de Bruxelles), Stéphane Godet (Université libre de Bruxelles), Theany To (Ecole Centrale de Nantes), Théo Guerineau (University of Laval), Younes Messaddeq (University of Laval), Quentin Wets (University of Laval), Alain Moreac (Université de Rennes), Tanguy Rouxel (Université de Rennes)

2:25 PM-2:50 PM

[INVITED] Role of Plastic Flow on Crack Initiation by Vickers Indentation in Oxide Glasses

Gustavo Alberto Rosales-Sosa (Nippon Electric Glass Co. Ltd.), Taichi Nakashima (Nippon Electric Glass Co. Ltd.), Yoshinari Kato (Nippon Electric Glass Co. Ltd.), Etienne Barthel (PSL University), Hikaru Ikeda (Nippon Electric Glass Co. Ltd.), Shingo Nakane (Nippon Electric Glass Co. Ltd.), Hiroki Yamazaki (Nippon Electric Glass Co. Ltd.)

2:50 PM-3:10 PM

Design of Theta Device for the Micro Tensile Testing of Silica

Wenjuan Cheng (Roma Tre University), Meral Tuna (Roma Tre University), Edoardo Rossi (Roma Tre University), Jens Bauer (Karlsruhe Institute of Technology (KIT)), Marco Sebastiani (Roma Tre University)

Wednesday, November 4, 2026

Session AS | 2:00 PM - 3:05 PM | Room 307

Chair: Seung Min Han (KAIST)

2:00 PM-2:25 PM

[INVITED] Combinatorial Nanoindentation and Strengthening Analysis of Refractory Complex Concentrated Alloys of Mo-Nb-Ti and Ta-Nb-Ti

Taeyeop Kim (Yeungnam University), Daegun You (University of Illinois at Urbana-Champaign), **Dongwoo Lee** (Sungkyunkwan University)

2:25 PM-2:45 PM

Indentation-Based Multiscale Analysis of Deformation and Fracture Mechanisms in Potassium-Doped Tungsten

Jeongseok Kim (Seoul National University), Guensik Min (Seoul National University), Won-Seok Ko (Korea University), Phu Cuong Nguyen (The University of Texas at Dallas), Sungmin Lee (Seoul National University), Cheol-Heon Oh (Seoul National University), Hwangsun Kim (Seoul National University), Hojae Kwak (Seoul National University), Yeonju Oh (Seoul National University), Ill Ryu (Seoul National University), Dongchan Jang (KAIST), Heung Nam Han (Seoul National University)

2:45 PM-3:05 PM

Ligament Reattachment and Connectivity-Driven Mechanical Behavior in Nanoporous Gold

Sukwon Hong (UNIST), Younghoon Kim (UNIST), Hansol Jeon (Keimyung University), Ju-Young Kim (UNIST)

Wednesday, November 4, 2026

Session EE | 2:00 PM - 3:05 PM | Room 305

Chair: Hansol Jeon (Keimyung University)

2:00 PM-2:25 PM

[INVITED] Probing Thermally Activated Dislocation Mechanisms in MgO and BCC Metals by High Temperature Scanning Indentation

Karsten Durst (TU Darmstadt), Marcel Sos (TU Darmstadt), Sebastian Bruns (TU Darmstadt)

2:25 PM-2:45 PM

Spatially Resolved Strain Rate Sensitivity in a Dissimilar Steel Weld: Insights from High-Rate Nanoindentation

Bryan A. Crawford (KLA), Kurt E. Johanns (KLA), Lee W. Spencer (KLA), Yuming Lou (KLA)

2:45 PM-3:05 PM

Nanoindentation for Mechanical Characterization under Elevated Temperatures and Irradiation

Edyta Wyszowska (National Centre for Nuclear Research), Jacek Jagielski (National Centre for Nuclear Research), Łukasz Kurpaska (National Centre for Nuclear Research), Im-Deok Kim (Seoul National University), Seung-Kyun Kang (Seoul National University), JaeYong Kim (KAERI), F. J. Dominguez-Gutierrez (National Centre for Nuclear Research), Witold Chromiński (Warsaw University of Technology), Anna Kosińska (National Centre for Nuclear Research), Pavol Noga (Slovak University of Technology in Bratislava), Zoltán Száraz (Slovak University of Technology in Bratislava), Dušan Vaňa (Slovak University of Technology in Bratislava), Marcin Turek (Maria Skłodowska Curie University)

Wednesday, November 4, 2026

Session CC | 3:30 PM - 5:00 PM | Room 306

Chair: Gustavo Alberto Rosales-Sosa (Nippon Electric Glass)

3:30 PM-3:55 PM

[INVITED] Mapping of Nanoindentation Behavior of TiZrHf-Boride, -Carbide and Dual-Phase -Boride/Carbide Coatings

Frantisek Lofaj (Institute of Materials Research of SAS)

3:55 PM-4:15 PM

Fracture of Brittle Materials and Interfaces at the Nanoscale

Oriol Gavalda Diaz (Imperial College London)

4:15 PM-4:40 PM

[INVITED] Indentation-Induced Plasticity in Oxide Ceramics: From Nanoindentation to Shot Peening

Hiroshi Masuda (The University of Tokyo)

4:40 PM-5:00 PM

Influence of the Multi-Metal Environment on the Fracture Toughness of ZrHfNbTaC₄ High-Entropy Carbide Grains

Tamás Csanádi (Institute of Materials Research), Marek Vojtko (Institute of Materials Research), Zoltán Dankházi (ELTE Eötvös Loránd University), János Koltai (ELTE Eötvös Loránd University)

Wednesday, November 4, 2026

Session TF | 3:30 PM - 5:05 PM | Room 307

Chair: Jin-Yoo Suh (Korea Institute of Science and Technology)

3:30 PM-3:55 PM

[INVITED] 3D Architected Ni-Al₂O₃ Nanocomposite via Proximity-Field Nanopatterning

Seung Min Han (KAIST)

3:55 PM-4:15 PM

Investigation of Mechanical Properties of Ni-Co-Cr Thin Film Using a High-Throughput Combinatorial Method

Geummi Lee (KAIST), Semin Park (KAIST), Daeho Kim (KAIST), Seung Min Han (KAIST)

4:15 PM-4:40 PM

[INVITED] Design of Strengthened and Toughened Thin Film Materials Based on Nano-Ordered Structures

Kan Zhang (Jilin University)

4:40 PM-5:05 PM

[INVITED] Effect of Structural Hierarchy on Mechanical Behavior of Nanoporous Gold

Hansol Jeon (Keimyung University)

Wednesday, November 4, 2026

Session EE | 3:30 PM - 4:55 PM | Room 305

Chair: Dongwoo Lee (Sungkyunkwan University)

3:30 PM-3:55 PM

[INVITED] High Temperature Nanomechanical Testing of High Entropy Materials: Recent Efforts & Ongoing Challenges

Thomas Edwards (NIMS)

3:55 PM-4:15 PM

Probing Tungsten Deformation at Extreme Conditions through High-Temperature, High-Strain-Rate Nanoindentation

Eric Hintsala (Bruker), **Kevin Schmalbach** (Bruker)

4:15 PM-4:35 PM

Microscale Impact Deformation Mechanisms in FCC Single Crystals and Medium-Entropy Alloys

Jian Chen (Southeast University), Kehua Wang (Southeast University)

4:35 PM-4:55 PM

Evaluation of Low-Temperature Embrittlement of Metallic Materials in Rebound Hardness Testing

Kenji Matsuda (Kyushu Institute of Technology), Takanori Iruya (Kyushu Institute of Technology)

Thursday, November 5, 2026

Session CC | 9:00 AM - 10:10 AM | Room 306

Chair: Wei Li (Nankai University)

9:00 AM-9:25 AM

[INVITED] Electron-Matter Interactions in Silicon Oxides: From Irradiation-Induced Viscoplasticity to Mechanical Amorphization

Sung-Gyu Kang (Gyeongsang National University)

9:25 AM-9:45 AM

Let's Get to the Point (Defect): How Oxygen Vacancies Alter Dislocation Mechanics in Oxides

Chukwudalu Okafor (Karlsruhe Institute of Technology), **Oliver Preuss** (Karlsruhe Institute of Technology), Ahmad Sayyadi-Shahraki (Technical University of Darmstadt), Sebastian Bruns (Technical University of Darmstadt), Pierre Hirel (Université Lille), Karsten Durst (Technical University of Darmstadt), Xufei Fang (Karlsruhe Institute of Technology)

9:45 AM-10:10 AM

[INVITED] Enabling Dislocation Engineering in Ceramics: An Indentation-Based Deformation Toolbox and Mechanism Map

Oliver Preuss (Karlsruhe Institute of Technology), Chukwudalu Okafor (Karlsruhe Institute of Technology), Yanfei Gao (University of Tennessee), **Xufei Fang** (Karlsruhe Institute of Technology)

Thursday, November 5, 2026

Session TF | 9:00 AM - 10:05 AM | Room 307

Chair: Zaoli Zhang (Austrian Academy of Sciences)

9:00 AM-9:25 AM

[INVITED] Mechanical Performance of an Electrodeposited Ni-Fe Film Using the Loading Secant Stiffness Method of the Instrumented Indentation Test

Giovanni Maizza (Politecnico di Torino), Ahmad Atef Abdullatef Hamed (University of Rome), Hyeonjin Eom (Korea Institute of Industrial Technology)

9:25 AM-9:45 AM

Understanding Fatigue Behavior in NiTi Thin Films for Reliable Elastocaloric Cooling

Hyemin Ryu (KAIST), Jae-Hoon Choi (Jeonbuk National University), Gi-Dong Sim (KAIST)

9:45 AM-10:05 AM

Simultaneously High Tensile and Fatigue Strengths in Thin Films with Atomic-Scale Planar Defects

JungHun Park (KAIST), Yuhyun Park (KAIST), Sunkun Choi (KAIST), Gi-Dong Sim (KAIST)

Thursday, November 5, 2026

Session EE | 9:00 AM - 10:05 AM | Room 305

Chair: Dong-Hyun Lee (Chungnam National University)

9:00 AM-9:25 AM

[INVITED] Mechanistic Understanding of Time-, Orientation-, and Temperature-Dependent Deformation in Titanium Using Nanoindentation

Tea-Sung Jun (Incheon National University)

9:25 AM-9:45 AM

From High-Speed Mechanical Mapping to High-Temperature Micropillar Compression: Multiscale Mechanical Characterization of Ti(C,N)-FeNi Cermets

Hossein Besharatloo (UPC), Maria de Nicolás-Morillas (University Carlos III of Madrid), Ming Chen (ETH Zurich), Begoña Ferrari (CSIC-ICV), Elena Gordo (University Carlos III of Madrid), Jeffrey M. Wheeler (ETH Zurich), Luis Llanes (UPC)

9:45 AM-10:05 AM

Seeded Dislocations Facilitate Plasticity in Strontium Titanate Micropillars under High Strain Rate Loading

Jeongin Paeng (Max Planck Institute for Sustainable Materials), Bárbara Bellón (Max Planck Institute for Sustainable Materials), Jiawen Zhang (Southern University of Science and Technology), Gerhard Dehm (Max Planck Institute for Sustainable Materials), Wenjun Lu (Southern University of Science and Technology), Xufei Fang (Institute for Applied Materials), Rajaprakash Ramachandramoorthy (Max Planck Institute for Sustainable Materials)

Thursday, November 5, 2026

Session CC | 10:30 AM - 11:15 AM | Room 306

Chair: Sung-Gyu Kang (Gyeongsang National University)

10:30 AM-10:55 AM

**[INVITED] Nanoindentation of Coordination Polymers and Hybrid Metal Halides:
Selected Case Studies**

Wei Li (Nankai University)

10:55 AM-11:15 AM

**Orientation-Dependent Electron-Beam-Induced Plasticity in Single-Crystalline
ZnO Micropillars**

Eunsu Lee (Seoul National University), Ryosuke Kinoshita (The University of Osaka), Minsik Oh (Seoul National University), Yan Li (The University of Osaka), Atsutomo Nakamura (The University of Osaka), In-Suk Choi (Seoul National University)

Thursday, November 5, 2026

Session TF | 10:30 AM - 11:35 AM | Room 307

Chair: Tea-Sung Jun (Incheon National University)

10:30 AM-10:55 AM

[INVITED] Atomic-Resolution Study on Nanoscale Multilayer Deformation

Zhuo Chen (Erich Schmid Institute of Materials Science), Yong Huang (Erich Schmid Institute of Materials Science), Zaoli Zhang (Austrian Academy of Sciences)

10:55 AM-11:15 AM

Achieving High Strength in 6061 Aluminum Alloy Thin Films through Interstitial Carbon Incorporation.

Zion Lee (KAIST), Hojang Kim (KAIST), Sunkun Choi (KAIST), Injong Oh (KAIST), Jaehong Park (Hyundai Motors), Gi-Dong Sim (KAIST)

11:15 AM-11:35 AM

Membrane Deflection for High-Throughput Thin Film Tensile Characterization across Temperatures

Zhuo Feng Lee (KAIST), Jeehun Jeong (Korea Institute of Energy Technology (KENTECH)), Ye-Eun Lee (Jeonbuk National University), Jae-Hoon Choi (Jeonbuk National University), Sang Ho Oh (Korea Institute of Energy Technology (KENTECH)), Gi-Dong Sim (KAIST)

Poster Presentation

November 3–4, 2026 · Lobby

Tuesday, November 3, 2026

Poster Presentation I | Lobby

1. Analysis of the Correlation between Hierarchical Microstructures and Multi-Scale Mechanical Performance in L-PBF Processed 316L Stainless Steel

Jaehyeok Heo (Kumoh National Institute of Technology), In-Chul Choi (Kumoh National Institute of Technology)

2. Effects of Alloying Elements and Cold Rolling on the Microstructural Evolution and Enhanced Mechanical Properties of Ti-Based Refractory Medium-Entropy Alloys

Tae-Yeon Park (Kumoh National Institute of Technology), In-Chul Choi (Kumoh National Institute of Technology)

3. Influences of Surface Condition on Nanoindentation Behavior of FCC and BCC Medium-Entropy Alloys

Jae-Hyeok Choi (Hanyang University), Si-Yeon Lee (Hanyang University), Zhe Gao (Hanyang University), Jae-il Jang (Hanyang University)

4. Effects of Precipitation Hardening on Surface Mechanical Properties and Corrosion Behavior of Ni-Based Alloys

Jeong-Hyun Woo (Korea Atomic Energy Research Institute), Gha-Young Kim (Korea Atomic Energy Research Institute), Junhyuk Jang (Korea Atomic Energy Research Institute), Sun Young Park (Korea Atomic Energy Research Institute)

5. Precipitation Hardening Behavior of Ni-Cu Alloys: Electrochemical Corrosion Characteristics of the Strengthened Matrix

Gha-Young Kim (KAERI), Jeong-Hyun Woo (KAERI), Junhyuk Jang (KAERI), Sun Young Park (KAERI)

6. Natural Analogue Evaluation of Long-Term Corrosion Performance for Disposal Canister Using Buried Archaeological Metal Artifacts

Jeong-Hyun Woo (Korea Atomic Energy Research Institute), Ji-Hun Ryu (Korea Atomic Energy Research Institute)

7. Mechanical Properties of a Hetero-Structured Ferritic ODS Alloy Fabricated Using Different Powder Sizes Evaluated by Nanoindentation

Bae Jaeyoon (Tohoku University), Kazuki Ogawa (Tohoku University), Diancheng Geng (Tohoku University), Minha Park (Tohoku University), Sosuke Kondo (Tohoku University), Ryuta Kasada (Tohoku University)

8. Evaluation of Crack Healing Behavior in Metallic Materials for Aerospace Applications via Electropulsing Treatment

Jeongwook Kim (Korea institute of Materials Science), Hyunsung Choi (Korea institute of Materials Science), Hyeonil Park (Korea institute of Materials Science), Moo-Young Seok (Korea institute of Materials Science), Yongnam Kwon (Korea institute of Materials Science), Dongjun Lee (Korea institute of Materials Science)

9. Nanomechanical Characterization of RAFM Steel Using Nanoindentation

Hyun Woo Seo (Yonsei University), Sun-Young Park (Korea Atomic Energy Research Institute), Joowon Suh (Korea Atomic Energy Research Institute), Hyung-Ha Jin (Korea Atomic Energy Research Institute), Dong Won Lee (Korea Atomic Energy Research Institute), Young-Kook Lee (Yonsei University), Suk Hoon Kang (Korea Atomic Energy Research Institute)

10. Interpretable Multimodal Modeling of Local Microstructure-Property Relationships in Ultra-High-Strength Steels

Hangi Wang (Beihang University)

11. Nonequilibrium Boron Retention as a New Route for Strengthening Additively Manufactured Al Alloys

Gyumin Lee (KAIST), Zion Lee (KAIST), Gi-Dong Sim (KAIST)

12. Interfacial Characterization of Cu-x-Cu Diffusion Bonded Structure

Kai Ying Pong (KAIST), Kwanhyeong Lee (KAIST), Hyemin Ryu (KAIST), Gi-Dong Sim (KAIST)

13. First-Principles Analysis of Ternary Alloying Effects on Martensitic Transformation in Ti-Nb-Based Shape Memory Alloys

Hun-Min Jo (Korea University), Won-Seok Ko (Korea University)

14. Compositionally Modified AISI D2 Tool Steel with Improved Printability and High Hardness via Directed Energy Deposition

Hahun Lee (Korea University), Ji-Su Lee (POSTECH), Sung-Jae Jo (Kongju National University), Seungjin Nam (Korea University), Heechan Jung (Korea University), Chahee Jung (Korea University), Soon-Jik Hong (Kongju National University), Byeong-Joo Lee (POSTECH), Seok Su Sohn (Korea University)

15. The Compressive Properties of Laser Powder Bed Fusion Dievar Steel Lattice

Chun-Yu Hsieh (National Taipei University of Technology), Ming-Hsiang Ku (National Taipei University of Technology), Chien-Lun Li (voestalpine Technology Institute (Asia) Co. Ltd.), **Ming-Wei Wu** (National Taipei University of Technology)

16. Feature-Engineered Random Forest Model for Predicting Tensile Properties of Fe-Mn-Cr-Ni Multicomponent Alloys

Ye Min Hwang (Pukyong National University), Jun Seok Lee (Pukyong National University), Pil Wook Shin (Pukyong National University), Jae Wung Bae (Pukyong National University)

17. Nanoindentation Study on Ferrite-Martensite Hardness Mismatch and Its Influence on the Mechanical Properties of Low-Carbon Dual-Phase Steels

Dong-Kyu Oh (Seoul National University of Science and Technology), Byoungchul Hwang (Seoul National University of Science and Technology)

18. Representative Volume of Unit-Cells for Fracture Resistance Testing of Additive Manufactured Lattice Structures

Eunju Shin (Keimyung University), Hansol Jeon (Keimyung University)

19. Effect of Mg Melt Composition on the Local Mechanical Properties of Ti-6Al-4V Processed by Liquid Metal Dealloying

Jihye Seong (Dankook University), Hidemi Kato (Tohoku University), Jeong Hun Lee (Kyungpook National University), Sung Hyuk Park (Kyungpook National University), Soo-Hyun Joo (Dankook University)

20. Enhancement of Cryogenic Mechanical Properties of Fe-Ni-Co-Cr-Mo Medium-Entropy Alloy through Fine Mo-Rich Precipitation

Se Ung Yang (Dankook University), Taehyung Kim (Dankook University), Jae Hyuk Lee (Dankook University), Hyoung Seop Kim (Pohang University), Soo Hyun Joo (Dankook University)

21. Three-Dimensionally Interconnected Porous Surface on Ti-6Al-4V via Liquid Metal Dealloying for Enhanced CFRP Joining with Retained Hardness

Hyeok Min Kwon (Dankook University), Jihye Seong (Dankook University), Jae Hyuk Lee (Dankook University), Hidemi Kato (Tohoku University), Sung Hyuk Park (Kyungpook National University), Soo-Hyun Joo (Dankook University)

22. Nanomechanical Characterization of Microstructural Inhomogeneity in a Sand Casted Mn-Cu Alloy

Seung-Min Mok (Gyeongsang National University), Jun-Young Park (Gyeongsang National University), Jun-Min Lee (Gyeongsang National University), Dae-Kyung Kim (Hanwha Ocean), Sang-Sik Kim (Gyeongsang National University), Sung-Kyu Kang (Gyeongsang National University)

23. Mechanical Properties of NiCoFe Medium-Entropy Alloy-Coated 3D Glassy Carbon Architectures

Elif Nur Adalı (KAIST), Isoo Jeon (KAIST), Kneev Sharma (TUM), Vishnu Nair (TUM), Jan Torgersen (TUM), Seung Min J. Han (KAIST)

24. Plasticity in Microcompression of Single-Crystal Al₂O₃ with High-Density Dislocations Introduced by Shot Peening

Shuto Yoshida (The University of Tokyo), Hiroshi Masuda (The University of Tokyo), Hidehiro Yoshida (The University of Tokyo)

25. Strain-Dependent Mechanical Response and Twin Boundary Migration-Driven Plasticity in Tin

Xinxin Gao (Jilin University), Kan Zhang (Jilin University)

26. Nanoindentation Analysis of Depth-Dependent Hardness and Irradiation Embrittlement in Fe Ion-Irradiated RAFM Steel (ARAA)

Taewon Park (University of Ulsan), Donggyu Kim (University of Ulsan), Seunghyun Lee (Korea Atomic Energy Research Institute), Dae-sik Chang (Korea Atomic Energy Research Institute), Sangbeen Lee (Korea Atomic Energy Research Institute), Kihyun Lee (Korea Atomic Energy Research Institute), Jung Gu Lee (University of Ulsan), Eun-chae Jeon (University of Ulsan)

27. Deformation Anisotropy and Non-Schmid Behavior in Ti₃SiC₂ MAX Phase Ceramics

Eiichi Sei (Hokkaido University), Ken-ichi Ikeda (Hokkaido University), Seiji Miura (Hokkaido University), Koji Morita (NIMS), Tohru S. Suzuki (NIMS), Sakka Yoshio (NIMS)

28. Registration-Free Topography-Based Reliability Filtering for Unsupervised Classification of High-Throughput Nanoindentation Maps

Hayato Kobayashi (ELIONIX INC.), Kaiki Noma (ELIONIX INC.)

29. Effect of Composite Powder Preparation Methods on Microstructure and Properties of TiC-Reinforced AlSi10Mg Fabricated by Directed Energy Deposition.

Jaehyeong Kim (Pusan National University), Yoonsuk Choi (Pusan National University), Hyein Lee (Pusan National University)

30. Study on the Thermal and Mechanical Properties of Lanthanum-Based Ball-Type Regenerator Materials with Stacked and Mixed-Layer Structures for 4 K-Stage Regenerators

Hyeonjin Eom (Korea Institute of Industrial Technology), Giovanni Maizza (Politecnico di Torino)

31. Geometrically Constrained Plasticity and High-Temperature Mechanical Response of Cu/SiO₂ Hybrid Bonding Structures Characterized by Nanoindentation

Yuan-Fu Wang (National Yang Ming Chiao Tung University), Chih Chen (National Yang Ming Chiao Tung University)

32. Probing Serrated Flow in a Nickel-Based Superalloy at Intermediate Temperatures via Nanoindentation

Nur Liyana Nabihah Yusof (Kyushu University), Viola Paul (National Institute for Materials Science), Edwards Thomas Edward James (University of Tsukuba), Toshio Osada (National Institute for Materials Science), Takahito Ohmura (Kyushu University)

33. Mechanical Behavior of Liquid Encapsulated in Copper Microstructures under Extreme Thermo-Mechanical Conditions

Sung-Gyu Kang (Gyeongsang National University)

34. Mechanical Properties of Low Temperature CuAg Metal-to-Metal Bonding through Nano-Multilayer Alloy Films

Dong Jin Seon (Tech University of Korea), Byoung-Joon Kim (Tech University of Korea)

35. Modeling of Laser Beam Welding in an IN792 Alloy: Experimental Validation of the Predicted Stress-Strain Field Against Rate-Derived Nano-Hardness Measurements.

Giovanni Maizza (Politecnico di Torino), Peihong Cheng (University of Rome), Alessandra Varone (University of Rome), Roberto Montanari (University of Rome)

36. Experimental Considerations for High-Temperature Instrumented Micro-Indentation of Superalloys

Hoseung Kang (Seoul National University), Eunsu Lee (Seoul National University), In-Suk Choi (Seoul National University)

37. Spatially-Distributed Impact Testing – a Micro-Mechanical Test Method for Simulating Solid Particle Erosion

Ben Beake (Micro Materials Ltd.), Luis Isern (Cranfield University), John Nicholls (Cranfield University), Hannah Zhang (National Physical Laboratory), Mark Gee (National Physical Laboratory)

38. Mechanical and Thermal Performance of AlSi10Mg/316L SS/OLC Tri-Layer Composite Structures for Advanced Heat Dissipation

Jun-Yu Chen (National United University), Chao-Te Lee (Taiwan Instrument Research Institute), Wei-Chun Chen (Taiwan Instrument Research Institute), Chin-An Wang (Minghsin University of Science and Technology), PING-CHANG HSIEH (National United University), Ming-Chun Chen (National United University), Shih Chun Tseng (National United University)

39. Creep Behavior at 630°C of Ferritic/Martensitic Heat-Resistant Steel with Cu Addition

Du-Hyun Kim (Korea Institute of Science and Technology), Byeong-Hyeon Lee (Korea Institute of Science and Technology), Seong Hoon Kim (Korea Institute of Materials Science), Woo-Sang Jung (Korea Institute of Science and Technology), Dong-Ik Kim (Korea Institute of Science and Technology), Gyeong Ho Kim (Korea Institute of Science and Technology), Tae-Ho Lee (Korea Institute of Materials Science), Jong-Ho Shin (Corporate Research and Development Institute), Jin-Yoo Suh (Korea Institute of Science and Technology), Seok Su Sohn (Korea University)

40. Effect of Heat Treatment on the Fatigue Behavior of STS304J1 Stainless Steel Corrugated Pipes under Different Loading Conditions

Jae Hyun Park (Pusan National University), Yoon Suk Choi (Pusan National University)

Wednesday, November 4, 2026

Poster Presentation II | Lobby

1. Rebound Hardness Test of Glass by Using Hammer with Vickers Indenter

Lu Chen (Kyushu Institute of Technology), Shuta Okajima (Kyushu Institute of Technology), Kenji Matsuda (Kyushu Institute of Technology)

2. Nanoindentation Evaluation of Hydrogen Embrittlement in CoCrNi-Based MEAs with Composition-Dependent SFE

Li-Hyeon Kim (Gyeongsang National University), Tae-Yeon Park (Kumoh National Institute of Technology), In-Chul Choi (Kumoh National Institute of Technology), Young-Cheon Kim (Gyeongsang National University)

3. Effect of TiB Particle on Hydrogen Embrittlement Behavior of α -Ti

Hyun Jeong (Chungnam National University), Yakai Zhao (A*STAR), Keun Hyung Lee (Chungnam National University), Soo Yeol Lee (Chungnam National University), Dong-Hyun Lee (Chungnam National University)

4. Correlation between Single-Particle Fracture Strength and Cycle Life of Li-Rich Layered Oxide Cathodes Measured by Micro-Compression Testing

Hyungcheoul Shim (University of Ulsan)

5. Indentation-Depth Criterion for Hardness Evaluation of Ion-Irradiated Reduced-Activation Ferritic/Martensitic Steel: Extended Nix-Gao Analysis and Residual-Imprint Morphology

Sumin Lee (Tohoku University), Diancheng Geng (Tohoku University), Minha Park (Tohoku University), Sosuke Kondo (Tohoku University), Ryuta Kasada (Tohoku University)

6. Microindentation Based Evaluation of Hydrogen Induced Fracture Toughness Degradation in Advanced High Strength Steels

Ehsan Norouzi (Korea Institute of Science and Technology (KIST)), Reza Miresmaeili (Tarbiat Modares University), Laura Vergani (Politecnico di Milano)

7. Characterization of Mechanical Behavior in Ion-Irradiated Tungsten for Fusion Divertor Applications

Sun-Young Park (Korea Atomic Energy Research Institute), Suk-Hoon Kang (Korea Atomic Energy Research Institute), Hyung-Ha Jin (Korea Atomic Energy Research Institute), Sangyeob Lim (Korea Atomic Energy Research Institute), Seunghyun Lee (Korea Atomic Energy Research Institute), Dong Won Lee (Korea Atomic Energy Research Institute)

8. In-Situ Electromechanical Characterization of Damage in Hydrogen-Charged Crystalline/Amorphous Nanolaminates

Jeongbin Park (KAIST), JungHun Park (KAIST), Zion Lee (KAIST), Woosuk Seo (Samsung Display), Tae-Ho Lee (Samsung Display), Gi-Dong Sim (KAIST)

9. Effect of Electrolyte on the Local Mechanical Properties of STS304 During Electrochemical Hydrogen Charging

Sang-Min Park (Gyeongbuk National University), Sang-yeob Lee (Gyeongbuk National University), Young-Cheon Kim (Gyeongbuk National University)

10. Analysis of Hydrogen Embrittlement and Corrosion Behavior of STS304 Strain-Induced Martensite in a Seawater Environment

Sang-Yeob Lee (Gyeongbuk National University), Sang Min Park (Gyeongbuk National University), Young-Cheon Kim (Gyeongbuk National University)

11. Reduced Hardness Difference between V and Cu-Rich Phases for Enhanced Malleability of V-Cu-Ni-Al Hydrogen Separation Membranes

Jung Hun Han (Korea University), Sang Yoon Song (Korea University), Ju-Hyun Baek (Korea Institute of Science and Technology), Gunjick Lee (Korea Institute of Science and Technology), Jin-Yoo Suh (Korea Institute of Science and Technology), Seok Su Sohn (Korea University)

12. Mechanical Characterization of Irradiated Tungsten Diboride

Ellen Yoo (Imperial College London), Sam Humphry-Baker (Imperial College London), Oriol Gavalda-Diaz (Imperial College London)

13. Effect of Reverted Austenite on the Hydrogen Embrittlement Resistance of Maraging Steel Produced by L-PBF

Jin Mo Park (Pukyong National University), Min Ho Lee (Pukyong National University), Junghoon Lee (Research Institute of Industrial Science & Technology (RIST)), Seungyeon Lee (Korea Institute of Materials Science (KIMS)), Park Jeong-min (Korea Institute of Materials Science (KIMS)), Jae Wung Bae (Pukyong National University)

14. Indentation-Based Comparison of Mechanical Property Changes with Hydrogen Content in Different Metallic Materials

Huicheol Shin (Yeungnam University), Gyubeom Kim (Korea Institute of Materials Science), Doo-won Kim (Korea Institute of Materials Science), Siwhan Lee (Korea Institute of Materials Science), Nokeun Park (Yeungnam University), Seung-gun Lee (Korea Institute of Materials Science)

15. Evaluation of IASCC Initiation Susceptibility of Proton-Irradiated Austenitic Stainless Steel Welds

Ji-Yun Kim (Korea Atomic Energy Research Institute), WonJoon Na (Korea Atomic Energy Research Institute), Min-Jae Choi (Korea Atomic Energy Research Institute)

16. In-Situ Detection of Machining Mode During Micro-Hole Drilling of Single-Crystal Silicon Using Acoustic Emission Sensor and Dynamometer

Hwa-Sub Lee (Korea Institute of Machinery and Materials / University of Science and Technology), Dong-hyun Seo (Korea Institute of Machinery and Materials / University of Science and Technology), Doo-Sun Choi (Korea Institute of Machinery and Materials (KIMM)), Jun Sae Han (Korea Institute of Machinery and Materials / University of Science and Technology), Eun-Ji Gwak (Korea Institute of Machinery and Materials / University of Science and Technology)

17. Investigating the Residual Stresses in the Cross-Section of an L-PBF 316L Alloy Using Instrumented Indentation Tests and X-ray Diffraction

Ahmad Atef Abdullatef Hamed (University of Rome), **Giovanni Maizza** (Politecnico di Torino), Maria José Marques (University of Porto), Antonio Castanhola Batista (University of Coimbra), Maria Richetta (University of Rome), Roberto Montanari (University of Rome)

18. Grain Boundary Effects on Slip Transmission and Dislocation Avalanches During Nanoindentation

Chanjae Shin (Seoul National University), Ill Ryu (Seoul National University)

19. Noise-Robust FEA-ANN Inverse Analysis for Tensile Property Prediction Using Instrumented Indentation Testing

Im-Deok Kim (Seoul National University), Si Hyun Park (Pukyong National University), Joost J. Vlassak (Harvard University), Jong-Hyoung Kim (Pukyong National University), Seung-Kyun Kang (Seoul National University)

20. ANN-Based Substrate Effect Correction for the Accurate Evaluation of Intrinsic Film Properties

Hyun-Wook Cho (Pukyong National University), Si Hyun Park (Pukyong National University), Tae Hyeon Park (Pukyong National University), Woo-jin Lee (Seoul National University), Gyeong-Seok Hwang (Harvard University), Ji-Hyeon Jo (UNIST), Ju-Young Kim (UNIST), Seung-Kyun Kang (Seoul National University), Jong-hyoung Kim (Pukyong National University)

21. Revealing Cryo-Loading Induced Twinning and Its Impact on Titanium via Correlative Data-Driven Mechanomicroscopy

Xiao Liang (Beihang University)

22. Deep Learning-Assisted Spherical Indentation for Simultaneous Characterization of Plastic Flow and Non-Equibiaxial Residual Stress

Deunbom Chung (Seoul National University), Minwoo Park (Seoul National University), Wanchuck Woo (Korea Atomic Energy Research Institute), Kyeongjae Jeong (Sungkyunkwan University), Heung Nam Han (Seoul National University)

23. Atomistic Investigation into the Tilting of Coherent Twin Boundaries in Cu under Tribological Loading

Dong-Hyun Kim (Korea University), Won-Seok Ko (Korea University)

24. Molecular Dynamics Study of Shape-Memory Property Control in LPBF-Processed Ni-Al Alloys

Jong-Hoon Park (Korea University), Won-Seok Ko (Korea University)

25. Atomistic Simulation Study of Tramp Element Effects on Liquid Metal Penetration in Fe-Cu-x Systems

Jong-Hoon Park (Korea University), **Hye-Ji Jo** (Korea University), Hye-Hyun Ahn (Inha University), Dong-Hwi Kim (Hyundai Motor Company), Minwoo Kang (Hyundai Motor Company), Youngjae Kim (Seoul National University), Won-Seok Ko (Korea University)

26. Classification of Duplex Stainless Steel Microstructures Using Nanoindentation Testing and Machine Learning

Jun-Hi Im (Gyeongbuk National University), Woo-ram Noh (Gyeongbuk National University), Young-Cheon Kim (Gyeongbuk National University)

27. Transfer Learning-Based Tensile Property Prediction Compensating for Indenter Tip Geometric Imperfection in Instrumented Indentation

Si Hyun Park (Pukyong National University), Hyun-Wook Cho (Pukyong National University), Seung-gun Lee (KIMS), Jong-hyoung Kim (Pukyong National University)

28. Evaluation of Intrinsic Material Properties of Multilayer Thin-Film Structures via Artificial Neural Network-Based Nanoindentation

Kwang Hee Kim (Pukyong National University), Hyun-wook Cho (Pukyong National University), Jae-yeong Choi (Pukyong National University), Dong-hwi Kim (Pukyong National University), Gyoeng-min Lee (Pukyong National University), Jong-hyoung Kim (Pukyong National University)

29. LLM-Assisted Learning for Plastic Flow Prediction from Spherical Indentation

Giuk Song (Sungkyunkwan University), Heeju Ahn (Sungkyunkwan University), Kyeongjae Jeong (Sungkyunkwan University)

30. Nanomechanical Characterization of Organic Molecular Semiconductors Using Atomic Force Microscopy

Ki-Hwan Hwang (University of Cambridge), Mateo T. R. Cervantes (University of Cambridge), Deepak Venkateshvaran (University of Cambridge)

31. Micromechanical Softening of Constituent Phases Governing the Hot Deformation of La-Fe-Co-Si Alloys

Su-mi Yang (Korea Institute of Materials Science), Seon-yeong Yang (UNIST), Min-jik Kim (Korea Institute of Materials Science), Kwang-seok Lee (Korea Institute of Materials Science), Da-seul Shin (Korea Institute of Materials Science)

32. Correlation of Phase-Specific Nanomechanical Properties with Single-Particle Strength and Electrochemical Performance of Si Alloy Anode Powders

Myungje Lee (Myongji University), Taeyun Kwon (Myongji University), Chansun Shin (Myongji University)

33. Effect of Mechanical Properties on Thermo-Warping and Stress Analysis of Stretchable Anisotropic Conductive Films (SACFs) for Large-Area Electronic Packaging

Sang-Hyun Kim (Tech University of Korea), Byoung-Joon Kim (Tech University of Korea)

34. Precipitation Behavior and Local Mechanical Properties Near Grain Boundaries in Al-Mg-Si Alloy

Yuji Shirakami (Hokkaido University), Shuto Takeuchi (Hokkaido University), **Ken-ichi Ikeda** (Hokkaido University), Seiji Miura (Hokkaido University)

35. Micromechanical Behavior and the Role of a Compositionally Graded Zone in an Additively Manufactured Multilayer Medium-Entropy Alloy

Zhe Gao (Hanyang University), Si-Yeon Lee (Hanyang University), Jae-Hyeok Choi (Hanyang University), Dong-Hyun Lee (Chungnam National University), Yakai Zhao (A*STAR), Hyoung Seop Kim (POSTECH), Upadrasta Ramamurty (Nanyang Technological University), Jae-il Jang (Hanyang University)

36. Morphological Analysis on Hierarchical Nanoporous Gold

Hansol Jeon (Keimyung University)

37. Deformation and Fracture Behavior of APS Y₂O₃ Coatings Investigated by Micropillar Compression

Inseop Baek (Gyeongsang National University), Jun-Ha Kim (Korea Institute of Materials Science (KIMS)), Yeon-Woo Yoo (Korea Institute of Materials Science (KIMS)), Sung-Gyu Kang (Gyeongsang National University)

38. Effect of Interface Architecture on the Uniaxial Tensile Behavior of Cu-Nb Nanolaminates

Krittichok Rattanakodsakun (Korea Advanced Institute of Science & Technology), Haechan Jo (Korea Advanced Institute of Science & Technology), Gi-Dong Sim (Korea Advanced Institute of Science & Technology)

39. Geometric Tailoring of Nitinol Thin Film and Sheet for Improved Elastocaloric Cooling

Juyoung Lee (KAIST), Hyemin Ryu (KAIST), Jae-Hoon Choi (Jeonbuk National University), Gi-Dong Sim (KAIST)

40. Coupled Effects of Grain and Ligament Sizes on the Mechanical Behavior of Nanoporous Gold

Minwoo Bang (Keimyung University), Hansol Jeon (Keimyung University)

41. Tensile Behavior of Hierarchical Nanoporous Gold Fabricated by 3D Printing and Dealloying

Sinu Kang (Keimyung University), Hansol Jeon (Keimyung University)

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