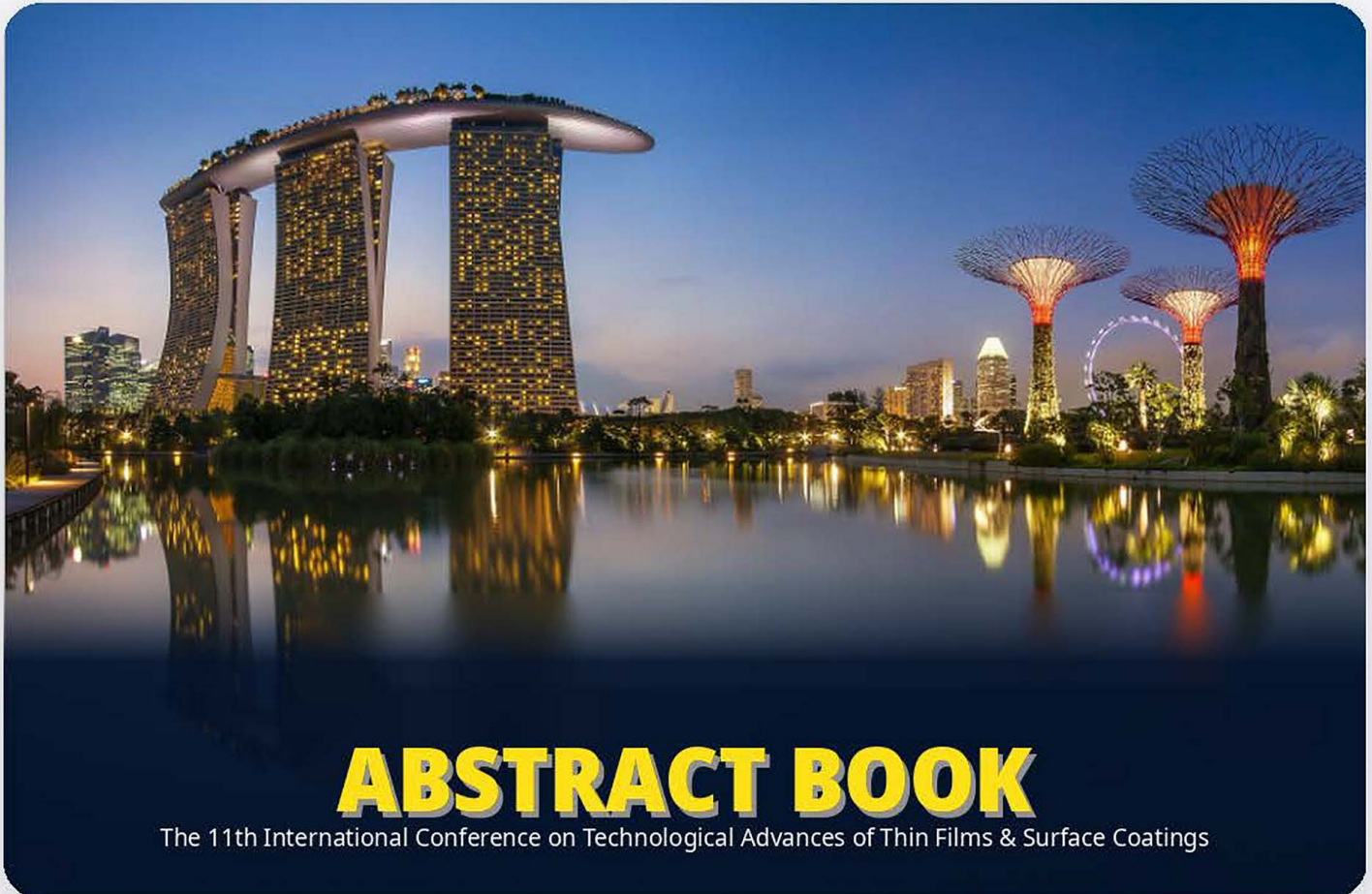


ThinFilms2026

The 11th International Conference on Technological Advances of Thin Films & Surface Coatings

13th – 17th July 2026 · Singapore



ABSTRACT BOOK

The 11th International Conference on Technological Advances of Thin Films & Surface Coatings

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Police

995

Ambulance & Fire (SCDF)

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1777

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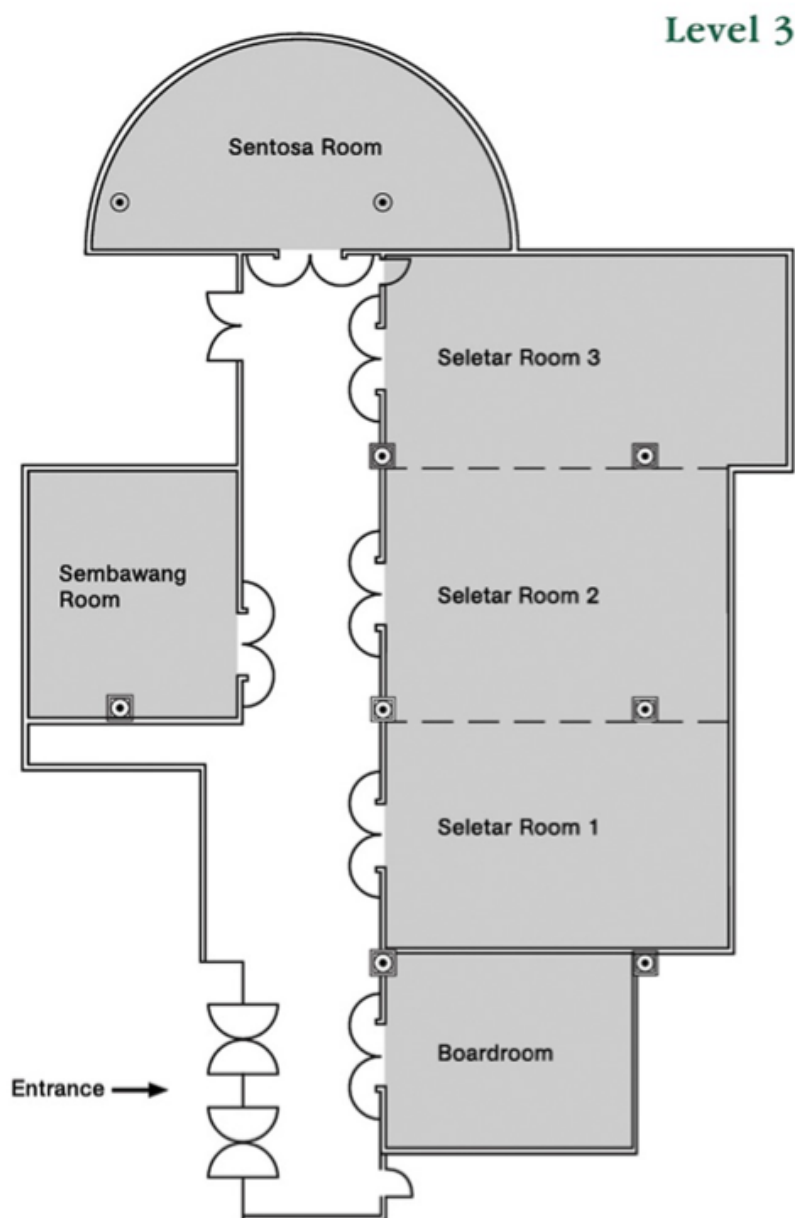
TFS Secretariat Office Level 4 · Foyer

Tea Break / Info Point Level 4 · Changi 1 & 2

CONFERENCE VENUE

Level 3 — Symposia

Holiday Inn Singapore Atrium · 317 Outram Road, Singapore 169075 | Registration Desk: Level 4, Changi 1 & 2



SYMPOSIA · BREAKOUT ROOMS

**Seletar 1 · Seletar 2 · Seletar 3 · Boardroom ·
Sembawang · Sentosa**

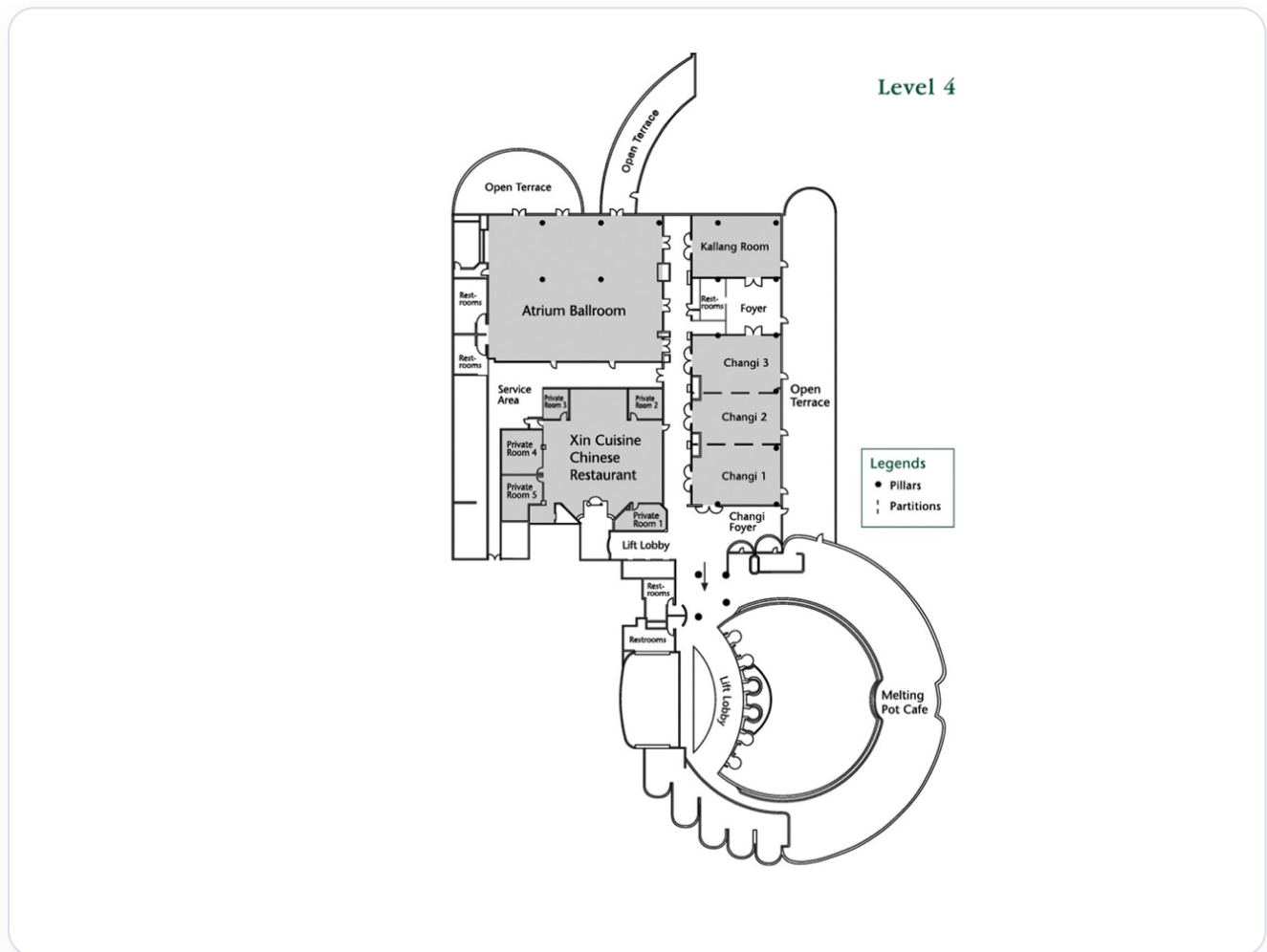
TEA BREAK

Corridor

CONFERENCE VENUE

Level 4 — Ceremony, Posters & Exhibition

Holiday Inn Singapore Atrium · 317 Outram Road, Singapore 169075 | Opening Ceremony, Symposia, Posters & Exhibition



OPENING CEREMONY
Atrium Ballroom

REGISTRATION
Changi 1 & 2

EXHIBITION
Changi 1 & 2

POSTERS
Atrium Ballroom

BREAKOUT ROOMS
Atrium Ballroom ·
Kallang · Changi 3

LUNCH
Changi 1 & 2

TEA BREAK
Changi 1 & 2

BANQUET
Atrium Ballroom

TFS OFFICE
Foyer

THINFILMS 2026

Program Overview

Full Programme at a Glance

MON
13/07

16:00-19:00 Registration @ Registration Counter - Level 4

TUE
14/07

08:00-08:20	Opening Ceremony and Photo Taking @ Atrium Ballroom - Level 4								
08:20-09:00	Plenary 1: Prof. Chihaya ADACHI (Kyushu University) - Advanced Organic Optoelectronic Devices and Materials Enabled by Precise Charge-Transfer Control								
09:00-09:40	Plenary 2: Prof. L. Jay GUO (University of Michigan) - Industrial Applications of Thin film Structures: structural colors and flexible transparent conductors, and how AI can help in the design process								
09:40-10:20	Plenary 3: Prof. Sanjay MATHUR (University of Cologne) - Advanced Thin Film Engineering Steering Health and Energy Transition								
10:20-10:50	Coffee & Tea Break								
10:50-12:30 Session 1	Atrium	Kallang	Changi	Seletar1	Seletar2	Seletar3	Sentosa	Sembawang	Boardroom
	-	S13 SMM	S1 2DM	S2 BHC	SS3 SOC	S10 OEP	S6 ENS	S14 STP	S3 PTA
12:30-13:20	Lunch								
13:20-15:00 Session 2	Atrium	Kallang	Changi	Seletar1	Seletar2	Seletar3	Sentosa	Sembawang	Boardroom
	-	S13 SMM	S1 2DM	S2 BHC	SS3 SOC	S10 OEP	S6 ENS	S14 STP	S3 PTA
15:00-15:30	Coffee & Tea Break								
15:30-17:00 Session 3	Atrium	Kallang	Changi	Seletar1	Seletar2	Seletar3	Sentosa	Sembawang	Boardroom
	-	S13 SMM	S1 2DM	S2 BHC	SS3 SOC	S10 OEP	S6 ENS	S14 STP	S3 PTA
17:00-19:00	Poster Session @ Atrium Ballroom								
	S1 2DM	S2 BHC	S3 PTA	S4 CAM	S5 CIA	S6 ENS	S7 FFF	S8 HEA	S9 NNN
	S10 OEP	S11 OTF	S12 TSP	S13 SMM	S14 STP	S15 TFD	SS1 KSR	SS3 SOC	

WED
15/07

08:15-08:30	Opening @ Atrium Ballroom - Level 4								
08:20-08:40	Plenary 4: Prof. Hyungjun KIM (Yonsei University) - Atomic Layer Deposition for emerging materials synthesis and applications								
09:00-09:40	Plenary 5: Prof. Zhongyi JIANG (Tianjin University) - Organic Molecular Sieve Membranes for Energy-relevant Applications								
09:40-10:20	Plenary 6: Prof. Jyh-Wei LEE (Ming Chi University of Technology) - Research and development of high entropy alloy coatings and their potential applications								
10:20-10:50	Coffee & Tea Break								
10:50-12:30 Session 4	Atrium	Kallang	Changi	Seletar1	Seletar2	Seletar3	Sentosa	Sembawang	Boardroom
	S13 SMM	S4 CAM	S1 2DM	S2 BHC	SS3 SOC	S10 OEP	S11 OTF	S14 STP	
12:30-13:20	Lunch								
13:20-15:00 Session 5	Atrium	Kallang	Changi	Seletar1	Seletar2	Seletar3	Sentosa	Sembawang	Boardroom
	S13 SMM	S4 CAM	SS1 KSR	S2 BHC	SS3 SOC	S10 OEP	S11 OTF	S7 FFF	S12 TSP
15:00-15:30	Coffee & Tea Break								
15:30-17:00 Session 6	Atrium	Kallang	Changi	Seletar1	Seletar2	Seletar3	Sentosa	Sembawang	Boardroom
	-	S4 CAM	SS1 KSR	S9 NNN	SS3 SOC	S15 TFD	S11 OTF	S13 SMM	S12 TSP
19:00-23:00	Conference Banquet and Poster Voting Award (Atrium Ballroom)								

THU
16/07

08:30-10:15 Session 7	Atrium	Kallang	Changi	Seletar1	Seletar2	Seletar3	Sentosa	Sembawang	Boardroom
	S13 SMM	S5 CIA	S1 2DM	S2 BHC	SS3 SOC	S10 OEP	S9 NNN	S15 TFD	S7 FFF
10:15-10:45	Coffee & Tea Break								
10:45-12:00 Session 8	Atrium	Kallang	Changi	Seletar1	Seletar2	Seletar3	Sentosa	Sembawang	Boardroom
	S13 SMM	S5 CIA	S1 2DM	S2 BHC	SS3 SOC	S10 OEP	S9 NNN	S15 TFD	S7 FFF
12:00-13:30	Lunch								
13:30-15:00 Session 9	Atrium	Kallang	Changi	Seletar1	Seletar2	Seletar3	Sentosa	Sembawang	Boardroom
	S13 SMM	S4 CAM	S1 2DM	S2 BHC	S8 HEA	S10 OEP	S9 NNN	S14 STP	S7 FFF
15:00-15:45	Coffee & Tea Break								
15:45-17:05 Session 10	Atrium	Kallang	Changi	Seletar1	Seletar2	Seletar3	Sentosa	Sembawang	Boardroom
	-	-	-	-	S8 HEA	S10 OEP	S6 ENS	S14 STP	-

FRI
17/07

09:00-17:00 Technical Tour: National Metrology Centre (NMC), A*STAR and Nanyang Technological University (NTU)

09:00-17:00 programme slot; tour duration approx. 2-3 hours; bus pick-up/drop-off at Holiday Inn; registration first-come, first-served; SGD 10 refundable deposit.

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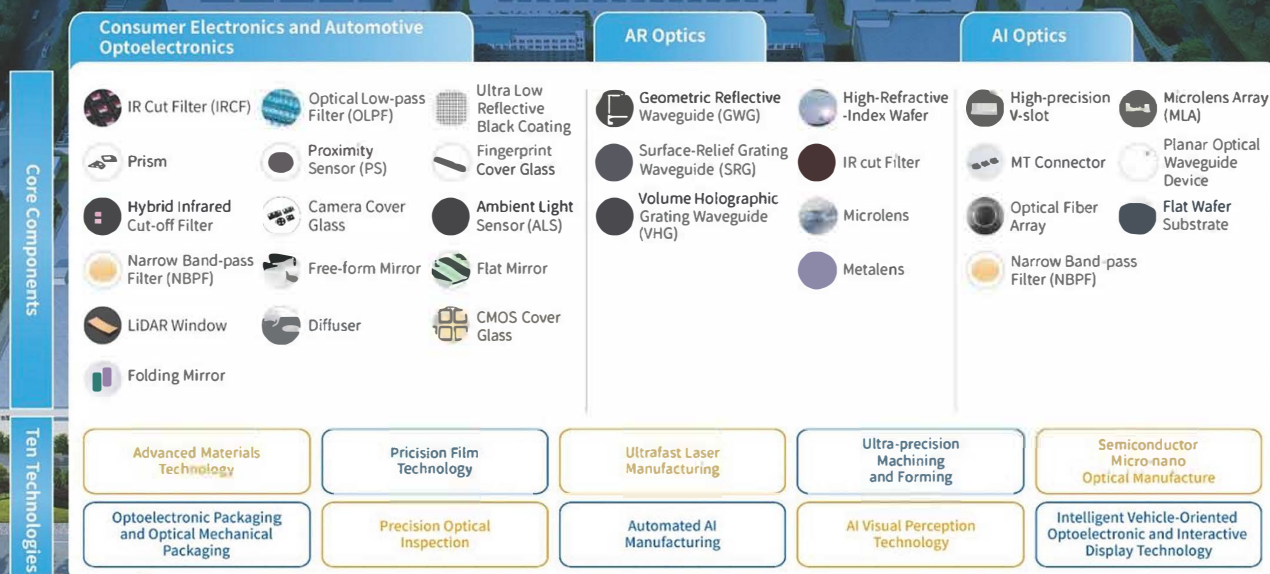
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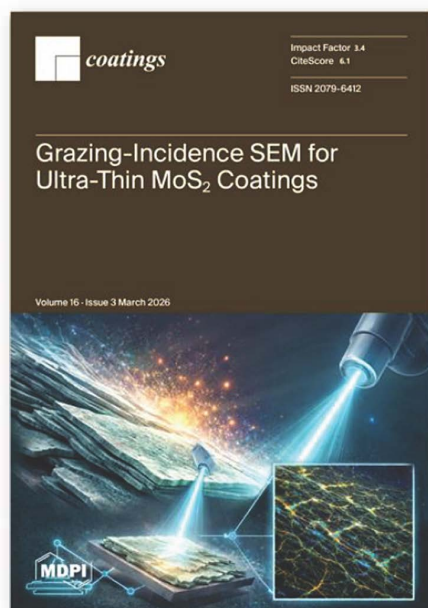
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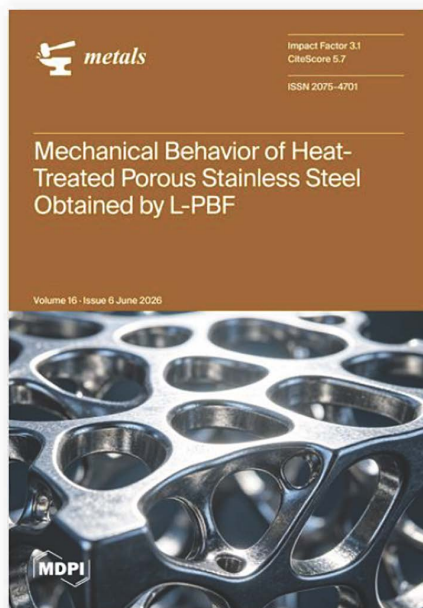
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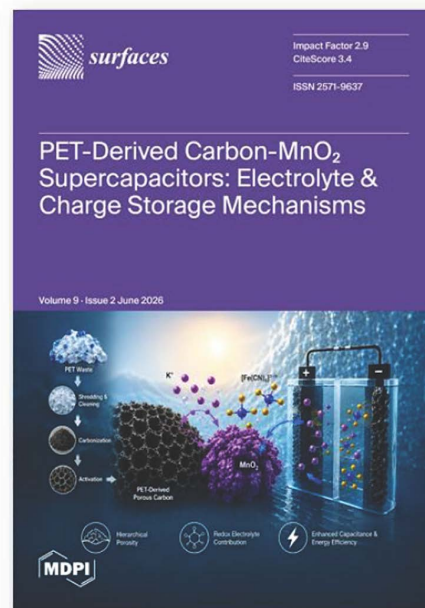




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Abstract Book

Program Schedule and Abstracts



Contents	Page
Tuesday, 14 July 2026 Schedule	1
Wednesday, 15 July 2026 Schedule	12
Thursday, 16 July 2026 Schedule	24

Tuesday, 14 July 2026

130 presentations - 9 symposia

PL Plenary Session

Atrium Ballroom - Level 4

Plenary speakers and abstracts

08:20	Advanced Organic Optoelectronic Devices and Materials Enabled by Precise Charge-Transfer Control PLENARY Prof. Chihaya ADACHI - Center for Organic Photonics and Electronics Research (OPERA), Kyushu University, Japan	Plenary 1
09:00	Industrial Applications of Thin film Structures: structural colors and flexible transparent conductors, and how AI can help in the design process PLENARY Prof. L. Jay GUO - University of Michigan, US	Plenary 2
09:40	Advanced Thin Film Engineering Steering Health and Energy Transition PLENARY Prof. Sanjay MATHUR - University of Cologne, Germany	Plenary 3

S1 2D Materials (2DM)

Changi · Level 4

Chair: Daniel CHUA (National University of Singapore, Singapore)

10:50	Controlled reconstruction of pre-catalysts for improved electrochemical CO2 reduction INVITED Pan Hui - University of Macau	#95
11:10	Piezocatalysis in Two-Dimensional Materials for Sustainable Energy Conversion INVITED Wu Jyh Ming - National Tsing Hua University	#181
11:30	Growing process of native oxide layer on Si wafer INVITED Ken Okano - Shizuoka University	#513
11:50	Quantum well made of amorphous chalcogenide and its application to photodetectors INVITED Tomoaki Mazusawa - Shizuoka University	#517
12:10	Beyond Spheres: Microwave-Assisted Synthesis of Lanthanide-Doped Nanostructures INVITED Eva Hemmer - University Of Ottawa	#416

AFTERNOON

13:20	Carbon Nanowalls: Plasma-Engineered Graphene Architectures for Energy and Bioelectrochemical Applications INVITED Mineo - Meijo University	#113
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13:40	Green synthesis of graphene usable in harsh liquid environments for energy and bio-related applications INVITED Masaki Tanemura - Nagoya Institute Of Technology	#142
14:00	One- and Two-Dimensional Nanohybridization of Functional Oxides and Carbon-based Materials for Environmental and Sensing Application INVITED Tohru Sekino - The University Of Osaka	#461
14:20	Upcycled photocatalysts from Sr-containing layered titanate sorbents INVITED Tomoyo Goto - Nara Institute Of Science And Technology	#681
14:40	Photocatalytic Water Splitting Properties of (Ba,Sr)TiO₃ Particles under Ultrasonic Irradiation INVITED Miki Inada - Kyushu University	#457
Break Time		
15:30	Atmospheric-Pressure Mist Chemical Vapor Deposition for Thin Film Growth INVITED Tomohiro Yamaguchi - Kogakuin University	#617
15:50	2D covalent organic framework (COF) membranes INVITED Jiangtao Liu - University of Science and Technology of China	#301
16:10	Electrochemical water splitting for clean fuel production through nanoengineered materials INVITED Isabella Concina - Luleå University Of Technology	#491
16:30	Gradient-Controlled Growth of Two-Dimensional -InSe Thin Films for Enhanced Structural Quality and Phase Stability Htet Soe Min - Tatung University	#376

S2 Biomedical and Healthcare (BHC)

Seletar1 · Level 3

Chair: Kui CHENG (Zhejiang University, China)

10:50	Electroactive PVTF coatings with heterogeneous microdomain potentials for osteogenesis application INVITED Cheng Kui - Zhejiang University	#369
11:10	Hydrophilization of nickel-titanium alloy surfaces through pulse anodization for biomedical application INVITED Ohtsu Naofumi - Kitami Institute of Technology	#174
11:30	Biomimetic Engineering of Robust Gradient Antibacterial Coatings using Hollow Nanoframes of Prussian Blue Analogues He Xiaodong - Southwest University	#87
11:45	Cell activity on pulsed-anodized NiTi alloy surfaces with enhanced hydrophilicity Amon Kitayama - Kitami Institute Of Technology	#589

AFTERNOON

13:20	Flexible optoelectronic devices for wearable and implantable photodynamic therapy INVITED Li Peng - Northwestern Polytechnical University	#63
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13:40	Pinpoint On-Demand Deposition of Self-Assembled Monolayers from Vapor Precursors INVITED Gregory McGraw - Universal Vapor Jet Corp.	#492
14:00	Hydrogel-Based Ultrasonic Sensor for Long-term Wireless Monitoring INVITED Yang Yueying - Northwestern Polytechnical University	#59
14:20	Design and Fabrication of a Non-Invasive Sweat Glucose Sensor Using Graphene Oxide Daniel Christina - College of Engineering Pune	#649
14:35	Self-Powered Bioelectronic Hydrogel Patches for Tissue Repair Enabled by Nanogenerators Chen Chuanrui - Zhejiang University	#351
14:50	Design and Extreme Environment Adaptation of a Portable Wearable Multimodal Physiological Acquisition and Neuromodulation Closed-Loop System Zhang Huiqing - Northwestern Polytechnical University	#66
Break Time		
15:30	Synergistic Antibacterial Strategies and Surface/Interface Engineering of Biomaterials for Infection Control INVITED Xu Liqun - Southwest University	#53
15:50	Antimicrobial Polymers for Combating Multidrug Resistant Bacterial Infections INVITED Si Zhangyong - Ningbo Institute of Materials Technology and Engineering	#136
16:10	Bacterial Adhesion-Based Antibiotic-Free Dressings for Infected Wound Healing INVITED Lu Zhentan - Wuhan Textile University	#552
16:30	Synergistic Photothermal and Photodynamic Nanocoatings on Titanium Implants for Rapid Bactericidal Action and Enhanced Osseointegration Liu Yihan - Northwestern Polytechnical University	#736
16:45	A Multilayered Responsive Dressing for Programmable Exudate Control and Regenerative Therapy of Infected Wounds Zhang Zhicheng - Southwest University	#67

S3 Plasma Technology and Application for Thin Films (PTA)

Boardroom · Level 3

Chair: Lang HU (Jihua Lab, China)

10:50	Breaking Mobility Limits in Flexible Transparent Conductive InOx Thin Films: Precursor Engineering and Crystallization Control INVITED Junichi Notomoto - National Institute of Advanced Industrial Science and Technology (AIST), Japan	#739
11:10	Synergetic Reactions between HF adsorption and Plasmas enabling atomic-layer processes INVITED Shih-nan Hsiao - Nagoya University	#19
11:30	Self-Consistent Fluid-Circuit Modeling of Impedance Matching for Ar/SiH4 PECVD INVITED Ya Zhang - Wuhan University Of Technology	#186
11:50	Combined effect of MRSR mechanism and E×B drift in magnetized capacitively coupled plasma Ze-Xuan Liu - Dalian University of Technology	#519

12:05	Multiscale Simulation of Magnetron Sputtered Thin-Film Growth Based on Direct Simulation Monte Carlo and Kinetic Monte Carlo Methods Yating Huang - Beijing Technology And Business University	#426
AFTERNOON		
13:20	Simulation Study on Radio-Frequency Ion Source and Ion Extraction System for Thin-Film Deposition Processes INVITED Quan-zhi Zhang - Dalian University Of Technology	#570
13:40	Microwave Remote Plasma Source in Semiconductor Manufacturing: Cleaning, Surface Modification, Post-Oxidation, and Atomic Layer Deposition INVITED Xingxing Huang - Jihua Laboratory	#633
14:00	Multi-Scale Modeling of HF Cryogenic Etching of SiO₂ and Si₃N₄: From Plasma Kinetics to Surface Reactions Xingyu Li - Dalian University Of Technology	#520
14:15	Influence of Bias Power on the Etching Behavior of Aluminum Alloy in ICP with an HBr/Cl₂/N₂/O₂ Gas Mixture Xianxiu Mei - Dalian University Of Technology	#208
14:30	In-situ post doping plasma process for improving electrical properties of ZrO₂-TiN based capacitors Sangwon Lee - Postech	#484
14:45	Key Scientific Issues in Plasma Interaction with Porous Complex Surfaces and Their Applications Lan Li - Tsinghua University	#110
15:00	Mechanical and Tribological Performance of Magnetron-Sputtered MoS₂/ZrN Composite Coatings: Influence of Composition and Ambient Conditions Ahraf Gulzar - National Institute of Technology Srinagar	#42
15:15	Flow-Field Reconstruction in Spin-Coating Chambers via Rectifying Plates for Uniform Coating on Square Substrates INVITED Ying Yan - Dalian University Of Technology	#160
15:35	Uniformity modulation of large-area very-high-frequency capacitively coupled plasmas driven by multi-frequency sources INVITED Yu-Ru Zhang - Dalian University Of Technology	#209
15:55	Simple and scalable large-scaled plasma plume generated via merged series-connected APPJ array Dingyuan Peng - Guangdong Engineering Technology Research Center of High Voltage Discharge and Plasma Applications	#172
16:10	Atmospheric Pressure Plasma Jet Synthesis and Deposition of Metal Organic Films Andrianne Thoma - University College London (UCL) / A*STAR	#394
16:25	Customizing Tribological Interface Structure On Tc6 Alloy By Plasma Electrolytic Oxidation And Cathodic Deposition Yunhui Wang - Shaanxi University of Technology	#623
16:40	Unveiling 3D Plasma Dynamics in Magnetron Discharges: Implications for PVD and Thin-Film Processing Pengze Xiao - Huazhong University Of Science And Technology	#337

16:55

Magnetic field effects on magnetized inductively coupled plasmas for thin film deposition: a PIC/MCC study

#314

Minglun Tian - Huazhong University Of Science And Technology

S6 Energy & Sustainability (ENS)

Sentosa · Level 3

Chair: Lidong SUN (Chongqing University, China)

10:50

Alkaline aqueous redox flow batteries using non-vanadium active materials

#118

INVITED

Yongchai Kwon - Seoul National University of Science and Technology

11:10

Doped metal oxide of Ti as multi-functional material for degradation of Indigo carmine dye in wastewater

#13

INVITED

Chandra Mohan - K. R. Mangalam University, Gurugram

11:30

Thin-Film Surface Engineering of Graphite Anode with N/Co-Doped Carbon Coating for Lithium-Plating Suppressed High-Safety Lithium-Ion Batteries

#161

Ling Che - Northwestern Polytechnical University

11:45

Nanotube-Patterned Microchannels for Durable Osmotic Energy Harvesting

#23

Lidong Sun - Chongqing University

12:00

Achieving Multi-Dimensional Stability in O3-Type Sodium Layered Cathodes through High-Entropy Design and Liquid-Phase Engineering

#171

Wujiu Zhang - Northwestern Polytechnical University

12:15

Enabling the Circular Carbon Economy: Using Density as a Key Factor to Directly Convert Composite Waste into Battery Anodes

#197

Wendi Chen - Northwestern Polytechnical University

AFTERNOON

13:20

Study on the conductivity and corrosion resistance of M-Al-C (M=Ti/Cr) coating on the surface of PEMFC metal plate

#245

INVITED

Guanshui Ma - Ningbo Institute Of Materialstechnology And Engineering, Chinese Academy Of Sciences

13:40

Hydrogen-free carbon-based coatings deposited by the combined HiPIMS

#22

INVITED

Yixiang Ou - Beijing Academy of Science And Technology

14:00

Effect of TiO₂-doped half-layer PDMS on the output performance of Al-PDMS TENG

#652

Chen-Kuei Chung - National Cheng Kung University

14:15

Enhancing Low-Humidity Performance of PEMFCs via Magnetron Sputtered ITZO Coatings on Anodic Gas Diffusion Layers

#149

Po-sen Yang - National Chung Hsing University

14:30

Dynamic Synergy of Cu₀/Cu⁺/Cu²⁺ for CO₂ Electroreduction: Unlocked by Spatiotemporally Resolved Characterizations

#43

Yatai Li - University of Macau

14:45

Unraveling Nitrogen Reduction Pathways on Transition Metal Electrocatalysts: Insights from First-Principles Calculation

#151

Deepak Gorai - Indian Institute of Technology Kanpur

Break Time

15:30	Critical thickness effect on fracture path and interfacial delamination in plasma sprayed NiCr/NiAl coated revealed by DIC INVITED Xiuyang Fang - Southwest Jiaotong University	#643
15:50	Fast-Response Self-Powered Ultraviolet Photodetector Based On Cs₂CuBiI₆ Thin Films INVITED Baofei Sun - Guizhou Medical University	#657
16:10	Monomeric Pyrrole for additive engineering and stability enhancement in MAPbI₃ Perovskite thin films Nalini Venkatesan - IIT Madras	#430
16:25	Low-Power PS-PVD for Coating Deposition: Processing and Performance Bingru Song - Beihang University	#353
16:40	Dual governing effects of nanocrystalline Cr-N barrier layer thickness on high-temperature interfacial stability and fretting wear resistance of Cr-N/FeCrAl coatings Xiaohan Deng - Chongqing University	#661
16:55	Enhancing electrochemical properties of Loofah sponge with spirulina-derived carbon through physical activation and self-doping Huang Chung Hao - National Chung Hsing University	#192

S10 Organic Electronics and Photonics (OEP)

Seletar3 · Level 3

Chair: Xiaotao HAO (Shandong University, China)

10:50	Thermally robust organic photovoltaic devices based on a low content of amorphous donor polymers INVITED Mats Andersson - Flinders University	#27
11:10	Impact of Metal-Electron Transport Layer Interfacial Reactions on Electron Collection in Organic Photovoltaics INVITED Hiroyuki Yoshida - Chiba University	#630
11:30	Organic Solar Cells: From Low Band-gap Materials to Mechanism Study INVITED Ke Gao - Shandong University	#106
11:50	Enhancing the Performance of Organic Photovoltaics through Spatial Control of Spontaneous Orientation Polarization Seita Kyogoku - Chiba University	#635
12:05	Suppressing Static and Dynamic Disorder for High-Efficiency and Stable Thick-Film Organic Solar Cells via Synergistic Dilution Strategy Zhen Fu - Shandong University	#242

AFTERNOON

13:20	All-Perovskite Tandem Solar Cells - Sn(II) oxidation and suppression INVITED Dewei Zhao - Sichuan University	#577
13:40	Lattice-Reservoir Semiconductors for next generation optoelectronic applications INVITED Xiaoming Wen - RMIT University	#117

14:00	Organic Photocatalytic and Photoelectrochemical Systems for Sustainable Hydrogen Production INVITED Han Young Woo - Korea University	#35
14:20	Interface and Morphology Engineering for Organic and Perovskite Solar Cells INVITED Chih-Ping Chen - Ming Chi University of Technology	#69
14:40	High Performance 2D/3D Tin-Lead Perovskite Solar Cells Achieved by Phenethylamine Acetate Post-Treatment Xiangyu Xue - Taiyuan University Of Technology	#532
14:55	Uncovering the Origin of Fullerenes Superiority as Electron Transport Layers in Perovskite Solar Cells Ryota Tozaki - Chiba University	#632
Break Time		
15:30	High-Performance p- and n-Type Organic Single-Crystal Semiconductors INVITED Toshihiro Okamoto - Institute of Science Tokyo	#541
15:50	Optoelectronic clusters for film devices INVITED Hui Xu - Heilongjiang University	#642
16:10	Anisotropic polaronic nature of band structure in rubrene single crystal INVITED Keisuke Fukutani - Institute for Molecular Science	#627
16:30	The Surface and Interface Physics of Novel Organic-Inorganic Hybrid Semiconductor Optoelectronic Devices Jia Zhang - Fudan University	#613
16:45	Modulation of carrier dynamics via (4-(Trifluoromethyl) benzohydrazine for high-efficiency Sn-Pb perovskite solar cells Na Yang - Taiyuan University Of Technology	#524

S13 Smart Materials and Microsystems (SMM)

Kallang · Level 3

Chair: Yongqing FU (Northumbria University, UK)

10:50	Microenergy harvesting technology enabled fully self-powered real-time wireless sensing KEYNOTE Jikui Luo - Zhejiang University, China	#616
11:15	Bio-inspired Structural Materials and Devices Based on 2D Materials KEYNOTE Pingan Hu - Harbin Institute Of Technology, China	#597
11:40	Acoustic wave enhancement of free space optical communication system Alex Cameron - Northumbria Univesity at Newcastle, UK	#15
11:55	Acousto-Optogenetics Bandpass Stabilizer: A Programmable Platform for Mapping Single-Cell Phenotypic Life Trajectories Yuxin Wang - University of Macau, China	#395
12:10	Dielectric Breakdown Fabrication of TMD Nanopore Sensors Jinyan Cheng - Gdut	#425

AFTERNOON

13:20	Harnessing the giant and switchable surface energy of liquid metals for robotics KEYNOTE Shiyang Tang - University of New South Wales, Australia	#139
13:45	Ferroelectric Photovoltaic Effect and Device KEYNOTE Shigeng Song - University Of The West Of Scotland, UK	#703
14:10	Controllable Preparation of Se-Vacancy Bi-O-Se Thin Films and Their Integrated Photosensing-Memory Devices INVITED Jia Zhang - Harbin Institute of Technology, China	#188
14:30	A Flexible Thin-Film Multimodal Intracranial Sensing System for Real-Time Brain Injury Monitoring Tiezhu Liu - Harbin Institute of Technology, China	#322
14:45	Plasma-Driven Surface Functionalization of Common Polymers for Smart Material and Microsystem Applications Ayesha Armani - University of Engineering and Technology, Lahore, Pakistan	#128
15:00	Stiffness-Programmed 3D Microelectrodes for Near-Linear and Tunable Iontronic Pressure Sensing Fengling Zhuo - Zhejiang University, China	#390
Break Time		
15:30	A 3D-Printed Miniaturized Electromagnetically Actuated Compliant Parallel Delta Robot for Precision Micromanipulation KEYNOTE Hejun Du - Nanyang Technological University, Singapore	#388
15:55	A MEMS Self-Calibrating Tactile Sensor Based on Precision Force Source Drive Technology KEYNOTE Linxi Dong - Hangzhou Dianzi University, China	#299
16:20	Flexible Superoxide Anion Electrochemical Sensor Based on Piezoelectric Substrate for Synergistic Enhancement via Electric Double Layer Reconstruction and Oxygen Vacancy Enrichment INVITED Yubo Li - Zhejiang University, China	#489
16:40	A High-Performance Bi-directional Flexible Strain Sensor Based on Liquid Metal for Versatile Application Wihuang Yang - Hangzhou Dianzi University, China	#456
16:55	Simultaneous Characterization of Full Elastic Constants and Thickness of Freestanding Membranes Using Ultrafast Optoacoustics Shuchang Zhang - The Hong Kong Polytechnic University	#234

S14 Surface Treatment & Protection (STP)

Sembawang · Level 3

Chair: Wan-Yu WU (National United University, Taiwan)

10:50	Plasma-Engineered Amorphous TiZrNbTaFe High Entropy Alloy Coatings for Integrated Mechanical and Biological Surface Protection INVITED Bih-show Lou - Chang Gung University	#393
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11:10	Surface finish and hardness improvements of selective laser melted aluminium alloy by surface mechanical attrition treatment INVITED Yong Sun - Jihua Laboratory	#250
11:30	Laser Polishing Strengthening Mechanism and Mechanical Performance of Nickel-Based Alloys Zongsheng Ye - Nanjing University of Aeronautics and Astronautics	#478
11:45	Influence of Substrate Bias and Plasma Density on the Peeling Behavior of FCVA-Deposited DLC Films Yuheng Deng - Nanyang Technological University	#163
12:00	Stoichiometry and mechanical properties of (TiZrTa)_{Bx} thin films Guan-Ting Lu - National Taiwan Ocean University	#215
12:15	Construction of tough and corrosion-resistant (CrMoNbTi)_{Six} high-entropy alloy coatings and coupled damage mechanisms in deep-sea environment Jianguo Qian - Ningbo Institute of Materials Technology & Engineering, CAS	#470
AFTERNOON		
13:20	Dynamic Anti/Icing Performances of the Hierarchical Structure Surfaces Based on Flow Environments with Microdroplets INVITED Yizhou Shen - Nanjing University Of Aeronautics And Astronautics	#479
13:40	A photothermal superhydrophobic coating for passive anti-icing and active de-icing INVITED Cong Li - Xi'an Jiaotong University	#18
14:00	Environmentally Friendly Underwater Superhydrophobic Surface for Anti-Biofouling Applications INVITED Xinghua Wu - Guangdong University Of Technology	#26
14:20	Patterned hybrid surfaces for efficient dew water harvesting Zhong Chen - Nanyang Technological University	#12
14:35	Construction of Multifunctional Superhydrophobic Wood Coatings via the Sand-In Method and Their Interfacial Regulation Mechanisms Xingzhou Yao - Nanjing University Of Aeronautics And Astronautics	#481
14:50	Steam oxidation behavior of Cr coatings without and with a Mo diffusion barrier: Kinetics and oxidation mechanisms Qining Zheng - Northwestern Polytechnical University	#170
Break Time		
15:30	Constructing Superhydrophobic Dental Resin-Based Material to Inhibit Bacterial Adhesion INVITED Shunli Zheng - Anhui Medical University	#335
15:50	Multiscale surface engineering on the interfacial adhesion of steel-CFRTP hybrid structures for pipe coupler applications INVITED Qi Wang - Singapore Institute of Manufacturing Technology (SIMTech), Agency for Science, Technology and Research (A*STAR)	#221
16:10	Plasma electrolytic polishing for surface finishing of metal alloys INVITED Hongfei Liu - Institute Of Materials Research And Engineering	#620

16:30	Degradation of Antenna Performance Induced by Substrate Warpage in 76-81 GHz Radar Systems Yu-Hsun Chang - Yuan Ze University	#58
16:45	A general strategy towards improving the strength and thermal shock resistance of glass-ceramics through microstructure regulation Min Feng - Beihang University	#262

SS3 Nanoscale Surfaces, Interfaces, and Thin Films for Next-Generation Solid Oxide Cells

Seletar2 · Level 3

Chair: Pei-Chen SU (Nanyang Technological University, Singapore)

10:55	A new thin-film protonic ceramic fuel cell based on a Mg-doped perovskite electrolyte INVITED Zongping Shao - Curtin University	#316
11:20	Ultrasonic Spraying of Ceria based nano-catalysts for Highly efficient LSGM based Electrolysis Cells; with a Particular Focus on CO2 Electrolysis INVITED Tae-Ho Shin - Korea Institute of Ceramic Engineering And Technology	#377
11:45	Investigating SOFC Electrode Reaction Mechanism Using Atomically Flat Thin Films INVITED Di Chen - The Hong Kong Polytechnic University (PolyU)	#104
12:10	Key Technologies to Overcome the Limitations of Solid Oxide Cells (SOCs) INVITED Jae-Ha Myung - Incheon National University	#90

AFTERNOON

13:20	Tuning the electrochemical properties of oxide nanostructures for energy applications using surface modification INVITED Matthias T. Elm - Justus-Liebig-University Giessen	#116
13:45	Nanoscale Oxygen Exchange at Solid Oxide Cell Electrodes: Insights from Model Thin Films and Operando Characterization INVITED WooChul Jung - Seoul National University	#33
14:10	Characterisation of ion transport processes in solid oxide thin films INVITED Stephen Skinner - Imperial College London	#359
14:35	Tailoring Interfacial Oxygen Kinetics via Defect-Engineered Ceria Interlayers for Advanced SOC INVITED Kang Taek Lee - KAIST	#51

Break Time

15:30	Quantitative framework for interface analysis and engineering in protonic ceramic electrochemical cells INVITED Wonyoung Lee - Sungkyunkwan University	#28
15:55	Application of Nickel and Rare Earth Metal co-doped Ceria for Direct Ammonia Solid Oxide Fuel Cells INVITED Jong-Eun Hong - Korea Institute of Energy Research	#629

16:20

Surface and Interface Engineering for Performance Enhancement of Protonic Ceramic Fuel Cells

#596

INVITED

Chung-jen Tseng - National Central University

16:45

High-entropy nanocomposite for stabilizing oxygen electrode enables robust solid oxide cells beyond 2 W cm⁻²

#356

INVITED

ChengCheng Wang - Shenzhen Polytechnic University

Wednesday, 15 July 2026

154 presentations - 14 symposia

PL Plenary Session

Atrium Ballroom - Level 4

Plenary speakers and abstracts

08:20	Atomic Layer Deposition for Emerging Materials Synthesis and Applications PLENARY Prof. Hyungjun KIM - Yonsei University, Korea	Plenary 4
09:00	Organic Molecular Sieve Membranes for Energy-relevant Applications PLENARY Prof. Zhongyi JIANG - Tianjin University, China	Plenary 5
09:40	Research and development of high entropy alloy coatings and their potential applications PLENARY Prof. Jyh-Wei LEE - Ming Chi University of Technology, Taiwan	Plenary 6

S1 2D Materials (2DM)

Changi · Level 4

Chair: Daniel CHUA (National University of Singapore, Singapore)

10:50	Nanowire solar cells and the need for their dimensional characterization INVITED Martin Foldyna - Cnrs, Ecole Polytechnique	#440
11:10	Persistent Homology Analysis of AFM Images for Carrier Mobility Assessment in Graphene INVITED Yuki Okigawa - National Institute of Advanced Industrial Science And Technology	#465
11:30	Thin Film Characterization by Imaging Ellipsometry INVITED Shun Okano - Parksystems Gmbh.	#397
11:50	High-Frequency Tunable and Switchable Film Bulk Acoustic Wave Resonators Based on 2D multilayer -In₂Se₃ Flakes Shun Jiayi - Nanyang Technological University	#339
12:05	Engineering MoS₂ Nanopores for Next-Gen 2D Membranes Shen Jie - Nanyang Technological University	#723
12:20	2D inorganic/organic material interfaces for optoelectronics INVITED Parag Deotare - University of Michigan, Ann Arbor	#743

S2 Biomedical and Healthcare (BHC)

Seletar1 · Level 3

Chair: Kui CHENG (Zhejiang University, China)

10:50	Self-Assembled Nanoparticles for Antibacterial Applications INVITED Jin Qiao - Zhejiang University	#99
11:10	Synthesis and Characterization of ·all-in-one· Nanomedicine Platform Applied for Rheumatoid Arthritis INVITED Chen San-Yuan - National Yang Ming Chiao Tung University	#176
11:30	Hydrogen Selenide Releasing Micelles for Antibacterial Therapy INVITED Wang Tengjiao - Northwestern Polytechnical University	#61
11:50	Self-assembled bioactive protein/HA/CUR-based amyloidogenic nanohydrogel dressing for rapid infected diabetic wound healing via enhanced angiogenesis and anti-inflammation Saurabh Kumar Srivastava - Iit(bhu)	#420
12:05	Design of Highly Selective Sulfonium Polypeptides and Their Antibacterial Performance Zhang Zhenyan - Northwestern Polytechnical University	#60

AFTERNOON

13:20	Phytic Acid-Enabled Hydrogel Sensors for Biomedical and Healthcare Monitoring INVITED Wang Rong - Ningbo Institute of Materials Technology and Engineering	#328
13:40	Angle-Optimized TiO₂/CaF₂ One-Dimensional Photonic Crystal Biosensor for High-Sensitivity Label-Free Uric Acid Detection INVITED K Kathiresan - Psna College Of Engineering And Technology, Dindigul	#381
14:00	Translational Collagen-MXene Hybrid Surgical Thin Film for Diabetic Wound Management INVITED Prakash Jayabal - Translational Health Science And Technology Institute	#46
14:20	Salt-Triggered Electroactive Dressing with Controlled Drug Release for Enhanced Healing of Exudative Wounds Wu Huajun - Southwest University	#88
14:35	Laser-Induced Graphene Coated Wearable Smart Textile Electrodes for Biopotential Signal Monitoring C M Vidhya - Indian Institute Of Technology Delhi, India	#466
14:50	Biodegradable Scaffolds for Electrical Stimulation Enhanced Tissue Repair Yang Xi - Zhejiang University	#406

S4 Computation and AI for Materials & Thin Films (CAM)

Kallang · Level 3

Chair: Jianwei ZHENG (Institute of High Performance Computing, Singapore)

10:50	AI for crystal structure optimization INVITED Lei Shen - National University Of Singapore	#158
11:10	Physics AI Empowers the New Paradigm of Digital Materials R&D INVITED Kui Gong - Hongzhiwei Technology (shanghai) Co., Ltd.	#553

11:30	Introducing the High-Throughput Computational Platform of Chinese Materials Genome Engineering INVITED Tianruo Shen - National Supercomputer Center in Tianjin	#712
11:50	Revealing the effects of NbHx on the dehydrogenation of MgH2 from first-principles Jianchuan Wang - Central South University	#612
12:05	Hydrogen adsorption on group IV and III-V 2D honeycombs: Designing an electronegativity-based descriptor Yi Sheng Ng - Xiamen University Malaysia	#297

AFTERNOON

13:20	Computational and Data-Driven Design of Strong Physical Response Materials INVITED Yan Sun - Institute Of Metal Research, Chinese Academy of Sciences	#624
13:40	Molecular dynamics and lattice dynamics for ion transport and thermal conduction in complex solid systems INVITED Yongqing Cai - University Of Macau	#184
14:00	Determination of the embedded electronic states at nanoscale interface via the simulation based on surface-sensitive electron structure spectroscopies INVITED Hui-Qiong Wang - Xiamen University	#673
14:20	Tunable Magnonic Chern Insulators: Rational Design and Material Realization Chengwang Niu - Shandong University	#690
14:40	Ferroelectric-Engineered Valley Physics in Two-Dimensional Systems Xinru Li - Shandong University	#688
14:55	Excitonic Instability in Quantum Spin Hall Insulators Wei Wei - Shandong University	#689

Break Time

15:30	Enhanced erosion resistance of BaZrO3 mold against TiAl alloy melt during directional solidification through an in situ formed Y2O3 protective layer INVITED Chonghe Li - Shanghai University	#187
15:50	Erosion Behavior and Failure Mechanisms of Plasma-Sprayed YSZ Coatings Under Prolonged Aluminum alloy melts Pengyue Gao - Shanghai University	#119
16:05	Design, Synthesis, and Structural Characterization of Novel Sulfide Perovskite Materials BaCeS3 and SrCeS3 Haitao Li - Shanghai University	#121
16:20	Influence of Surface Defects on the Fatigue Behavior and Phase Transformation Mechanisms in NiTi Alloys Fabricated by Laser Powder Bed Fusion Dongdong He - Shanghai University	#120
16:35	The Impact of Silver Addition on the Stability and Biocorrosion Resistance of Passive Films in Ti-15Zr Alloy Rulin Zhang - Shanghai University	#619
16:50	A hybrid model for plasma discharge and transport during CrN deposition by reactive DOMS Jianying Gao - Avic Manufacturing Technology Institute	#424

S7 Ferroelectric Films & Functional Devices (FFF)

Sembawang · Level 3

Chair: Yu ZHOU (Central South University, China)

13:10	Room-temperature two-dimensional multiferroic metal with strong magnetoelectric coupling INVITED Lan Chen - Institute Of Physics, Chinese Academy Of Sciences	#256
13:30	Non-volatile optical response in sliding ferroelectric 3R-MoS2 via exciton tuning INVITED Jing Liang - Shenzhen International Quantum Academy	#130
13:50	Ferroelectric vortex domain configuration for dielectric energy-storage INVITED Ziming Cai - China University of Mining and Technology	#352
14:10	From oxides to nitrides: Epitaxial thin films for energy harvesting and conversion INVITED Weisea Chang - National Yang Ming Chiao Tung University	#621
14:30	Schottky Barrier-Conductive Wire Channel Synergistically Regulated Ultra-High Nonlinear Jumping Self-Rectifying Memristor INVITED Minghua Tang - Xiangtan University	#674
14:50	Multiscale heterogeneous-structure design for BNT-based energy storage ceramics INVITED Chaoqiong Zhu - UniversityChina University of Mining and Technology	#342
15:10	Orbital Guided Design of Unconventional Two-dimensional multiferroic material INVITED Yunhao Lu - Zhejiang University	#354
15:30	Nanoscale dielectrics and ferroelectric semiconductors for informational devices INVITED Yu Zhou - Central South University	#682

S9 Nanostructures, Nanocomposites & Nanoparticles (NNN)

Seletar 1 · Level 3

Chair: Yingchun GUAN (Beihang University, China)

15:30	3D Photonic Crystal Additives on Piezoelectric Response of PVDF/TPU Nanofiber Sensors INVITED Wu Yongling - Shandong University Of Technology	#86
15:50	Confined Pyrolysis-Driven Evolution of g-C ₃ N ₄ /PAN nanofibers into Nitrogen-Doped 1D/2D Carbon Heterostructures for Highly Efficient Microwave Absorption Li Jingwei - Harbin Institute of Technology	#249
16:05	Armoring Boron Nitride with Pyrolytic Carbon Layers for Tunable Rigidity and Flexibility Lan Meng - Northwestern Polytechnical University	#94
16:20	Laser-Textured Bionic Functional Surfaces for Controlled Droplet Transport Wang Kongbo - Shandong University Of Technology	#100
16:35	Backside Electrostatic Patterning Enables Programmable Droplet Capture on a Superhydrophobic Surface Li Enzhe - National United University	#472
16:50	Multiscale Ultrafast Laser Texturing for Structural and Functional Metals Ma Yi - Beihang University	#216

S10 Organic Electronics and Photonics (OEP)

Seletar3 · Level 3

Chair: Xiaotao HAO (Shandong University, China)

10:50	Carbazole SAM Interfaces and NFAs for Organic Photovoltaics INVITED Ergang Wang - Chalmers University Of Technology	#49
11:10	Organic Diodes Bridging Electroluminescence and Photovoltaic Conversion: Interfacial Engineering of MR-TADF Thin Films for Full-Color Devices INVITED Hirohiko Fukagawa - Chiba University	#622
11:30	Semitransparent Organic Solar Cell based on Nonfullerene Photocharge Generation INVITED Han Yan - Xi'an Jiaotong University	#240
11:50	Mitigating Energy Loss in Organic Solar Cells through Solid-State Emissive Molecular Design Sai Ho Pun - The Hong Kong University Of Science And Technology	#611
12:05	Origin of Annealing Induced Work Function Changes in PEDOT:PSS Kaito Ban - Chiba University	#647

AFTERNOON

13:20	Toward Stable and High-Performance Sn Halide Perovskite Electronics: Thin-Film Transistors and NIR Photodetectors INVITED Hui Joon Park - Hanyang University	#663
13:40	Chiral-perovskite optoelectronics INVITED Guankui Long - Nankai University	#275
14:00	Lateral Heterogeneity of 2D Ruddlesden-Popper Perovskite Films and Its Impact on Photovoltaic Performance INVITED Fei Zheng - Ningbo University	#691
14:20	Guideline for Carbazole-based Hole-Collecting Monolayers in p-i-n Perovskite Solar Cells from the Viewpoint of Energy Level Alignment Koki Sawai - Chiba University	#648
14:35	Phase Stabilization and Defect Passivation in Lead Halide Perovskite Films Handong Jin - Shandong Jiaotong University	#705
14:50	Perovskite Crystallization Regulation via Antimonene Quantum Sheets for Highly Efficient and Stable Solar Cells Kangning Li - Taiyuan University of Technology	#536

S11 Optical Thin Films (OTF)

Sentosa · Level 3

Chair: Jianqi ZHU (Harbin Institute of Technology, China)

10:50	Transparent Materials for Extreme Environments INVITED Liangge Xu - Harbin Institute of Technology	#32
11:10	Particle Swarm Optimization-Driven Intelligent Design of Multilayer Thin-Film Structures for Multispectral Infrared Stealth Applications Shijie Chen - Harbin Institute Of Technology	#54

11:25	Phase-Change Optical Thin Films Synergized with Graphene Electrical Tuning for Broadband Reconfigurable Metasurface Absorbers Pingping Min - Zhengzhou Advanced Research Institute of Harbin Institute of Technology	#363
11:40	Chemical Composition Modulation and Synergistic Enhancement Mechanisms of the Opto-Mechanical Properties of YOxNy Thin Films for High-Performance Infrared Windows Zheqiu He - Harbin Institute Of Technology	#193
11:55	Thickness Control and Thermal Stability of Large-diameter Mo/Si Multilayers Zhe Zhang - Tongji University	#704
12:10	Medium-entropy to high-entropy sesquioxide X·O· infrared transparent ceramics Wenqi Li - Harbin Institute Of Technology	#74
12:25	Ultra-Fine Fractal Silver Meshes via Laser Direct Writing for High-Performance Transparent Electrodes with Suppressed Moiré Wen-Yen Chang - National Chung Hsing University	#148

AFTERNOON

13:20	Coatings for space observations in the far ultraviolet INVITED Juan I. Larruquert - Instituto De Optica - Csic	#16
13:40	Enabling Scalable Manufacturing of Diffractive Micro-/Nano-Optical Devices for AR/VR Applications INVITED Wali Zhang - YongJiang Laboratory	#340
14:00	Effect of RF power on structure, mechanical and infrared optical properties of La-, d Er-co-doped Y2O3/ZnS films by magnetron sputtering Zhaoyang Xing - Harbin Institute Of Technology	#211
14:15	Effect of Dilute Y·O· Co-doping on the Lattice Structure and Properties of Al-doped ZnO Thin Films Yi-Yen Chen - National Formosa University	#133
14:30	High-entropy design of new zirconate transparent ceramics with synergistic enhancement of mechanical and optical properties Xuanyu Wang - Harbin Institute of Technology	#73
14:45	Simultaneous Infrared Camouflage and Effective Multiband Thermal Management Xiangqing Teng - Harbin Institute of Technology	#384
15:00	Achieving High Transparency and High Wear Resistance in Ceramics: A High-Entropy Strategy Coupled with Advanced Sintering Technology Peng Wan - Harbin Institute Of Technology	#76

Break Time

15:30	Morphology-engineered coatings on periodic nanostructures for guided resonances, anomalous reflection, and plasmon canalization INVITED Yi-Jun Jen - National Taipei University Of Technology	#631
15:50	p-type conductive infrared transparent Cu2-xSe thin film Quanming Ding - Harbin Institute Of Technology	#294
16:05	Medium to high entropy sesquioxide infrared transparent ceramics with high performance Linbo Wang - Harbin Institute of Technology	#75

16:20	Hard and infrared-transparent HfScTiYZr high-entropy oxide coating Jingchuan Li - Harbin Institute of Technology	#190
16:35	A General Framework for Optical Optimization and Mechanical Property Enhancement of Multilayer Films Based on Deep Learning Ateer Bao - Harbin Institute of Technology	#91
16:50	The fabrication of 3D GaN and 2D WS₂ heterostructures by plasma-assisted molecular beam epitaxy Aminudin Zuhri - National Dong Hwa University	#375
17:05	Periwinkle Petal-Templated Microstructured PDMS for Enhanced Hydrophobicity Aneela Perumalla - Indian Institute of Technology, Madras	#247
17:20	Degradation Mechanisms of Al/LiF/eMgF₂ Thin Films under Low-Energy Proton Irradiation Shuangying Li - Zhengzhou Advanced Research Institute Of Harbin Institute Of Technology	#554

S12 Thin Film for Semiconductor Fabrication and Packaging (TSP)

Boardroom · Level 3

Chair: Yong Jing YOON (KAIST, Korea)

13:20	Transition metal carbide thin films prepared by atomic layer deposition: A new enabler for advanced metallization process INVITED Prof. Soo-Hyun KIM - Ulsan National Institute of Science and Technology (UNIST)	#323
13:40	Electronic packaging enhancement engineered by reducing the bonding temperature via modified cure cycle INVITED Prof. Seong Su KIM - Korea Advanced Institute of Science and Technology (KAIST)	#503
14:00	Advanced Consumables and Processing in Chemical Mechanical Polishing for Semiconductor Packaging INVITED Prof. Sanha KIM - Korea Advanced Institute of Science and Technology (KAIST)	#252
14:20	Evaporation-Driven Marangoni Control for Uniform and Scalable Nanocomposite Thin Films INVITED Prof. Hyungsoo KIM - Korea Advanced Institute of Science and Technology (KAIST)	#257
14:40	Plasma-Enhanced Atomic Layer Etching of Ru via Gas Activation Jeongmin OH - Pohang University of Science and Technology (POSTECH)	#372
14:55	Artificial Intelligence for Quantifying Stochastic Damage Evolution in Freely-Stretched Ultra-Thin Films Myoung SONG - Korea Advanced Institute of Science and Technology (KAIST)	#380
15:10	Effect of substrate roughness on the formation of electroless nanotwinned copper and its thermal stability Yu-Ting YU - Yuan Ze University	#57
Break Time		
15:30	Active Control of Thin-Film Processing Plasma via a Tunable Metamaterial INVITED Prof. Sanghoo PARK - Korea Advanced Institute of Science and Technology (KAIST)	#515
15:50	Thermal atomic layer etching: Principles and applications for nanodevice fabrication INVITED Prof. Taewook NAM - Sejong University	#45

16:10	Detection of Pinholes in Thin-Film Solid Oxide Electrolytes via Selective Adsorption of Ag Nanoparticles Generated by Spark Discharge Prof. Jong Dae BAEK - Yeungnam University	#364
16:25	AI-Driven Thermal Design Framework for Advanced Semiconductor Packaging INVITED Prof. Haeun LEE - Yeungnam University	#687
16:45	Epitaxial growth of high-quality GaN on CVD MoS₂/c-sapphire by plasma-assisted molecular beam epitaxy Prof. Iwan SUSANTO - Jakarta State Polytechnic	#653
17:00	Phase-Controlled Electronic Structure Engineering in Doped HfO₂: A High-Throughput Graph Neural Network Study of Y, La, Al, Si, Ti, and Ce Dopants Mr. Zunair MASROOR - Incheon University	#399
17:15	Atomic-Scale Control of Stoichiometry and Oxygen Vacancies in Ferroelectric Hf_xY_yO_z Films via Atomic Layer Modulation Mr. Ngoc Le TRINH - Incheon University	#400

S13 Smart Materials and Microsystems (SMM)

Atrium Ballroom - Level 4

Chair: Yongqing FU (Northumbria University, UK)

10:50	Ultrafast Optoacoustic Metrology: A Non-Destructive Approach for 3D Nanoscopic Characterization of Semiconductor Devices KEYNOTE Zhongqing Su - Hong Kong Polytechnic University, China	#233
11:15	Interaction Between Surface Acoustic Waves and Electrons KEYNOTE Wei Luo - Huazhong University Of Science And Technology	#260
11:40	Self-powered wearable piezoelectric nanogenerators enabled by functional thin films for HMIs, IoTs, and biomedical systems INVITED Sasikumar Ragu - Korea University Of Technology And Education, South Korea	#80
12:00	Minimalist Design Strategies for Stretchable and Flexible Triboelectric Sensors: From Scalable Fabrication to Intelligent Wearable Systems INVITED Shuting Liu - Hangzhou City University, China	#434

AFTERNOON

13:20	Piezoelectric Thin-Film-Enabled Acoustofluidic Microsystem for Deterministic Single-Cell Dispensing and Native-State Proteomics KEYNOTE Chris Xin Yang - Cardiff University UK	#428
13:45	Droplet acoustofluidics technology facilitate the precise analysis of miRNA INVITED Jingui Qian - Hefei University of Technology, China	#327
14:05	A Programmable SAW-Activated Microneedle Microfluidic Chip for Integrated Cell Lysis, RNA Purification, and Quantitative PCR Detection INVITED Zenan Wang - Shenzhen Institutes Of Advanced Technology, China	#231

14:25	Single-beam acoustical tweezers for the trapping and assembly of a single cell for lab-on-a-chip applications INVITED Zhixiong Gong - Shanghai Jiaotong University, China	#124
14:45	Autonomous underwater acoustic propulsion system via lithium niobate ultrasonic transducer INVITED Deqing Kong - Toyota Technological Institute, Japan	#251
Break Time		
16:00	Acoustic Microfluidics for Precision Medicine KEYNOTE Ye Ai - Singapore University of Technology and Design	#490
16:25	Flexible and multimodal acoustofluidics enabled by piezoelectric thin films and bulk piezoelectric materials INVITED Yong Wang - Hangzhou City University, China	#315
16:45	Surface Acoustic Wave-Assisted Swing-Angle Spray: From Mechanism Investigation to Deposition Characteristics and In Vivo Wound Healing INVITED Chenhui Gai - Harbin Institute of Technology, Shenzhen	#455
17:05	Acoustic Separation and Sensing Based on Flexible ZnO Piezoelectric Thin Films INVITED Tengfei Zheng - Xi'an Jiaotong University, China	#410
17:25	Ice nucleation and detachment on acousto-dynamic surfaces Deyu Yang - Northwestern Polytechnical University	#72
17:40	Effect of boron concentration on the corrosion resistance of boron doped diamond films KEYNOTE Haitao Ye - Fudan University, China	#447

S14 Surface Treatment & Protection (STP)

Sembawang · Level 3

Chair: Wan-Yu WU (National United University, Taiwan)

10:50	Interfacial Free Energy Governs Nucleation Transition in Cu Interconnects for Advanced Packaging INVITED Chia-Hua Lin - Tunghai University	#68
11:10	Interfacial Adhesion Improvement and Pool Boiling Heat Transfer Augmentation of GNPs/Epoxy Coatings via Plasma Treatment INVITED Jhao-Yu Guo - National Taiwan Ocean University	#62
11:30	Enhanced corrosion resistance and mechanical stability of superhydrophobic micro-nano particles/epoxy coatings for the protection of cements INVITED Zongjing He - Harbin Institute of Technology	#463
11:45	CO₂ Laser-Fabricated Heterowetting PTFE/Al₂O₃ Platform for Geometry-Controlled Droplet Enrichment and Raman Enhancement Cheng-Han Yu - National United University	#270
12:00	Hybrid Post-Processing for Surface Smoothening of Additively Manufactured Ti-6Al-4V Joseph Kee Seng Wong - Singapore Institute Of Manufacturing Technology (simtech)	#266

12:15	Development of electroless copper plating and PVDF coating methods for improving the corrosion resistance of La-Co-Fe-Si magnetocaloric alloy Dong-Hyeon Lee - Department of Mechanical Engineering, chosun university	#409
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S15 Thin Film Devices (TFD)

Seletar3 · Level 3

Chair: Dong-Sing WUU (National Chi Nan University, Taiwan)

15:30	Development of a Sophisticated Cross Over Flow Atomic Layer Deposition Module for High Aspect Ratio Device Application INVITED Ching-Chiun Wang - Industrial Technology Research Institute	#450
15:50	Study on P-Type α -Ga ₂ O ₃ Epilayers Grown by MOCVD INVITED Ray Hua Horng - National Yang Ming Chiao Tung University	#714
16:10	Research on thin-film-based micro-nano photonic devices INVITED Shaowei Wang - East China Normal University	#200
16:30	Research on acoustic tweezers and their manipulation Siyang Lin - Jimei University	#417
16:45	Investigation of a high sensitivity pH sensor based on Graphene oxide/Gallium oxide heterostructure Shu-Bai Liu - National Kaohsiung University Of Science And Technology	#591
17:00	Scalable Fabrication of Ultrathin Freestanding Oxide Films for Pyroelectric Device Applications Hanwen Chi - Zhejiang University	#464
17:15	The role of oxygen vacancies induced by Ag ion implantation in promoting the electrochemical properties of BiVO ₄ Shilpa Chauhan - Upes, Dehradun, India	#671
17:30	Optimization of MoO ₃ Transparent Electrode by Sputtering Process and Its Application in High-Performance CZT Nuclear Radiation Detectors Zhaoran Guan - School Of Materials Science And Engineering, Shanghai University	#264

SS1 Korea-Singapore Research Collaboration

Changi · Level 4

Chair: Suk Won CHA (Seoul National University, Korea)

13:20	Carbon Nanomaterials and Progress Toward International Standardization INVITED JOHN Hong - Kookmin University	#287
13:35	Laser-Based Manufacturing for Multi-functional Robotic Skins in Extreme Environments INVITED Bongchul Kang - Kookmin University	#344
13:50	Flat Object Handling Technology Based on Controllable Adhesion INVITED Jaekang Kim - Kookmin University	#368
14:05	Eutectic Gallium Indium Composite for Next-generation Wearable Biosignal Monitor INVITED Minwoo Kim - Kookmin University	#445

14:20	Molten Lithium-Induced Gradient Copper Sulfide Interphase for Long-Cycle Lithium Metal Batteries Min Kyeong Kim - Kookmin University	#290
14:35	Multiscale Surface Coating Approaches for Durable and Scalable Anti-Icing Properties Yujin Jeon - Kookmin University	#403
14:50	Non-Visual Object Recognition via Active Exploration with Thin-Film Multimodal Sensory Integration Seunghoon Jung - Kookmin University	#506
Break Time		
15:30	Ultrafast Flame Synthesized CuRu and NiFe Catalysts for Alkaline Water Electrolysis INVITED SangWook Park - Seoul National University	#115
15:45	AI-Driven Additive Manufacturing and Packaging for TF-SOFC Integrated Drone Systems: Toward High-Endurance, Scalable Tactical Platforms INVITED Yong-Jin Yoon - Korea Advanced Institute Of Science and Technology (KAIST)	#229
16:00	Thermoreflectance-Based Thermal Characterization for Semiconductor Devices and Packaging INVITED Jungwan Cho - Sungkyunkwan University	#320
16:15	Direct Laser Writing of CuOx Nanoparticle Inks: Reductive Sintering for Functional Thin Film Fabrication INVITED Daeho Lee - Gachon University	#329
16:30	Numerical assessment of residual stress in hardfaced layers formed by metal additive manufacturing process INVITED Dong-Gyu Ahn - Chosun University	#444
16:45	Polypyrrole-coated 3D Printed Highly Porous Graphene Electrodes for Bio-Photovoltaic Energy Generation INVITED Wonhyoung Ryu - Yonsei University	#500
17:00	Motion-Adaptive SMP Skin Patches for Wearable Electronics INVITED Hoon Eui Jeong - UNIST	#525

SS3 Nanoscale Surfaces, Interfaces, and Thin Films for Next-Generation Solid Oxide Cells

Seletar2 · Level 3

Chair: Pei-Chen SU (Nanyang Technological University, Singapore)

10:50	The integration of cryo atom probe tomography and transmission electron microscopy to study light elements important for the energy transition. INVITED Finn Guiliani - Imperial College London	#422
11:15	Improving Conductivity of Protonic-Ceramic Electrolytes via Thin-Film Transient Lanthanum-Based Sintering Layers INVITED Ryan O'Hayre - Colorado School of Mines	#103

11:40	Emerging Carbon-Coupled Electrochemical Systems for Energy-Efficient Hydrogen Production and CO₂ Utilization INVITED Guntae Kim - Shanghai Institute Of Applied Physics, Chinese Academy Of Sciences	#286
12:05	Engineering NiFe-based Cermet Anodes for High-Performance and Durable Direct Ammonia Solid Oxide Fuel Cells INVITED Kongfa Chen - Fuzhou University	#93
AFTERNOON		
13:20	Strain-induced structure and oxygen-vacancy distribution in solid-oxide fuel-cell cathode materials INVITED Zaoli Zhang - Erich Schmid Institute, Austrian Academy of Sciences	#295
13:45	Mass and charge transport in thin oxide films driven by an external voltage INVITED Manfred Martin - RWTH Aachen University	#126
14:10	Microstructure and performance of dense nanostructured Sc₂O₃ doped ZrO₂ thin film deposited by ultrasonic spraying pyrolysis for metal supported solid oxide fuel cells INVITED Chengxin Li - Xi'an Jiaotong University	#21
14:35	Intermediate-temperature proton-conducting solid oxide fuel cells and electrolyzers for Taiwan's multi-fuel clean energy future INVITED Sheng-Wei Lee - National Central University	#31
Break Time		
15:30	Oxygen Electrodes for Reversible Protonic Ceramic Electrochemical Cells INVITED Yu Chen - South China University of Technology	#318
15:55	Mass transportation optimization in air electrode of scaled-up protonic electrolysis cells for high faradaic efficiency INVITED Bin Chen - Shenzhen University	#373
16:20	Conformally coated scaffold electrode for reversible solid oxide cells and its operational robustness INVITED Hanchen Tian - Xi'an Jiaotong University	#122
16:45	Inkjet Printing of Thin Film Electrochemical Applications INVITED Joong Hyung Shim - Korea University	#331
17:10	Hierarchical Core-Shell cathode with Triple Conductivity: Toward Efficient and Durable Protonic Ceramic Fuel Cells INVITED Wenlu Li - Hubei University	#398

Thursday, 16 July 2026

159 presentations - 13 symposia

S1 2D Materials (2DM)

Changi · Level 4

Chair: Daniel CHUA (National University of Singapore, Singapore)

08:30	Dielectric constant of strained monolayer MoS₂ INVITED Shuo Deng - Wuhan University of Technology	#154
08:50	Rippled graphene pores as fluidic memristive devices with synaptic and neuromorphic functionalities INVITED Sun Pengzhan - University Of Macau	#720
09:10	Realization of a 2D Tungsten Disulfide (WS₂) Diode Probe for Nanoscale Surface Temperature Sensing in MEMS/IC Chips INVITED Lu Chih-Cheng - National Taipei University Of Technology	#585
09:30	Electrostatically gated graphene nanofluidic membranes for enhanced thermoelectric and mechanoelectric conversion INVITED Xue Yahui - Southen University Of Science And Technology	#269
09:50	Defect and Strain Engineered Room-Temperature Ferromagnetism in Few-Layered MoS₂ Films Anbalagan - Brookhaven National Laboratory	#155
10:05	Choices of Gas Phase Precursors for 2D Materials Kalaisarasan - University Of Chemistry And Technology	#546
Break Time		
10:45	Thin Films Meet Photonics: Nanostructured Optical Fiber Platforms for Ultra-Sensitive Gas Detection INVITED Ong Boon Hong - National Chung Hsing University	#162
11:05	Biosensing membrane for dynamic blood separation and monitoring INVITED Chu Zhenyu - Nanjing Tech University	#692
11:25	Angstrofluidics in 2D MoS₂ Multichannels INVITED Park Hyung Gyu - Postech	#441
11:45	Center-concave 2D nanosheets based handheld microchip-devices for ultrasensitive lysine determination Song Huaiyu - Nanjing Tech University	#696
12:00	Medium and high entropy alloy coatings fabricated by co-sputter deposition of common engineering alloys Santosh Routu - Ming Chi University Of Technology	#483
12:15	Asymmetric spin valve based on Fe₃GaTe₂/Fe₃GaTe₂ via the synergy of the anomalous Hall effect and spin-dependent scattering Gao Zhuoqing - Zhejiang University	#438

AFTERNOON

13:30	Accurate controlling of the transport channels in 2D nanosheet membranes for efficient H₂ purification INVITED Wei Yanying - South China University of Technology	#542
13:50	Interplay of Dehydration and Electronic Polarization Governs Ion Transport through Carbon Nanopores INVITED Misra Rahul - National University Of Singapore	#338
14:10	Bioinspired Multi-modal Electronic Skin Based on Thin-Film Organic Electrochemical Transistors Ji Tianyi - Nanyang Technological University	#548
14:25	Bifunctional CuS/rGO separation-sensing membrane for online monitoring of whole-blood lactate Zhang Shaoqi - State Key Laboratory Of Materials-oriented Chemical Engineering, College Of Chemical Engineering, Nanjing Tech Universit	#697
14:40	Interlayer Engineering of MXene Nanofiltration Membranes via Cyclodextrin Crosslinking for Stable and Selective Ion Transport Li Yanan - Nanyang Technological University	#523

S2 Biomedical and Healthcare (BHC)

Seletar1 · Level 3

Chair: Kui CHENG (Zhejiang University, China)

08:30	Fabrication of Main-Chain Betulin-based Polymer Nanofibers as Antibacterial Surface Coatings INVITED Ma Zhiyuan - Donghua University	#451
08:50	Metal-enhanced ZIF-8 nanohybrid for advancing metastatic breast cancer treatment INVITED Singh Swati - Indian Institute of Technology Ropar	#303
09:10	Study of Antimicrobial OIMS (oligo-imidazoliums) Internalization Mechanism, Structure-activity Relationship and Toxicity Property INVITED Tan Chongyun - Ningbo Institute of Materials Technology and Engineering	#724
09:30	Antioxidant PDA/CeO₂ coating on PLLA stent for intestinal ROS scavenging Zuo Shangyong - Zhejiang university	#413
09:45	Heterostructured metal/metal oxide thin films for electrochemical biosensing applications Lakshmi Narayanan Muralidharan - Bharathiar University	#543
10:00	3D printable/injectable personalized amyloidgenic hydrogel for accelerated wound healing and tissue regeneration Tripathi Shikha - Indian Institute Of Technology, BHU, Varanasi	#421
Break Time		
10:45	Enhanced corrosion resistance and osteogenic activity of PEO-coated Ti-Mg composites INVITED Tian Sirui - China Medical University	#253
11:05	Multi-functional nanofibrous membrane with antibacterial abilities for infected diabetic wound healing and long-lasting air filtration INVITED Ye Junwei - Dalian University Of Technology	#568

11:25	Improving durability of stainless steel nanopillar surface structure to prevent antibacterial activity deterioration induced by abrasion INVITED Mitsuhiro Hirano - Kitami Institute of Technology	#514
11:45	Interfacial Behavior of Functionalized Short Quartz Fibers for Dental Resin Composites INVITED Wang Ruili - Donghua University	#476

AFTERNOON

13:30	Ultrasound-responsive PVTF coated Galn Microspheres for biomedical application Xin Xin - Zhejiang University	#449
13:45	Amyloid-like Protein-Metal Sulfide Nanocoatings for Synergistic Photothermal and Antibacterial Implant Surface Protection Li Kexin - Southwest University	#70
14:00	Self-Assembled Mechanochromic Nano Thin-Film Structures for Wearable Health Monitoring BISWAS SRIJEETA - Indian Institute of Science	#97
14:15	Shikonin-loaded porous graphdiyne nanofilm on titanium surface for enhanced antibacterial activity and osseointegration Zhang Xiaojing - Southwest University	#71

S4 Computation and AI for Materials & Thin Films (CAM)

Kallang · Level 3

Chair: Jianwei ZHENG (Institute of High Performance Computing, Singapore)

13:30	Advancing sustainable food processing: molecular-scale understanding of incipient protein fouling in falling-film evaporators INVITED Jia Wei Chew - Chalmers University Of Technology	#147
13:50	Computationally Efficient Data-Driven Predictive Control for the Economic Operation of Membrane Reactors in Water Treatment INVITED Xunyu Yan - Nanyang Technological University	#677
14:10	Directional Droplet Rebound Dynamics on Anisotropic Superhydrophobic Surfaces: Implications for Self-Cleaning Polymer Thin Films Sushanta Sethi - IIT Dharwad	#415
14:25	Molecular Dynamics Study of Chemical and Physical Crosslink Contributions to Rubbery Modulus in Photocurable Shape Memory Polymer Networks Taehyub Lee - Nanyang Technological University	#404
14:40	Molybdenum dz2 and Sulphur p orbitals form resonant channels during Hydrogen Evolution Reaction in thin film MoS2 Jesaya Christian Ido Raja - Nanyang Technological University	#125
14:55	Polysulfide Anchoring in Sodium-Sulfur Batteries by Non-Metal Doped VS2: A DFT Study Deepak Gorai - Indian Institute of Technology Kanpur	#152

S5 Coating towards Industrial Applications (CIA)

Kallang · Level 3

Chair: Hongfei LIU (Institute of Materials Research and Engineering, A*STAR, Singapore)

08:30	Transparent conductive coatings with tunable properties for various industrial applications INVITED Shijie Wang - FEAT & IMRE, A*STAR	#156
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08:50	Gradient Multi-Principal Element Nitride Coatings: A Platform for Wide-Temperature-Range Wear Protection INVITED Haiyang Yu - Ningbo Institute of Materials Technology and Engineering, Chinese Academy of Sciences	#274
09:10	Microstructural and Chemical Influences on Colour Stability in Brass Bluing - A Failure Analysis Approach INVITED Zhaohong Huang - A*STAR Singapore Institute Of Manufacturing Technology	#599
09:30	Effect of energy gradient on wear resistance of TiN coatings deposited by magnetron sputtering with stepwise tuning working pressure Jia-Hong Huang - National Tsing Hua University	#550
09:45	Ceramic Coatings on Stainless Steel Substrate by Plasma Spray: Comparison between Y2O3 and YF3 Yuefan Wei - SIMTech & A*STAR	#708
10:00	Writable electronic textiles based on ACEL fiber coatings Jiajun Qin - Fudan University	#639
Break Time		
10:45	Coating edge distortion measurement for slot die roll to roll process during manufacturing INVITED Hussam Muhamedsalih - University of Huddersfield	#530
11:05	Ultrasonic and Shearography Techniques for Non-Destructive Evaluation of Coatings INVITED Lei Zhang - IMRE, A*STAR	#603
11:25	Thermal barrier coating removal process based on plasma technology INVITED Hong Liu - Shenyang Aerospace University	#646
11:45	Surface modification and integrity enhancement of duplex stainless steel 2205 by severe shot peening Guangxu Yan - IMRE, A*STAR	#232
12:00	Selective oxide layer formation on NiAl alloys by anodization with electrolyte variation Ryota Kawakami - Kitami Institute of Technology	#566
12:15	Protective Coating by Plasma Electrolytic Oxidation (PEO) and Its Industrial Applications Zheng Jie Ong - A*STAR	#307
12:30	Investigation on the low secondary electron emission mechanism of magnetron sputtered TiN nanofilms Jialong He - Institute of Fluid Physics	#666

S6 Energy & Sustainability (ENS)

Sentosa · Level 3

Chair: Lidong SUN (Chongqing University, China)

15:45	Investigation and Modification Optimization of Taiwan cryptomerioides-Derived Biochar for Microporous Layer Applications in Proton Exchange Membrane Fuel Cells Wen-Wei Chang - National Chung Hsing University	#168
16:00	Water-Free Surface Modification with Amorphous Nb2O5 Coating for Improved Stability of High-Ni NCM Cathodes via Plasma-Enhanced Atomic Layer Deposition Jaeyun Lim - Pohang University of Science and Technology (POSTECH)	#469

16:15	Engineering Localized Graphitic Domains in Jute-Fiber-Derived Carbon Microspheres for Superior Energy Storage Ming-Che Cheng - National Chung Hsing University	#235
16:30	Regulating Interfacial Charge Transport to Stabilize Ni-Rich Cathodes via Atomic Layer Deposited Al-doped Molybdenum Oxide Hyeonmin Lee - Pohang University of Science and Technology (POSTECH)	#534
16:45	Ultra-High Performance Symmetric Supercapacitors Based on Nitrogen-Doped Biomass Carbon and Graphene Composites Shih-lung Lee - National Chung Hsing University	#237

S7 Ferroelectric Films & Functional Devices (FFF)

Boardroom · Level 3

Chair: Yu ZHOU (Central South University, China)

08:30	Design and Exploration of 2D Quantum Matters with Exotic Properties INVITED Yi Du - Beihang University	#378
08:50	Neuron-Inspired Ferroelectric Bioelectronics INVITED Xuemin Du - Shenzhen Institute Of Advanced Technology (siat), Chinese Academy Of Sciences (cas)	#296
09:10	Tunable threshold voltage of solution-processed metal oxide thin film transistors INVITED Zaixing Yang - Shandong University	#391
09:30	Lead Salts Semiconductors-based Infrared Sensors INVITED Qisheng Wang - Nanchang University	#84
09:50	Design and comparison of AlN/-Ga2O3 and AlScN/-Ga2O3 Heterostructure High electron mobility transistor Chih-Jou Tseng - National Yang Ming Chiao Tung University	#332

Break Time

10:45	Ferroelectric devices for in-memory computing INVITED Bobo Tian - East China Normal University	#684
11:05	Modulating Ferroelectricity in van der Waals Moiré Superlattices INVITED Yangbo Zhou - Nanchang University	#302
11:25	Observation and manipulation of 2D topological polar texture confined in moiré interface INVITED Er Pan - University Of Electronic Science And Technology Of China	#382
11:45	Spatial confinement hot carrier beyond unity quantum efficiency detection Yu Wan - Nanchang University	#96

AFTERNOON

13:30	Room-temperature electrically switchable spin-valley coupling in a van der Waals ferroelectric halide perovskite INVITED Jie Jiang - Zhejiang University	#407
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13:50	Harnessing Interfaces to Tailor Phase Transitions, Polarization, and Toughness in 2D Ferroelectrics INVITED Xiaodong Zheng - Hebei University of Technology	#367
14:10	BPVE Synaptic Array in BiFeO₃ for Polarization-Sensitive In-Sensor Computing INVITED Lin Sun - East China Normal University	#695
14:30	Ferroelectric optoelectronic sensor for intelligent flame detection and in-sensor motion perception INVITED Wei Han - Hubei University	#605
14:50	High-Quality AlN Thin Films Grown by HiPIMS: A Comparative Analysis with Conventional DC and RF Sputtering Ya-Hsuan Chen - National Yang Ming Chiao Tung University	#360

S8 High Entropy and Amorphous Coatings (HEA)

Seletar2 · Level 3

Chair: Yong ZHANG (Fuyao University of Science and Technology, China)

13:30	On the micromechanics of refractory-metal-based high entropy nitrides INVITED Pavel Sou-ek - Masaryk University	#14
13:50	Entropy-Engineered MnAlCrCoCu High-Entropy Alloy/CNT Flexible Thin Films for Efficient Water Splitting and Hydrogen Generation Aswini Kumar Nath - Yuan Ze University	#317
14:05	Energy-modulated structural evolution in amorphous alloys Xing Tong - Songshan Lake Materials Laboratory	#701
14:20	Multi-scale guided optimization of (Hf-Zr-Ta-Nb)C coatings above 2000 °C: Element, Composition and Ablation property Xiaoxuan Li - Northwestern Polytechnical University	#165
14:35	Enhancing CFRP drilling performance using multi-layer ta-C coatings: morphological, mechanical, and tribological evaluation Wenxuan Zhao - Nanjing University of Aeronautics and Astronautics	#83
Break Time		
15:45	Structures and Properties of CrMoNbSiC High-Entropy Films Prepared by Magnetron Sputtering Jiasheng Wang - University Of Science And Technology Beijing	#175
16:00	Tribological and Adhesion Behaviour of Cold-Sprayed Ti-HEA Composite Coatings on Laser-Textured SS316L J Sharath Kumar - Dr B R Ambedkar National Institute of Technology Jalandhar	#40
16:15	Mechanical properties and wear behavior of high entropy (TiZrHfCrW)_{Nx} coatings Hsiu-ming Chang - National Taiwan Ocean University	#259
16:30	Study on Electrochemical and Tribological Properties of ReCN Coatings Prepared by Magnetron Sputtering Yuan Liu - Nanjing University of Aeronautics and Astronautics	#82

S9 Nanostructures, Nanocomposites & Nanoparticles (NNN)

Sentosa · Level 3

Chair: Yingchun GUAN (Beihang University, China)

08:35	Laser Processing-Assisted Fabrication of Si/YbDS/GYbZ Thermal and Environmental Barrier Coatings and Their Mechanisms of Functional Realization INVITED He Jian - Beihang University	#429
08:55	Plasma-Assisted Reduction of Silver Nanoparticles on Various Substrates for Raman Signal Enhancement INVITED Vasquez Magdaleno Jr - University of the Philippines Diliman	#626
09:15	Improvement the stability of the localized surface plasmon resonance of copper nanoparticles fabricated by vacuum coating Fang Yingcui - Hefei University Of Technology	#105
09:30	Construction of 3D Heterogeneous Carbon Conductive Pathways for Efficient Thermal Management Wang Zhongkai - Northwestern Polytechnical University	#272
09:45	SiO₂ Nanoparticle Surface Charge Modulation of Ion Selectivity and Energy Conversion in AAO Nanochannels Pai Fengwei - Tamkang University	#651
10:00	High-throughput composition screening of Pt-modified aluminide coating for corrosion resistance in molten Na₂SO₄-NaCl salts Mengqi Li - Beihang University	#357
Break Time		
10:45	Laser-Assisted Engineering of Functional Nanostructures: From Super-Tetragonal Ferroelectric Films to High-Performance Flexible Sensors INVITED Li Zhipeng - University Of Science And Technology Beijing	#485
11:05	Design and Development of BiFeO₃-Activated Carbon Nanocomposite for high density Supercapacitors applications INVITED Ahmad Mohammad - University of Guyana, South America	#248
11:25	Construction of a core-shell structured SiC nanowires@nano-carbon hybrid conductive network for supercapacitors and electromagnetic interference shielding Liu Huimin - Northwestern Polytechnical University	#334
11:40	Multi-stimulus responsive anisotropic slippery surfaces Sang Junhao - Shandong University Of Technology	#507
11:55	Wet-chemical-assisted 3D printing of functionalized comb structures for efficient and scalable fog harvesting Yu Shen - Shandong University Of Technology	#508
AFTERNOON		
13:30	Two-nozzle Electrospinning-Derived Dual-Fiber TVDF@GPU Nanofibrous Scaffolds for Piezoelectric Nanogenerator Sensors Li Yunlong - Shandong University Of Technology	#325
13:50	Dual-layer coated flaky carbonyl iron powder with enhanced high-temperature oxidation resistance and microwave absorption performance Zan Yuchen - Beihang University	#311

14:10

Electronic and Transport Properties of Doped GeSe Nanoribbons: A First-Principles Analysis

#655

Yadav Banti - ABV-Indian Institute of Information Technology and Management Gwalior (M.P.) India

S10 Organic Electronics and Photonics (OEP)

Seletar3 - Level 3

Chair: Xiaotao HAO (Shandong University, China)

08:30

Realization of Blue-Emissive Perovskite Nanocrystals Via Size Control and Post-Treatment of Organic Ligand

#11

INVITED

Chang-Lyoul Lee - Gwangju Institute of Science And Technology (GIST)

08:50

Revealing Spin and Charge States in Thin Film Semiconductor Devices via Operando Electron Spin Resonance

#518

INVITED

Kazuhiro Marumoto - University of Tsukuba

09:10

Tailoring spontaneous orientation polarization in organic thin-film devices for improved performance

#446

INVITED

Yutaka Noguchi - Meiji University

09:30

An Insight in the Role of Dopamine Acted in the Electroless Deposition Process using Surface and Interface Force Spectroscopy

#595

INVITED

Xiaomin Kang - University Of South China

09:50

New hole-transporting materials based on the NPB and m-MTDATA skeletons for optoelectronics

#131

Audrius Bucinskas - Kaunas University of Technology

10:05

Electronic structure of an organic Mott insulator $\cdots(\text{BEDT-TTF})\cdot\text{ICl}_2$ observed by angle-resolved photoelectron spectroscopy

#670

Ryotaro Nakazawa - Chiba University

Break Time

10:45

Organic chiral spin materials

#173

INVITED

Wei Qin - Shandong University

11:05

Intrinsically Stretchable Polymer Semiconductors for Polarimetric Organic Photodetectors

#313

INVITED

Byoung Hoon Lee - Ewha Womans University

11:25

Intentional Reduction of Charge-Carrier Density in Conducting Polymer Films for Organic Transistors

#664

INVITED

Felix Sunjoo Kim - Chung-ang University

11:45

Ion-Regulated Flexible Thin-Film Devices for Biomimetic Actuation and Intelligent Sensing

#304

INVITED

Shasha Wang - Nanjing University Of Posts And Telecommunications

12:05

Direct Observation of the Conduction Band Structure of Crystalline Pentacene by Angle-Resolved Low-Energy Inverse Photoemission Spectroscopy

#650

Issei Ishimori - Chiba University

AFTERNOON

13:30	HTL- & ETL-free Metal-Semiconductor-Metal Structure Organic Solar Cells INVITED Shinuk Cho - University of Ulsan	#129
13:50	Molecular and Electronic Structural variations in semiconducting polymers for organic photovoltaics INVITED Kyohei Nakano - RIKEN CEMS	#482
14:10	Quinoxaline-based Nonfullerene Acceptors for Highly Efficient Organic Solar Cells INVITED Feng Liu - Shanghai Jiao Tong University	#598
14:30	Engineering Exciton Dissociation Pathways for Efficient and Stable Organic Photovoltaic Devices INVITED Kangning Zhang - Shandong University	#305
14:50	Critical length screening enables high-performance thick-film organic solar cells Yuan Meng - Shandong University	#474
Break Time		
15:45	High-Performance All-Polymer Solar Cells INVITED Yanming Sun - Beihang University	#166
16:05	Effect of Intramolecular Vibrations on Electron and Hole Transport in Organic Semiconductors INVITED Hiroyuki Ishii - University of Tsukuba	#460
16:25	Self-Assembled Electret Thin Films: From Spontaneous Orientation Polarization to Charge-Free Vibrational Energy Harvesters INVITED Yuya Tanaka - Gunma University	#637
16:45	Revealing the influence of the dispersion property of charge transport on the stability of organic solar cells INVITED Hang Yin - Shandong University	#386

S13 Smart Materials and Microsystems (SMM)

Atrium Ballroom · Level 4

Chair: Yongqing FU (Northumbria University, UK)

08:35	Aluminum Nitride Piezoelectric Thin Films and FBAR Filters KEYNOTE Bin Yang - Hunan University, China	#140
09:00	Structural Designs of Flexible Strain Sensors for High Performance Sensing Based on Strain Synergetic Strategy INVITED Weijuan Wang - Hong Kong Polytechnic University, China	#283
09:20	Dynamic Control Method and Mechanism of Surface Acoustic Waves Mediated by Optical Virtual Interdigital Transducers INVITED Dengmu Cheng - Southwest Petroleum University, China	#562

09:40	Surface acoustic wave ice protection via piezoelectric film integrated aircraft wing leading edges Danny Blackburn - Northumbria University at Newcastle, UK	#24
09:55	High-Transconductance and Biocompatible OECTs for Direct, High-Precision Electrophysiological Signal Acquisition Mingxuan Huang - Zhjiang University, China	#365
Break Time		
10:45	Nitrogen Doping Induced Synergistic Tuning of SP³/SP² Bonds in Diamond-Like Carbon Films KEYNOTE Yufei Liu - Chongqing University, China	#157
11:10	Spontaneous droplet transport on shape-evolving microfiber rails INVITED Pingan Zhu - City University of Hongkong, China	#326
11:30	Ultrasound-Enabled Physical Catalysis for Electrochemical Energy and Biosensing Systems INVITED Pengzhan Liu - Nanjing Univrsity, China	#347
11:50	An ultrasensitive multimodal intracranial pressure biotelemetric system enabled by exceptional point and iontronics INVITED Jie Li - Hangzhou Dianzi University, China	#179
AFTERNOON		
13:30	Decoding Lipid Membrane Interactions via Electrical Signals for Intelligent Screening of Nanoscale Analytes INVITED Quannan Xue - Tianjin University, China	#412
13:50	Silicon-based piezoelectric MEMS ultra-thin active cooling device Jiafeng Ni - Zhejiang Univetrstity, China	#330
14:05	Ultraviolet Light-Activated Ultrahigh-Frequency Surface Acoustic Wave Sensor for DMMP Gas Detection with a 10 ppb Limit of Detection at Room Temperature Shengyu Wen - Hunan University, China	#202

S14 Surface Treatment & Protection (STP)

Sembawang · Level 3

Chair: Wan-Yu WU (National United University, Taiwan)

13:30	Fibers surface treatment to enhance fiber-polymer interfacial bonding and strengthen the composite properties INVITED Junhua Kong - A*STAR	#145
13:50	Plasma-Polymerized Organosilane Films as a Versatile Platform for Biofunctional Surface Engineering of Metallic and Ceramic Implants INVITED Shu-Chuan Liao - Tamkang University	#291
14:10	Modulating Surface States for Photoelectrocatalytic Selective Oxidation of Biomass-Derived Sugars INVITED Xin ZHAO - China Agricultural University	#37

14:30	Regulation Mechanism of Oxygen Plasma Etching on the Initial Frictional Interface and Long-Term Wetting Stability of Tetrahedral Amorphous Carbon (ta-C) Films INVITED Zhenhuai Yang - Jihua Laboratory	#488
14:50	Stability of titanium deuteride films irradiated with pulsed ion beams Tao Wang - Institute Of Fluid Physics, Caep	#634
15:05	Ultrathin Carbon-Based Overcoats for Superior Tribological Performance and Oxidation Control Rajesh Kumar - CSIR-AMPRI, Bhopal	#196
Break Time		
15:45	Multiscale Fabrication Pathways and Their Effects on Phase Stability, Microstructure, and Corrosion Resistance in CoCrFeNi Based HEAs INVITED Aphichart Rodchanarowan - Kasetsart University	#437
16:05	Enhancing Water Vapor Corrosion Resistance of Yb-SiO₂-Based Environmental Barrier Coatings on Nb Alloy via Oxide-Modifications Hongkang Ou - Northwestern Polytechnical University	#109
16:20	Adsorption and Corrosion Inhibition Behaviour of 1,3,4-Thiadiazole Schiff Base on Mild Steel: A Thermodynamic and Electrochemical Study Sheetal Kundu - Netaji Subhas University Of Technology, New Delhi, India	#593
16:35	Polydopamine Enabled Localized Boronic-Ester Vitrimers Interphase for Enhanced Interlaminar Fracture Toughness and Impact Recoverability in CFRP Laminates Ruonan Zhang - Northwestern Polytechnical University	#300

S15 Thin Film Devices (TFD)

Sembawang · Level 3

Chair: Dong-Sing WUU (National Chi Nan University, Taiwan)

08:30	PEALD-grown HfO₂-based thin films and their applications in thin film transistors INVITED Xiao-Ying Zhang - Xiamen University Of Technology	#389
08:50	Conformal Ultrathin Metal Films on Curved Substrates: Fabrication and Applications INVITED Heyan Wang - IHPC	#636
09:10	Ultra-Thin Diffractive Axicon Thin-Film Sensor Fabricated by Femtosecond Laser for High-Precision Tilt Angle Detection Shufan Li - Xiamen University of Technology	#586
09:25	Manufacturing of thin-film thermocouples on curved surfaces Xiaoyi Zhang - Beihang University	#545
09:40	High-Performance Light-Emitting Transistors with 3D Mesh Source Electrodes Fabricated by Laser Direct Writing Lithography Qizhen Chen - Xiamen University Of Technology	#544
09:55	Development of novel -In₂Se₃ thin films based Electrochemical Metallization Random Access Memory Satyam Garg - Miranda House, University Of Delhi - 110007	#700
10:10	Development of Broadband Photodetectors using Semiconductor-based Thin Films Y. Ashok Kumar Reddy - Indian Institute of Information Technology, Design And Manufacturing (IIITDM) Kancheepuram	#261
Break Time		

10:45	Electronic synapses based on ZnTiO ₃ memristors INVITED Zhen Liu - Guangdong University of Technology	#582
11:05	From Radical Engineering to Manufacturing: A Complete Technical Roadmap for Nitride Thin Films via Microwave Plasma-Enhanced ALD INVITED Pao-Hsun Huang - Jimei University	#587
11:25	Realization of asymmetric resistive switching (RS) characteristics in p-NiO/CFO/n-ZnO multilayers for nonvolatile memory applications Shahnaz Kossar - GNA University Punjab	#10
11:40	Process Window and Growth Characteristics of 8-Inch TiN Thin Films by Microwave Plasma-Assisted Atomic Layer Deposition zongyue Li - Jimei University	#590
11:55	Optimizing Li ₃ xLa _{2/3-x} TiO ₃ Thin Films deposited on Al ₂ O ₃ substrate via Physical Vapor Deposition technique for pH Sensor Applications Thi Thuy Linh Nguyen - Paris-saclay University	#55
12:10	The influence of performance optimization of W doped MoO ₃ transparent electrode on the properties of cadmium zinc telluride nuclear radiation detector Zhaoran Guan - School Of Materials Science And Engineering, Shanghai University	#159
12:25	Low-Hysteresis MoS ₂ thin film Transistors with Intrinsic Carrier Switching Enabled by Polymer-Capped Gate Dielectrics Rupali Srivastava - Iit Delhi	#614

SS3 Nanoscale Surfaces, Interfaces, and Thin Films for Next-Generation Solid Oxide Cells

Seletar2 - Level 3

Chair: Pei-Chen SU (Nanyang Technological University, Singapore)

08:30	Atomic Layer Surface Engineering of Solid Oxide Cell Electrodes INVITED Jihwan An - Pohang University of Science and Technology (POSTECH)	#164
08:55	Solid Oxide Fuel Cells: From Materials Research to Industrial Fabrication INVITED Li Zhipeng - Northwestern Polytechnical University	#604
09:20	Alloy-Based Electrode Active Materials for Solid-State Fluoride Batteries INVITED Munekazu Motoyama - Kyushu University	#227
09:45	Dense Thin-Film BZCYb Electrolyte via Perovskite-Assisted Low temperature-Sintering for High-Performance Protonic Ceramic Cells Kwangho Park - Nanyang Technological University	#321
10:00	Enhanced Stability and Electrocatalytic Activity of Nanoporous Silver Cathodes via Two-Step Electrochemical Deposition of PrOx Overlayers Hyunseung Kim - Nanyang Technological University	#267
Break Time		
10:45	Toward Understanding and Regulating the Electrode-Electrolyte Interfacial Chemistry of Layered Oxide Cathodes under High-Voltage Operation for Sodium-Ion Batteries Zhigao Chen - Northwestern Polytechnical University	#411

11:00	Rare-Earth Nd-Doped Sr₂Fe_{1.6}Cu_{0.4}O₆- Double Perovskite Cathode: Mechanistic Insights into Oxygen Electrocatalysis for Reversible LT-SOFCs Yuzheng Lu - Nanjing Xiaozhuang University	#452
11:15	Efficient Fabrication of LaGaO₃-Based SOFCs via Low-Temperature Electrode Co-sintering Hye Young Kim - Korea Institute Of Ceramic Engineering And Technology	#493
11:30	Enhanced proton transport and chemical stability in multi-cation doped perovskites enabled by grain boundary engineering and bilayer electrolyte design Baoshui Wu - China University Of Mining And Technology	#535
11:45	DIRECT AMMONIA TUBULAR PROTONIC CERAMIC FUEL CELLS Zichen Zhuang - China University of Mining and Technology	#540
12:00	Hydrogen-free exsolution of Ir-Fe nanoalloys on the surface of solid oxide cell perovskite air electrodes Jiyeon Shin - Nanyang Technological University	#293