

THINFILMS2024

The 10th International Conference on
Technological Advances of Thin Films & Surface Coatings

15th – 19th July 2024, Singapore



Organizer



Held in



Co-organizer



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Emergency Contacts

Emergency Ambulance and Fire	Dial 995
Police Emergency	Dial 999
Emergency Kit Location	Hotel help desk (hotel lobby)

Chair's Message

Dear Delegates of ThinFilms2024, friends old and new, ladies and gentlemen,

Good morning and welcome back to Singapore! After our last get together in 2018 at Shenzhen, China, the unprecedented challenges of Covid-19 prevented us from convening for two editions (2020, and 2022) of this conference. Today, the skies have cleared, and we are delighted to gather once again in Singapore. Thank you all for returning, and a warm welcome to those joining us for the first time. I assure you, you've chosen the right conference, and by its conclusion, you'll share this same sentiment.



For those new to **ThinFilms2024**, this conference marks the **10th biennial International Conference on Technological Advances of Thin Films & Surface Coatings**, with the 1st conference dated back in 2002. This conference series serves as a vital platform for knowledge exchange among researchers, engineers from industry, research laboratories, and academia. Over time, our scope continues to evolve to demonstrate the cutting-edge research topics. This year, we feature **12 Symposia** covering diverse areas, which is detailed in the symposia page of the program book. Additionally, we introduced **3 Special Symposia** to foster collaboration on current research and applications. These **total 15 symposia** from biological coating to clean energy, from mechanical to optical, from organic to optoelectronic, from theory to industrial applications, covering almost all aspects of thin films and coatings.

This edition of the conference received **over 600 abstracts from 36 countries/regions**, including Mainland China & Hong Kong (42.17%), Taiwan (19.45%), Europe (12.56%), Korea (6.71%), Singapore (6.71%), Southeast Asia (4.65%), Japan (2.41%), America and Oceania (2.07%), South Asia (1.72%), and the Middle East (1.55%). Notably, we welcome a significant number of **industrial participants** from China's southern region, particularly Shenzhen and the surrounding cities, demonstrating a strengthening link between academia and industry through our conference.

We are honoured to host **6 esteemed plenary lecturers**, each offering insights into cutting-edge developments in their respective fields. These lectures promise to enrich our discussions and expand our horizons. We are grateful to all the plenary speakers to share their knowledge with the community.

We are privileged to have **Beijing Vikaitech (北京维开科技)** as our **Gold Sponsor**, **Anhui Chunyuan Coating Technology (安徽纯源镀膜科技)** as our **Silver Sponsor**, and **Flucent Limited (瞬辉有限公司)** as our **Bronze Sponsor**. We extend our gratitude to **all industrial sponsors and exhibitors** for their support and live demonstrations of thin films and coatings products to enrich this conference.

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I'd like to take this opportunity to express my heartfelt thanks to our **symposium chairs and co-chairs**, whose dedication has been instrumental in shaping this event. Their efforts have ensured a robust program covering a wide range of disciplines from theoretical foundations to practical applications. Their commitment and expertise have been indispensable in creating an enriching experience for all participants.

Furthermore, the success of the conference owes a debt of gratitude to the **organizing committee**. I extend my special appreciation to these individuals and all members of the local committee who sacrificed many weekends and late evenings to ensure every detail was meticulously handled.

This conference spans four busy days, accommodating around 600 presentations including posters. As you immerse yourself in the latest research, do take the opportunity to enjoy Singapore's vibrant surroundings. The area around the conference hotel and the bay offers stunning night views—do not miss the chance to explore.



Dr. Sam Zhang
Conference Chair, ThinFilms2024
President, Thin Films Society & <http://www.thinfilms.sg/>
Professor, School of Aeronautics, Harbin Institute of Technology and
Professor, HIT Zhengzhou Research Institute, China

【薄膜 2024】国际薄膜材料大会致辞

哈工大郑州研究院 张宏

尊敬的各位学者、青年才俊们：

大家好！

我是哈工大郑州研究院张宏，感谢国际薄膜学会邀请哈工大郑州研究院参与这次新加坡国际薄膜大会的组织工作。欢迎大家来到新加坡参加【薄膜 2024】国际薄膜材料大会。

七月的新加坡，热情如火，正如我们对于科技发展的热情与追求。在这个充满活力的季节里，我们齐聚一堂，共享国际薄膜材料盛宴。我代表哈工大郑州研究院，向大会的召开表示热烈祝贺，向所有参会的学者专家们表达最诚挚的敬意和欢迎。

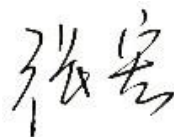
哈工大郑州研究院作为一所以科研创新和人才培养为己任的高校研究院，是哈工大在郑州教育、科研的总体牵头单位。研究院始终牢固树立“人才是第一资源”理念，继承哈工大“大师+团队”传统和特色，坚持以高端人才引育一流人才，相继引进包括我们这次薄膜大会主席张善勇老师在内的海内外学者和青年博士等人才 70 余人，初步建成一支由国家级人才领衔的 200 余人的国际化人才队伍。为了让引进人才干事有平台、事业有发展，研究院购置了超过 2.3 亿元人民币的设备，近 20 万平米的二期科研综合楼年底就投入使用，引进人才中获得全国“五一”劳动奖章者 1 人、河南省中原英才引才计划入选 7 人；研究院已获批国家博士后科研工作站，引进的博士后获批中国博士后科学基金面上项目 14 项，国家博士后资助计划 14 项（申报入选率达 67%），入选海外博士后引进计划 1 项。

研究院地处中国河南省会郑州，是中国中部地区重要中心城市，国家重要综合交通枢纽，是华夏文明的重要发祥地、国家历史文化名城。近年来实行更具竞争力的人才引育政策，优化宜居宜业的高品质人才生态，投入“真金白银”全力“打造青年发展友好型标杆城市”，建设国内一流、国际知名的人才高地。

创新之道，唯在得人。当前，哈工大郑州研究院正处于高速发展时期，比任何时候都渴求人才、厚爱人才。我再次诚邀海内外英才加盟研究院、圆梦研究院，相信大家一定能在中原大地这片历史厚土、创新热土上点燃希望，成就梦想！

此次国际薄膜材料大会汇聚了世界各地的顶尖科研人才和行业领军人物，共同探讨薄膜材料领域的最新研究进展、技术创新及产业应用。它不仅是一个学术交流的平台，更是一个促进国际合作、推动科技进步的重要窗口，在此祝大家交流顺畅，收获满满，我们郑州再见！

谢谢大家！



哈工大郑州研究院

2024 年 7 月 16 日

Organizing and Technical Committee

Conference Chair

Sam Zhang, President, Thin Films Society / Harbin institute of Technology, China

International Steering Committee

Jiecai HAN, Chair of International Steering Committee / President, Harbin institute of Technology, China

André ANDERS, Editor-in-Chief, Journal of Applied Physics, Germany

Suk Won CHA, Seoul National University, Korea

Jingsong GAO, Changchun Institute of Optics, Fine Mechanics and Physics, Chinese Academy of Sciences, China

Takashi GOTO, Tohoku University, Japan

Ivan PETROV, University of Illinois Urbana Champagne, USA

Jyh-Ming TING, National Cheng Kung University, Taiwan

Xueji ZHANG, Shenzhen University, China

Organizing /Technical Committee

Zhong CHEN, Nanyang Technological University, Singapore

Pao-Hsun HUANG, Jimei University, China

Zhaohong HUANG, Singapore Institute of Manufacturing Technology, Singapore

Jing LIU, Jimei University, China

Shiyu LIU, Advanced Manufacturing Training Academy, Singapore

Guojun QI, former Secretary-General of TFS

Pei-Chen SU, Nanyang Technological University, Singapore

Yuefan WEI, Singapore Institute of Manufacturing Technology, Singapore

Hong XIE, Singapore Institute of Manufacturing Technology, Singapore

and all symposium chairs and co-chairs listed below.

Symposium Chairs / Co-Chairs

1. 2D Materials (2DM)

Yu ZHOU, Central South University, China

Xiaolong CHEN, Southern University of Science and Technology, China

2. Biomedical and Healthcare (BHC)

Yixiang OU, Beijing Academy of Science and Technology, China

Peng-An ZONG, Nanjing Tech University, China

3. Surface Treatment & Protection (STP)

Wan-Yu WU, National United University, Taiwan

Zhong CHEN, Nanyang Technological University, Singapore

4. Energy & Sustainability (ENS)

Lidong SUN, Chongqing University, China

Pei-Chen SU, Nanyang Technological University, Singapore

Chuankun JIA, Changsha University of Science and Technology, China

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- 5. Coating towards Industrial Applications (CIA)**
Deen SUN, Southwest University, China
Yanwen ZHOU, University of Science & Technology Liaoning, China
- 6. Materials Simulation, Design & AI (MSD)**
Jianwei ZHENG, Institute of High-Performance Computing, Singapore
Chonghe LI, Shanghai University, China
Chenghua SUN, Swinburne University of Technology, Australia
- 7. Nanostructures, Nanocomposites & Nanoparticles (NNN)**
Yujie CHEN, The University of Adelaide, Australia
Sam ZHANG, Hairbin Institute of Technology, China
- 8. Optical Thin Films (OTF)**
Xinbin CHENG, Tongji University, China
Xiaoyi WANG, Changchun Institute of Optics, Fine Mechanics and Physics, CAS, China
- 9. Organic Electronics and Photonics (OEP)**
Xiaotao HAO, Shandong University, China
Hiroyuki YOSHIDA, Chiba University, Japan
Han Young WOO, Korea University, South Korea
- 10. Smart Materials and Microsystems (SMM)**
Yongqing FU, Northumbria University, UK
Jian ZHOU, Hunan University, China
Jingting LUO, Shenzhen University, China
- 11. Thin Film Devices (TFD)**
Dong-Sing WUU, National Chung Hsing University, Taiwan
Shui-Yang LIEN, Xiamen University of Technology, China
- 12. The 2nd Int'l Symposium on Smart Coating Techniques (SMT)**
Jiaqi ZHU, Harbin Institute of Technology, China
Huaiyuan WANG, Tianjin University, China
Kun-Lin YANG, National University of Singapore, Singapore
- 13. [Special Symposium-1] Korea-Singapore Joint Science and Engineering (KSC)**
Suk Won CHA, Seoul National University, Korea
Yun Seog LEE, Seoul National University, Korea
Yong Jin YOON, Korea Advanced Institute of Science and Technology, Korea
- 14. [Special Symposium-2] Part Surface Technology and Green Manufacturing (PST)**
Yuhou WU, Shenyang Jianzhu University, China
Ke ZHANG, President and Professor, Shenyang University of Technology
Songhua LI, Shenyang Jianzhu University, China
He WANG, Shenyang Jianzhu University, China
- 15. [Special Symposium-3] Carbon-Based Films and Hard Coating Technology (CBF)**
Lang HU, Jihua Lab, China
Qimin WANG, Guangdong University of Technology, China

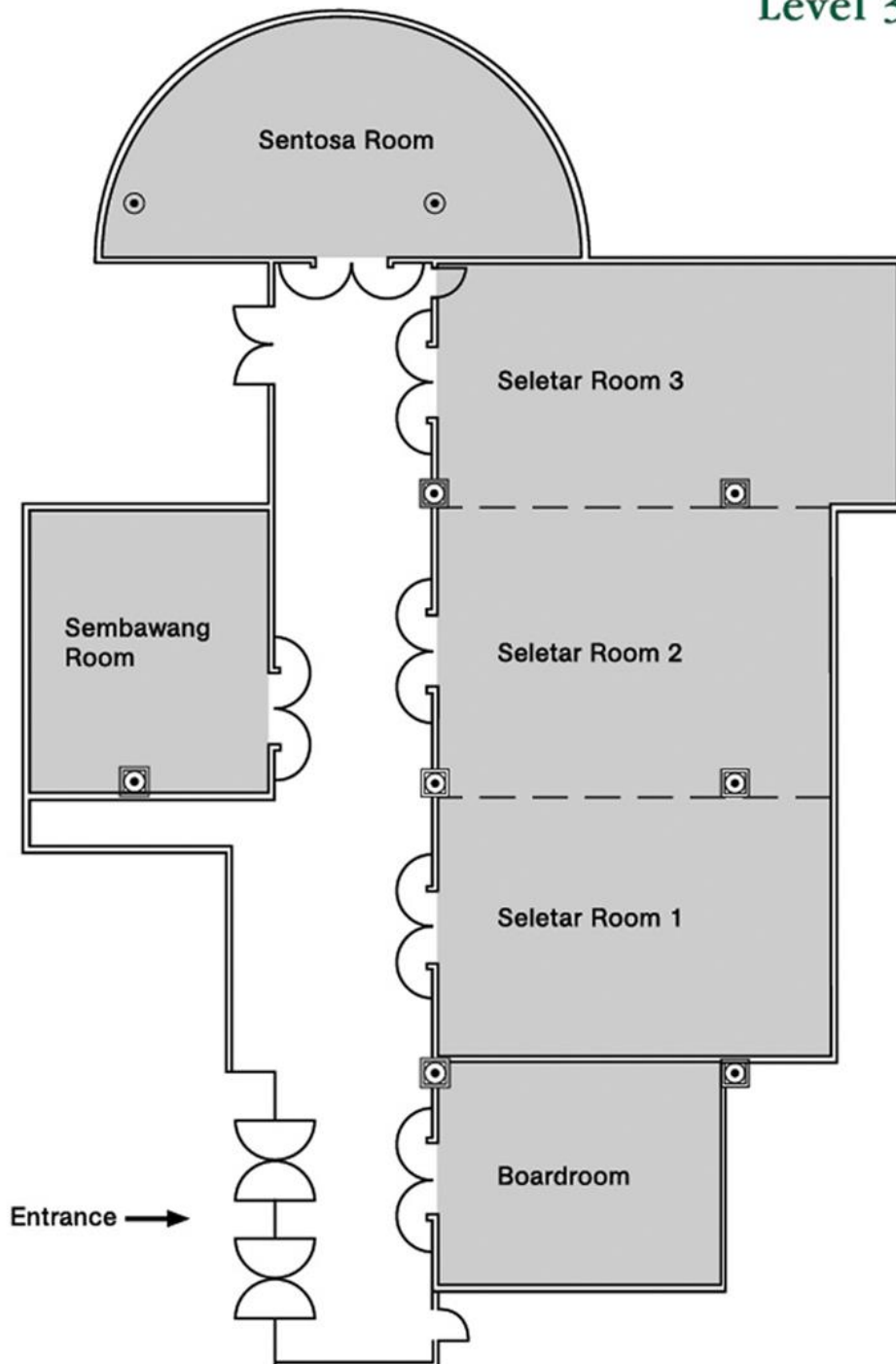
Layout of Conference Venue

Holiday Inn Atrium, 317 Outram Road, Singapore 169075

Registration Desk: Hotel Lobby

3rd Floor (Level 3) Plan for Symposia

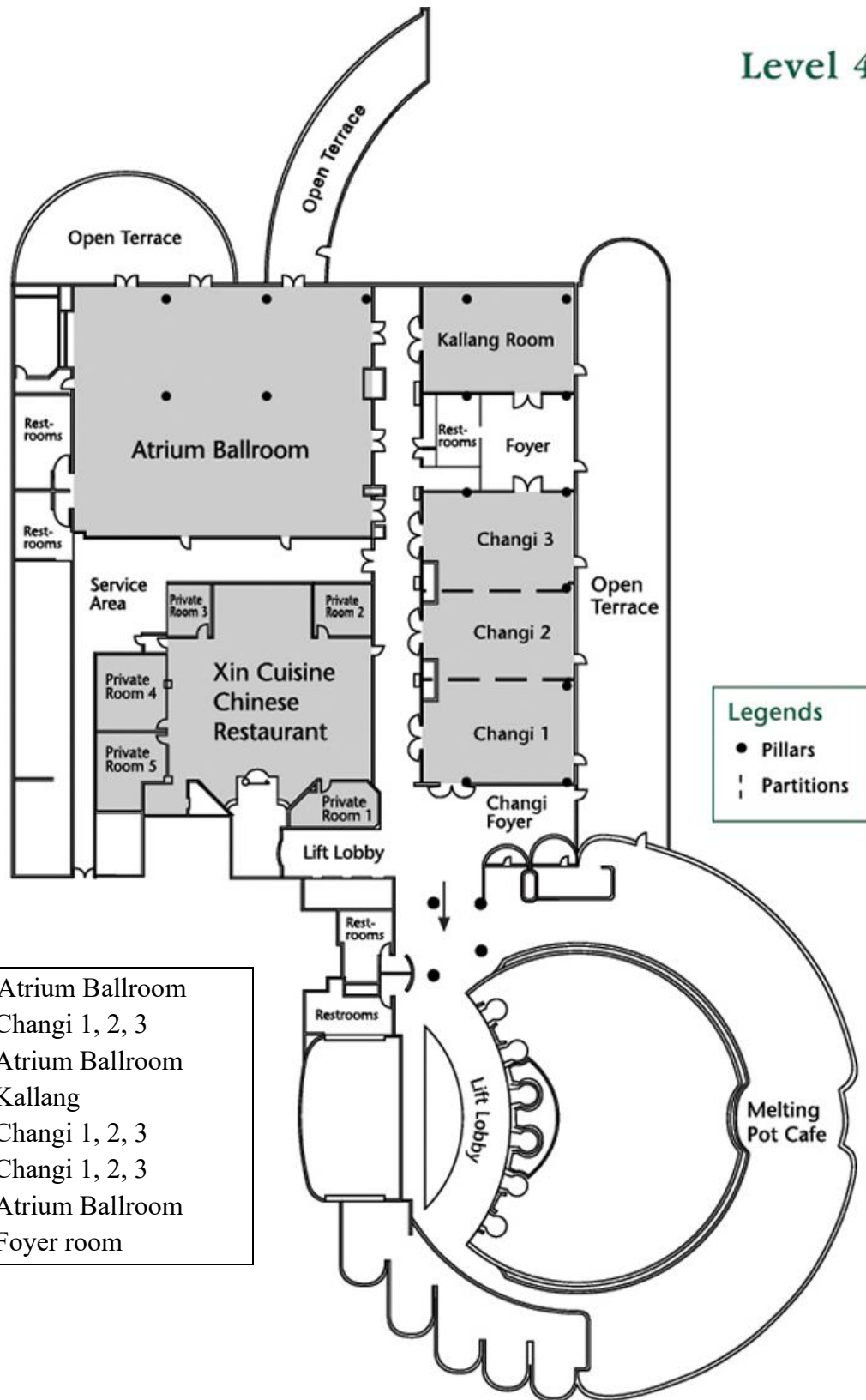
Level 3



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4th Floor (Level 4) Plan for Opening Ceremony, Symposia, Posters & Exhibition

Level 4



Opening Ceremony:	Atrium Ballroom
Exhibition:	Changi 1, 2, 3
Posters:	Atrium Ballroom
Symposia:	Kallang
Lunch:	Changi 1, 2, 3
Tea break:	Changi 1, 2, 3
Banquet:	Atrium Ballroom
TFS Office:	Foyer room

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Program at a Glance

Time	Program					
[Day 1] 15 July (Mon)						
14:00~19:00 Registration (Registration Counter)						
[Day 2] 16 July (Tue)						
08:30~17:00 Registration (Registration Counter)						
8:30	Opening Ceremony					4 th Floor Atrium Ballroom
8:40	Plenary Talk 1, 2, 3					
10:10	Tea Break					
10:40	Plenary Talk 4, 5, 6					4 th Floor, Atrium Ballroom
12:10	Lunch					4 th Floor, Changi 1~3
13:30	OEP Kallang	STP Seletar 1	SMM Seletar 2	2DM Seletar 3	SMT Sentosa	CIA Sembawang
15:00	Tea Break					
15:30	OEP Kallang	STP Seletar 1	SMM Seletar 2	2DM Seletar 3	SMT Sentosa	CIA Sembawang
17:30	Free & Easy					
[Day 3] 17 July (Wed)						
08:30	Poster Session					4 th Floor Atrium Ballroom
10:00	OEP Kallang	STP Seletar 1	SMM Seletar 2	2DM Seletar 3	CBF Sentosa	MSD Sembawang
12:00	Lunch					4 th Floor, Changi 1~3
13:30	OEP Kallang	STP Seletar 1	SMM Seletar 2	2DM Seletar 3	CBF Sentosa	MSD Sembawang
15:00	Tea Break					
15:30	OEP Kallang	STP Seletar 1	KSC Seletar 2	2DM Seletar 3	ENS Sentosa	TFD Sembawang
18:30	Banquet					4 th Floor Atrium Ballroom
[Day 4] 18 July (Thu)						
8:00	OEP Kallang	STP Seletar 1	PST Seletar 2	OTF Seletar 3	ENS Sentosa	OEP Sembawang
10:00	Tea Break					
10:30	OEP Kallang	TFD Seletar 1	PST Seletar 2	OTF Seletar 3	ENS Sentosa	OEP Sembawang
12:00	Lunch					4 th Floor, Changi 1~3
13:30	OEP Kallang	TFD Seletar 1	PST Seletar 2	BHC Seletar 3	NNN Sentosa	
15:00	Tea Break					
15:30	OEP Kallang		PST Seletar 2	BHC Seletar 3		
[Day 5] 19 July (Fri)						
Technical Tour (Limited Seats) * NTU / Cleantech Park						
* Sign-up at Registration Counter is required. A refundable S\$10 deposit will be collected to confirm the attendance.						

2DM 2D Materials **BHC** Biomedical and Healthcare **CBF** Carbon-Based Films and Hard Coating Technology **CIA** Coating towards Industrial Applications **ENS** Energy & Sustainability **KSC** Korea-Singapore Joint Science and Engineering Special Symposium **SMM** Smart Materials and Microsystems **SMT** The 2nd International Symposium on Smart Coating Techniques **STP** Surface Treatment & Protection **MSD** Materials Simulation, Design & AI **NNN** Nanostructures, Nanocomposites & Nanoparticles **OEP** Organic Electronics and Photonics **OTF** Optical Thin Films **PST** Part Surface Technology and Green Manufacturing **TFD** Thin Film Devices

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Opening Ceremony and Plenary Talks

Day 2 (Tuesday, 16 July) 08:30 – 12:00 | Atrium Ballroom, 4th Floor

Time	Program
08:30	Opening Ceremony
Plenary Talk Session 1 Session Chair: Prof. Sam Zhang	
08:40	Bioinspired Surfaces – from New Materials to Sustainable Robotics Prof. Eduard ARZT University of California San Diego, USA INM – Leibniz Institute for New Materials and Saarland University, Saarbrücken, Germany
09:10	Hydrogen Absorption in Metal Oxide Thin Films Prof. Katsuyuki FUKUTANI University of Tokyo, Japan
09:40	Gallium Oxide Semiconductors: Thin Film Deposition, Material Characterization, and Device Applications Prof. Dong-Sing WUU National Chi Nan University, Taiwan
10:10	Tea Break
Plenary Talk Session 2 Session Chair: Prof. Pei-Chen Su	
10:40	Infrared Transparency and Conductivity Prof. Jiaqi ZHU Harbin Institute of Technology, China
11:10	Hydrogen Effects on the Mechanical Behavior of High Entropy Alloys Probed Using Nanoindentation Prof. Ramamurty UPADRASTA Nanyang Technological University, Singapore
11:40	Near-infrared and Visible Light Dual-mode Organic Photodetectors and Applications Prof. Furong ZHU Hong Kong Baptist University, Hong Kong

Program Details

Day 2 (Tuesday, 16 July) 13:30 – 15:00

OEP | Organic Electronics and Photonics | Kallang
Session Chairs: Xiaotao Hao, Han Young Woo

13:30	Invited	10397	Photophysics and Structure of 2D Perovskite Films for Optoelectronics Kenneth P. Ghiggino (University Melbourne)
13:45	Invited	10285	High-Performance All-Polymer Solar Cells Yanming Sun (Beihang University)
14:00	Invited	10020	Design Strategy of Organic Semiconducting Materials for Organic Electronics Yun-Hi Kim (Gyeongsang National University and Rima)
14:15	Invited	10477	High-Performance See-Through Organic Solar Cells Chang-Zhi Li (Zhejiang University)
14:30	Invited	10433	Investigation on Hole Transfer Dynamics during Charge Separation Process in Non-Fullerene Organic Solar Cells Shinuk Cho (University of Ulsan)
14:45	Oral	10522	Multiple-Temporal Scale Exciton Dynamics in Organic Photovoltaics Kangning Zhang (Shandong University)

STP | Surface Treatment & Protection | Seletar 1
Session Chairs: Jyh-Wei Lee, Takahiro Nagata

13:30	Invited	10416	Exploring the Mechanical Properties and Corrosion Resistance of Hydrogenated Metal Carbide Coatings Grown by Reactive Superimposed HiPIMS-MF Deposition System Jyh-Wei Lee (Ming Chi University of Technology)
13:50	Invited	10432	Surface Treatment and Interface Control of Compound Semiconductor-Based Materials for Electronic Devices Takahiro Nagata (National Institute for Materials Science)
14:10	Invited	10389	Surface Defect Engineering on the Improvement of Photoelectrocatalytic Performance Xin Zhao (China Agricultural University)
14:30	Invited	10529	Assessment of Nickel-Plating Processes for Corrosion Protection of Copper Substrate Huang Zhaohong (Singapore Institute of Manufacturing Technology, Agency for Science, Technology and Research)
14:50	Oral	10064	Deicing Performance Based on Piezoelectric Materials Coupled with a Porous Coating. Lingfeng Zhao (Nanjing University of Aeronautics and Astronautics)
15:05	Oral	10300	Development of TiAlCuN Coatings with High Erosion, Cavitation and Antibacterial Properties for Marine Applications Jian Chen (Southeast University)

Program Details

Day 2 (Tuesday, 16 July) 13:30 – 15:00

SMM | Smart Materials and Microsystems | Seletar 2

Session Chairs: Richard Yongqing Fu, Jia Zhang

13:30	Invited	10085	Recent Advances in Piezoelectric Thin Films and Applications Des Gibson (University of the West of Scotland)
13:50	Invited	10217	Interplay of Structure and Properties in Piezoelectric Aluminum Nitride Thin Films Bin Yang (Hunan University)
14:10	Invited	10144	Performance Improvement of a Shear Horizontal Surface Acoustic Wave Biosensor Integrated with Rayleigh Wave Streaming Chen Fu (Shenzhen University)
14:30	Oral	10016	Machine Learning Empowered New Applications of Thin-Film Flexible Surface Acoustic Wave Devices Zhangbin Ji (Hunan University)
14:45	Oral	10006	Monitoring, Sensing, and Mitigation of Condensation, Frost, and Ice Formation on Glass in Cold Environments via Thin Film Surface Acoustic Waves Hui Ling Ong (Northumbria University)
15:00	Oral	10054	Integration of Acoustofluidics, Sensing and Printing Circuit Board Technologies Dengmu Cheng (Southwest Petroleum University)

2DM | 2D Materials | Seletar 3

Session Chairs: Xiaotao Hao, Han Young Woo

13:30	Invited	10039	Atomic Structure-Properties Study of Defects in Emerging 2D Materials Junhao Lin (Southern University of Science and Technology)
13:50	Invited	10483	On-Chip Electrocatalytic Investigation of 2D Molybdenum Phosphides Qiyuan He (City University of Hong Kong)
14:10	Invited	10543	Optoelectronic Property Tuning in Molybdenum Ditelluride via Lattice Structure Manipulation Ya-Qing Bie (Sun Yat-Sen University)
14:30	Invited	10050	Plasmon-Engineered Low-Power Optoelectronic Synaptic Devices based on 2D Materials Ziwei Li (Hunan University)
14:50	Oral	10446	Electrical Properties and Evaluation of Band Tail States in Mg doped p-type h-BN Multilayer Films Niall Tumilty (National Yang Ming Chiao Tung University)
15:05	Oral	10403	Phase-Controlled Synthesis and Element Doping Engineering of 2D Nonlayered Cr-based Semiconductors Xiulian Fan (Central South University)

Program Details

Day 2 (Tuesday, 16 July) 13:30 – 15:00

SMT | The 2nd International Symposium on Smart Coating Techniques | Room: Sentosa
Session Chairs: Zhongqiang Yang, Kun-Lin Yang

13:30	Invited	10588	Nanophotonics Enabled Mid-Infrared Artificial Intelligence (AI) Sensing Systems Chengkuo Lee (National University of Singapore)
13:50	Invited	10566	Using Liquid Crystal Films to Develop Smart Cloud Sensors for Real-Time Environmental Monitoring Chih-Hsin Chen (Tamkang University)
14:10	Invited	10510	Photoelectric and Sensing Properties of Tin Oxide Infrared Transparent Conducting Films Liangge Xu (Harbin Institute of Technology)
14:30	Oral	10080	Effect of Plasma State on Microstructures and Properties of Vanadium Dioxide Films during Deposition Zhenhuai Yang (Jihua Laboratory)
14:45	Oral	10308	Design and Growth of Infrared Transparent Conductive Films and Coupling Mechanism between Optical and Electrical Properties Gang Gao (Harbin Institute of Technology)
15:00	Oral	10475	Phase Transition and Property Analysis of VO₂ Thermochromic / Photochromic Films in Mid-Infrared Optical Modulation Fei Xia (Harbin Institute of Technology)

CIA | Coating towards Industrial Applications | Sembawang
Session chairs: Deen Sun

13:30	Invited	10524	Research Progress in the Design, Preparation, and Application of Advanced Functional Coating Materials by Plasma Enhanced Physical Vapor Deposition Yanfeng Wang (Northwest Institute for Non-Ferrous Metal Research)
13:50	Invited	10593	Progress of Surface Engineering Research on Wear Resistance of Nuclear Fuel Cladding Tubes Zhen Bing Cai (Southwest Jiaotong University)
14:10	Oral	10105	Study of Magnetron Sputtered Cr/FeCrAl Multilayer Coatings on Zr Substrates for Accident Tolerant Fuel Claddings Xiaoling Yang (Chongqing University)
14:25	Oral	10164	Revealing Failure Mechanism of Ti/TiN/TiAlN Multilayer Coatings Erosion Resistance and Micropillar Compression Jingjun Yan (Ningbo Institute of Materials Technology and Engineering)
14:40	Oral	10178	Design, Preparation and Service Behavior of MAX Phase Coatings Zhenyu Wang (Ningbo Institute of Materials Technology and Engineering)
14:55	Oral	10296	Preliminary study of α-Ta multilayer alternating coating: through bias control Xiaoyun Ding (University of Science and Technology Beijing)
15:10	Oral	10297	Effect of Nitrogen Flow on the Structural and Properties of TiVCrNiSi(N) High Entropy Nitride Coating Deposited by Arc Ion Plating Menghui Cui (University of Science and Technology Beijing)

Program Details

Day 2 (Tuesday, 16 July) 15:30 – 17:30

OEP | Organic Electronics and Photonics | Kallang
Session Chairs: Ken Ghiggino, Yanming Sun

15:30	Invited	10355	M-Series Nonfullerene Acceptors for Polymer Solar Cells Qingdong Zheng (Nanjing University)
15:45	Invited	10338	Highly Efficient Organic Solar Cells Ziyi Ge (Ningbo Institute of Materials Technology and Engineering)
16:00	Invited	10339	High Performance Organic Solar Cell Materials and Devices Qiang Peng (Sichuan University)
16:15	Invited	10480	Recent Progress in Organic Photovoltaic Materials Yingping Zou (Central South University)
16:30	Invited	10580	High-Performance Perovskite/Organic Tandem Solar Cells with Open Circuit Voltage Exceeding 2.2 V Jin Young Kim (Ulsan National Institute of Science and Technology)
16:45	Invited	10314	Reducing the Non-Radiative Charge Recombination for High-Performance Organic Solar Cells Lijian Zuo (Zhejiang University)
17:00	Invited	10045	Extracting Charge Carrier Mobility in Organic Solar Cells Hang Yin (Shandong University)
17:15	Oral	10046	Stabilizing Interfaces with Ordered Polymer Layers in Planar- and Bulk-Heterojunction Organic Solar Cells Yujie Xu (Shandong University)

STP | Surface Treatment & Protection | Seletar 1
Session Chairs: Zhili Dong, Zhong Chen

15:30	Invited	10249	Raman Spectroscopy Determination of Structures and Properties of 2D-M1-xM'xX2 and 2D-MX'2xX2(1-x) Alloys Zhili Dong (Nanyang Technological University)
15:50	Invited	10555	Surface Problems and Improvement of Modified Tungsten Used in Nuclear Fusion Reactor Yucheng Wu (Hefei University of Technology)
16:10	Invited	10534	Hybrid-Biotaxonomy-Like Self-Training Reinforcement Deeping Learning to Predict Treatment of Au/Ag Nanoparticles on ZnO Nanorods Yen-Hsun Su (National Cheng Kung University)
16:30	Invited	10406	Enhancement of Photoelectrochemical Performance by Air-based Sputtering Deposition of N-TiO2/TiN(O) Multilayer Films Fu-Hsing Lu (National Chung Hsing University)
16:50	Oral	10094	Simulation-Assisted Design and Optimization of Patterned Surfaces for Enhanced Water Harvesting Efficiency Chen Xingyu (Nanyang Technological University)
17:05	Oral	10076	Surface Modifications of Mg Rare Earth Alloys by High Current Pulsed Electron Beams Kemin Zhang (Shanghai University of Engineering Science)
17:20	Oral	10103	Depletion of Metallization Pads in Sn-xAg-0.5Cu Micro Joints with Different Surface Finishes Chih-Chieh Huang (Yuan Ze University)
17:35	Oral	10134	Effect of Propynol on Nickel Coating on Battery Steel Shell and its Mechanism of Action Li Mingshi (Northeastern University)

Program Details

Day 2 (Tuesday, 16 July) 15:30 – 17:30

SMM | Smart Materials and Microsystems | Seletar 2

Session Chairs: Des Gibson, Chen Fu

15:30	Invited	10265	Flexible Electronic Skins and its Application in Human-Robot Collaboration Jia Zhang (Harbin Institute of Technology)
15:50	Invited	10002	Acoustofluidics Olympics: Piezoelectric Thin Films can be Amazing Richard Fu (Northumbria University)
16:10	Oral	10032	Droplet transformation behaviours of various hydrophobic surfaces in superstate platforms using thin film acoustic wave technology Luke Haworth (Northumbria University)
16:25	Oral	10203	Deep Learning Spatiotemporal Visualization of Label-Free Single-Cell Fate through Vibration Microstreaming Yinning Zhou (University of Macau)
16:40	Oral	10291	A Facile Synthesis of Crystalline PVTF Film for Biomedical Application Qin Luo (Zhejiang University)
16:55	Oral	10182	PVTF-ZNR Composite Film with Controllable Embedding Degree and its Modulation of Macrophages Polarization Siyuan Fan (Zhejiang University)
17:10	Oral	10018	Flexible thin film surface acoustic wave technology for transdermal drug delivery Jikai Zhang (Northumbria University)
17:25	Oral	10283	Color-changing Hydrogel in Response to Dual Temperature/pH Stimulation Lin Yao (Shanghai Jiao Tong University)

2DM | 2D Materials | Seletar 3

Session Chairs: Yu Zhou, Xiaolong Chen

15:30	Invited	10528	In Situ Dual-Interface Passivation Strategy Enables the Efficiency of Formamidinium Perovskite Solar Cells over 25% Yuchuan Shao (Shanghai Institute of Optics and Fine Mechanics, Chinese Academy of Sciences)
15:50	Invited	10527	In-Memory Sensing and Computing based on Ferroelectric Materials Bobo Tian (East China Normal University)
16:10	Invited	10506	Mixed-Dimensional van der Waals Heterostructures for Novel Optoelectronic Devices Qisheng Wang (Nanchang University)
16:30	Invited	10040	Photovoltaic Effect in Low-Dimensional vdW Structures and its Application Xiaolong Chen (Southern University of Science and Technology)
16:50	Invited	10037	Controlled Growth and Device Application of Two-Dimensional Ferro-Semiconductors Yu Zhou (School of Physics, Central South University, China)
17:10	Invited	10532	A Ferroelectric Fin Diode for Robust Non-Volatile Memory Qiuxiang Zhu (East China Normal University)
17:30	Oral	10375	Synthesis of Twisted Bilayer MoS₂ with a Wide Range of Twist Angles by Airflow Perturbation Cheng Li (Central South University)
17:45	Oral	10395	Fabrication of High-Performance Thermally Conductive Phase Change Material Composites with 2D Boron Nitride based Porous Ceramic Network for Efficient Thermal Management Jooheon Kim (Chung-Ang University)
18:00	Oral	10374	Phase-Controlled Growth of Non-Layered Two-Dimensional Materials Xilong Zhou (Central South of University)
18:15	Oral	10396	A Comprehensive Exploration of PPS/MgO@MoS₂ Core-Shell Composites for Enhanced Thermal and Mechanical Performance Minsu Kim (Chung-ang University)

Program Details

Day 2 (Tuesday, 16 July) 15:30 – 17:30

SMT | The 2nd International Symposium on Smart Coating Techniques | Sentosa
Session Chairs: Chengkuo Lee, Liangge Xu

15:30	Invited	10491	Applications of Polymer Network Liquid Crystals (PNLC) as Smart Coating Layers Kun-Lin Yang (National University of Singapore)
15:50	Invited	10100	Smart Liquid Crystal Elastomer from Fabrication to Application Zhongqiang Yang (Tsinghua University)
16:10	Invited	10163	Research on Ion Beam Regulation of Novel Solid Lubrication Composite Friction Technology Jie Jin / Zhiyu Li (Tsinghua University / Beijing Jiaotong University)
16:30	Oral	10514	Optical and Mechanical Properties of MgAlON Infrared Films Huaizhi Qu (Harbin Institute of Technology)
16:45	Oral	10516	HiPIMS Deposition of Hard yet Transmissive Protective Films for Infrared Window at Low Temperature Xiangqing Teng (Harbin Institute of Technology)
17:00	Oral	10515	Visible Light Stealth and Infrared Encryption Emitter based on ENZ Materials Xiaojun Ma (Harbin Institute of Technology)
17:15	Oral	10216	Thermal-Responsive Liquid Crystal Elastomer Foam-based Compressible and Omnidirectional Gripper Xinyuhang Zhang (Tsinghua University)
17:30	Oral	10261	Functional Color-changing Cholesteric Liquid Crystal Elastomers Jiazhe Ma (Tsinghua University)

CIA | Coating towards Industrial Applications | Sembawang
Session Chairs: Deen Sun

15:30	Invited	10009	Superlubricity or not of Carbon Films for Carbon Natural Bin Zhang (Lanzhou Institute of Chemical Physics, Chinese Academy of Science)
15:50	Invited	10294	Study on Microstructure and Friction Mechanism of Mo Incorporated (AlCrTiZr)N High - entropy Ceramics Coatings prepared by Magnetron Sputtering Deen Sun (Southwest University)
16:10	Oral	10394	Mechanical Properties and Damage Mechanism Evolution of TiZrHfNb/TiAlN Films Subjected to Cyclic Nano-impact Qun Cai (Southeast University of China)
16:25	Oral	10057	The Growth of (HfNbTaTiZr)O_x High-entropy Oxide Thin Films by Pulsed Laser Deposition Muhamad Jalu Purnomo (National Dong Hwa University)
16:40	Oral	10107	Influence of Surface Coating on the Antenna Performance at mmWave Frequency Band Yu-Hsun Chang (Yuan Ze University)
16:55	Oral	10118	Strengthening of Ti₂AlC MAX Phase Coatings Induced by Solid Solution of Zirconium on the M-site Kaihang Wang (Ningbo Institute of Materials Technology & Engineering)
17:10	Oral	10327	Hydrophobicity and Friction Properties of Phosphonic Acid Self-Assembled Monolayers on the Surface of 3D Printed Zirconia Ceramic Parts Yan Lou (Shenzhen University)
17:25	Oral	10425	Three-Dimensional ZnO:Al Multicomponent Thin Films prepared using a Novel Dual-Mode Atomic Layer Deposition Method Hsuan-Fu Wang (Industrial Technology Research Institute)
17:40	Oral	10121	Low secondary electron emission characteristics of carbon nano-onion coating via plasma enhanced chemical vapor deposition Jie Yang (Institute of Fluid Physics, China Academy of Engineering Physics)

Program Details

Day 3 (Wednesday, 17 July) Poster Session | 08:30 – 10:00 | 4th Floor

ID	Symposium	Paper Title	Presenter	Affiliation
10012	2DM	Effect of a seed layer on the properties of CdZnTe thick films prepared by close-spaced sublimation method	Jian Huang	Shanghai University
10152	2DM	Quantitative characterization of giant optical anisotropy in Ta ₂ NiSe ₅	Qihang Zhang	Huazhong Univ. of Science & Technology
10351	2DM	Iron oxide/magnesium oxide nanoparticles/graphene oxide, and cellulose composites synthesized with a Polydopamine linker exhibit excellent thermal conductivity, EMI shielding, and electrical insulation properties	Jihoon Kim	Chung-Ang University
10352	2DM	Highly thermally conductive and insulating composites fabricated through the hot-pressing of hollow h-BN/rGO/epoxy structure	Jangwoo Cho	Chung-Ang University
10438	2DM	Temperature Dependent Dielectric Function of NiI ₂	Tae Jung Kim	Kyung Hee University
10114	SMM	Influence of amplitude modulation and substrate hydrophilicity treatment on surface acoustic wave atomization	Qingyun Huang	Shenzhen Polytechnic University
10179	SMM	Fabrication of Conductive Film via Alternating Coating of Carbon Nanotubes and Adhesive	Sung-Jun Lee	Chosun University
10233	SMM	Simulation of Designing New Device Structure to Suppress Parasitic Resonance in FBARs	Ruoyuan Xie	Hunan University
10473	SMM	A novel microwave humidity sensor based on a defected ground structure and its application	Jie Chen	Tianjin University of Technology
10564	SMM	Exploring The Propagation Characteristics and Acoustic Streaming Velocity in Water Caused by Symmetric and Anti-Symmetric Lamb Waves	Chenhui Gai	Harbin Institute of Technology, Shenzhen
10376	SMM	Layering shape memory alloy wires between carbon fibre reinforced plastic to improve the crash worthiness of a crash box in an automotive front end structure.	Mohab Elmarakbi	Northumbria University
10011	TFD	High performance flexible self-powered Ga ₂ O ₃ UV solar-blind photodetectors with asymmetric electrodes	Ke Tang	Shanghai University
10013	TFD	Effect of TiN buffer layer on the performance of Ga ₂ O ₃ -based solar-blind UV photodetectors	Linjun Wang	Shanghai University
10088	TFD	Development of gallium-oxide-based non-enzymatic glucose sensing materials for biomedical detection applications	Hsin-Yu Chou	National Chung Hsing University
10111	TFD	Fabrication of Giant Magnetoresistance Effect Devices Using multilayer NiFe Thin Films	Yan Liu	Jimei University
10122	TFD	Zn Ohmic Contact on P-type β-Ga ₂ O ₃ with High Hall Hole Concentration	Sufen Wei	Jimei University, China
10154	TFD	Flexible memristors using multilayer molybdenum disulfide	Pingping Zhuang	Jimei University
10160	TFD	Effect of Low Temperature Ozone Annealing on Thin Film Transistors with Gradient Active Layer	Shui-Yang Lien	Xiamen University of Technology
10165	TFD	An Innovative Self-Cleaning Nanoparticle Hybrid Coating for Highly Efficient, Sustainable All-Day Passive Radiative Cooling	Haoyuan Cai	Jimei University
10170	TFD	Deposition mechanism of the Eu-doped NiO thin film prepared by RF-sputtering at different oxygen partial pressure	Pao-Hsun Huang	Jimei University
10184	TFD	Self-powered p-Si/n-ZnGaO heterojunction ultraviolet photodetector with high on/off ratio and responsivity	Hui-Chen Fan	Xiamen University of Technology
10189	TFD	The investigation of metal nanoparticle-doped TiO ₂ coatings on flexible substrates	Zhansheng Yuan	Jimei University
10191	TFD	The effects of temperatures on the tungsten-doped titanium oxide coatings in photocatalytic technology	Shumin You	Jimei University
10345	TFD	First-principal investigation and solar-blind UV photoelectric detection performance of high-quality Mg-doped β-Ga ₂ O ₃ thin films	Wenbo Hu	Liaoning Normal University
10380	TFD	The influence structural design to the electronic properties of Frisch-grid CZT detector by finite element method	Weifan He	Shanghai University
10381	TFD	Simulation of the Performance of CdZnTe Crystals and Their Detectors under H-ion Irradiation	Zexin Wang	Shanghai University

Day 3 08:00 – 10:00
Poster Session

Program Details

10386	TFD	Room-Temperature Operated NO _x Gas Sensor of n-ZnO/p-Ag ₂ O nanostructure with Photonic Energy	Jae-Hun Jeong	Tech University of Korea
10387	TFD	Characteristic of Amorphous Oxide-Based Thin Film Transistors Using Metal Capping Layer	Jae-Sung Yoo	Tech University of Korea
10422	TFD	Electrical and optical properties of (Ti _{1-x} , Yb _x)N thin films prepared by pulsed laser deposition	Khairul Abrar Bin Onn	Nagaoka University of Technology
10472	TFD	ZnO:(B, Ga)/Au Electrodes for Improved Ohmic Contacts on Ultrawide-Bandgap Ga ₂ O ₃ Films	Haofei Huang	Shanghai University
10548	TFD	Design of F-P cavity multilayer planar films based on Bragg grating structure	Yushan Chen	Jimei University
10549	TFD	Zinc-doped gallium oxide films with prepared by spatial atomic layer deposition in low temperature and applications in UV photodetectors	Wen-Bin Wu	Xiamen University of Technology
10589	TFD	The new in-memory sensing and computing device	Guangdi Feng	East China normal university
10186	TFD	The effects of different ozone annealing temperatures at ultrafast time on the nickel-doped Ga ₂ O ₃ films	Ruo-Yan Huang	Jimei University
10139	TFD	Plasticity of TiO ₂ /MgO based Resistive Switching Film for Neuromorphic Device	Jinyan Pan	Jimei University
10278	TFD	All-day uninterrupted thermoelectric generator by simultaneous harvesting of solar heating and radiative cooling	Jing liu	Jimei University
10236	TFD	Switching Mechanism and Reliability of X-ray Irradiated Al: HfO _x -based Memristor Devices	Om Kumar Prasad	National Yang-Ming Chiao Tung University
10337	TFD	Circularly polarized light from organic hybrid nanostructures	Hsin-Han Peng	Dalian University of Technology
10062	PST	High temperature tribological behavior of nickel-base superalloy with addition of recycled superalloy	Jiangshan Zhang	University of Science & Technology Beijing
10495	PST	Research the lubrication on the dynamic characteristics of bearing rotor system	Zinan Wang	Shenyang Jianzhu University
10081	CBF	Effect of Cr on Friction and Corrosion Performance of Tetrahedral Amorphous Carbon Coating Prepared by Filter Cathodic Vacuum Arc	Zhenhuai Yang	Jihua Laboratory
10113	CBF	Laser-induced plasma doping source for doping studies of MPCVD-prepared single crystal diamond implemented	Shuai Wu	Chongqing Jiaotong University
10523	CBF	Microstructure and mechanical properties of DLC films prepared by ion vapor deposition	Junho Choi	Tokyo City University
10557	CBF	High-temperature thermal stability and oxidation resistance of TiAlCrTaWN high-entropy coatings deposited by cathodic arc evaporation	Bin Peng	Guangdong University of Technology
10574	CBF	Effect of Cu content on the mechanical and tribological properties of MoN/Cu coatings deposited by HiPIMS	Wei Dai	Guangdong University of Technology
10596 10364	BHC	Study on Atmospheric Plasma treatment for Electrospun Polyethylene Glycol Containing Lanthanum Chloride Antibacterial Fiber Membrane	Yuqi Huang	Tamkang University
10583	BHC	Multifunctional HA Coatings with Ag-Nanoparticle-Functionalized Multi-Walled Carbon Nanotubes on Ti6Al4V Alloy via Plasma Electrolytic Oxidation for Enhanced Physicochemical and Biological Properties for Dental Implants	Mahendran Logesh	Chosun University, Korea
10584	BHC	Exploring the Surface Characteristics and Corrosion Resistance of MoS ₂ -Zn-Doped TiO ₂ Coatings on Ti-6Al-4V via Plasma Electrolytic Oxidation	Han-Cheol Choe	Chosun University
10585	BHC	Wollastonite-Forsterite Composite Coatings Containing Functional Elements on the Plasma Electrolytic Oxidized Ti-6Al-4V Alloy via Spin Coating	Soyun Joo	Chosun University
10586	BHC	Octacalcium phosphate precipitation on titanium alloys using electrochemical method for biomedical implants	Kyeong-Tae Kim	Chosun University
10116	STP	Influence of Particle Surface Wettability on Dielectric Properties in Epoxy Resin - SiO ₂ Composites	Yuheng Deng	Nanyang Technological University
10143	STP	Micro/nanostructure-based surface modification of TiAl6V4 manufactured by selective laser melting process	Eun-Jae Lee	Chosun university
10145	STP	Investigation of Tin-Doped Hydroxyapatite Thin Films	Tomasz Tanski	Silesian University of Technology
10167	STP	Evolution of Microstructure and Bioactivity Properties of Sol-gel HA Coating Hydrothermal Treatment with a Magnetic Field	Lingzhi Cao	Hospital of North Sichuan Medical College, Nanchong

Program Details

10176	STP	Investigations of CrN/TiO ₂ coatings obtained in the hybrid PVD/ALD process on 316L steel substrates	Marcin Staszuk	Silesian University of Technology
10204	STP	Comparative study of cold spraying Ti ₃ Al powder and laser post-annealing of cold sprayed Ti+Al blends for obtaining intermetallic coatings	Igor Shishkovsky	Moscow State Univ. of Technology
10409	STP	Bio-based photocurable polyurethane resin incorporating polydimethylsiloxane for self-healing and antifouling coating applications	Shun-Yi Jian	Ming Chi University of Technology
10428	STP	Formation of Si-Based nanostructure on the AlSi10Mg manufactured by SLM	Je-Un Jeong	Chosun University
10434	STP	Mechanical properties of single phase (Cr _{1-x} V _x)N thin films	Shu Sawaya	Nagaoka University of Technology
10494	STP	Engineered Phase Differences between HiPIMS Power and Substrate bias for Improved Mechanical Properties of TiN and CrN	Wan-Yu Wu	National United University
10513	STP	Integrated design and performance research of stealth and anti/de-icing composite structure	Weilan Liu	Nanjing Tech university
10525	STP	Effect of electrolyte additives on the microstructure of phosphoric acid film formed on the surface of A36 steel using Plasma Electrolytic Oxidation method	Hao-Long Chen	National Pingtung Univ. of Sci. & Tech.
10198	STP	Effect of interface state on capacitance-voltage characteristics of CdZnTe crystals after surface oxidation	Xiao-yan Liang	Shanghai University
10252	STP	Lattice damage and optical properties in Nd:YLF single crystal induced by H ion irradiation	Mei Qiao	Dezhou University, China
10117	STP	Enhancing the Initial Nucleation Behavior of ALD-Iridium Thin Films via a Surface Pretreatment Process	Myung-Jin Jung	Pusan National University
10325	STP	Effect of MoS ₂ nanoparticle incorporation on microstructure and wear resistance of self-lubricating ceramic coatings fabricated on 2A50 aluminum alloy by plasma electrolytic oxidation	Min Zhang	Liaoning Normal University
10530	STP	Effect of Zinc-Nickel Plating Bath Composition and Plating Parameters to Control Nickel Content for Corrosion Prevention	Zhou Yujie	Singapore Institute of Manufacturing Technology (SIMTech)
10258	ENS	Oxidized Nickel to Prepare an Inorganic Hole Transport Layer for Efficient and Stable CH ₃ NH ₃ PbI ₃ based Perovskite Solar Cells	Kun-Mu Lee	Chang Gung University
10354	ENS	N-doped carbon nanocage co-encapsulating WC nanoparticles and NiFe alloy for outstanding bifunctional electrocatalysis in OER and ORR	Eunsu Jang	Chung-Ang University
10359	ENS	Morphological evolution of Pt-films on two dielectric materials substrates at various temperatures	Jie Xiao	Beihang University
10368	ENS	Effective Area of Nano-membrane for improvement of Si-based μ -SOFC	Sung-Yun Byun	Tech University of Korea
10390	ENS	Mechanical and Thermal Stability of Si-Based μ -SOFC	Sunwoo Lim	Tech University of Korea
10561	ENS	Influence of Operational Conditions on the Crystallographic Behavior of Iridium-Based Catalysts in Proton Exchange Membrane Water Electrolysis	Seongjun Kim	Seoul National Univ. of Sci. & Tech.
10563	ENS	Overcoming Iodine Film Challenges in the Flow Battery System	Mingyu Shin	Seoultech
10575	ENS	High throughput advanced materials design for the energy transition	Aleena Anna Thomas	HSU Hamburg
10581	ENS	Semi-transparent Colored Solar Cells for Agrivoltaics Ecosystem Applications	Can Sheng	Hunan University
10597	ENS	Systematic investigations on the microstructural evolution and degradation mechanism of Cr ₃ Si-coated Zry-4 under DBA and BDBA conditions	Haiyan Liao	Kunming University of Science & Technology
10598	ENS	Sputter-Deposited High Entropy Alloy Thin Film Electrocatalysts for Enhancing Oxygen Evolution Reaction	Jyh-Ming Ting	National Cheng Kung University
10053	CIA	Sandwich-zigzag structure enhanced erosion resistance of TiN coatings	Li Wang	Ningbo Institute of Materials Technology & Engineering
10383	CIA	Preparation and anticorrosion performance of composite silane films incorporating graphene oxide additives modified with 2,6-diaminopyridineon sintered NdFeB	Li Jiang	China Jiliang University, Hangzhou, Zhejiang
10559	CIA	Effect of vacuum atomic oxygen irradiation on the tribological properties of fullerene-like carbon films	Kaixiong Gao	Lanzhou Institute of Chemical Physics

Program Details

10456	CIA	The effect of different energy laser shock peening on the performance of Cr coating on zirconium alloy surface	Chuang-Ming Ning	Southwest Jiao tong University
10027	NNN	Optical properties of SeO ₂ thin films prepared by spin coating	Weronika Smok	Silesian University of Technology
10034	NNN	Vacuum co-evaporation for high reproducible and stable hybrid perovskite thin film solar cells by cation doping	Lu Huang	Shanghai University
10174	NNN	Investigation of the influence of metallic nanoadditives on the structure and properties of semiconductor organic thin films	PaweA Jarka	Silesian University of Technology
10205	NNN	Structure changes in multilayer polymer films obtained by developed blow molding	Marcin Bilewicz	Silesian University of Technology
10254	NNN	Laser ablation-induced convenient fabrication of platinum nanospheres structures with surfactant-free surface for enhanced electrocatalytic methanol oxidation	Tiejun Wang	Dezhou University
10137	OTF	Preparation Technology of Medium Reflective Film for Large Aperture Planar Mirrors	Jinfeng Wang	The Nanjing Institute of Astronomical Optics & Technology
10310	OTF	Optical and Physical Properties of Aluminum Oxide and Nitride Films Using Different Reactive HIPIMS Techniques	Chien-Jen Tang	Feng Chia University
10301	OEP	Revealing Design Rules for Improving The Photostability of Non-Fullerene Acceptors from Molecular to Aggregation Level	Zhang Wenqing	ShanDong University
10331	OEP	Revealing the role of donor/acceptor interfaces in nonfullerene-acceptor based organic solar cells: charge separation versus recombination	Kun Gao	Shandong University
10334	OEP	π - π stacking modulation via polymer adsorption for elongated exciton diffusion in high-efficiency thick-film organic solar cells	Zhen Fu	Shandong University
10398	OEP	Surface potential control by using polar small molecules with intermolecular hydrogen bonds	Taiyo Inoue	Chiba University
10399	OEP	Film structure and electronic structure of poly(3-hexyl)thiophene (P3HT) doped with 2,3,5,6-tetrafluoro-7,7,8,8-tetracyanoquinodimethane (F4TCNQ)	Yugo Hoshi	Chiba University
10443	OEP	Development of new film processing by sol-gel method and electronic structure of nitrogen doped ZnO	Shintaro Motohiro	Chiba University
10452	OEP	Energy-Efficient Stable Hyperfluorescence Organic Light-Emitting Diodes with Improved Color Purities and Ultrahigh Power Efficiencies Based on Low-Polar Sensitizing Systems	Hao Liu	South China University of Technology
10453	OEP	Realizing efficient blue and deep-blue delayed fluorescence materials with record-beating electroluminescence efficiencies of 43.4%	Yan Fu	South China University of Technology
10454	OEP	Effect of annealing process on electronic structure of titanium dioxide nanoparticles	Kenta Nakadai, Koji Okudaira	Chiba University
10497	OEP	Polarized and Directional Electroluminescence from Organic Light-Emitting Devices by Using a Bifunctional Meta-Electrode	Shirong Wang	Jilin University
10498	OEP	In-situ controlled nucleation of organic single crystal arrays via femtosecond laser-induced	Zhi-Kun Ji	Jilin University
10508	OEP	Enhanced light absorption and stability of perovskite solar cells through grating-structured PEAI/2D perovskite interfacial layer	Yi-fan Wang	Jilin University
10537	OEP	Impact of electron scattering on electronic states at the interface of chiral molecule-modified WS ₂ monolayer	Fumi Nishino	Institute for Molecular Science
10539	OEP	Carbon Electrode Interface Modulation in Fully Printable Mesoscopic Perovskite Solar Cells	Zheling Zhang	Guilin University of Electronic Technology
10562	OEP	Nonequivalent hybridization generated lone pairs inside charge transfer cocrystals modifying spin resonance and the intersystem crossing between singlets and triplets	Shilin Li	School of Physics, Shandong University
10333	OEP	Octahedron Distortion-Triggered Dipole Spin Interaction in Multiferroic Magnetoelectric Perovskites	Xiangqian Lu	Shandong University
10505	SMT	Multi-responsive smart films electrospun from polymer network liquid crystal core-sheath fibers	Zhibo Zhang	Harbin Institute of Technology
10595	SMT	Enhancement of open circuit voltage of diamond voltaic battery by titanium oxide film surface passivation	Benjian Liu	Harbin Institute of Technology

Program Details

Day 3 (Wednesday, 17 July) – Oral Presentation 10:00 – 12:00

OEP | Organic Electronics and Photonics | Kallang

Session Chairs: Takayuki Miyamae, Furong Zhu

10:00	Invited	10323	Narrowband Near-Infrared Perovskite/Polymer Hybrid Photodetectors Furong Zhu (Hong Kong Baptist University)
10:15	Invited	10418	Analysis of Electronic Structure and Surface Local Structure of Metal Oxides Thin Film for High Efficiency Organic Photoelectric Device Koji Okudaira (Chiba University)
10:30	Invited	10358	Quinoid-Type Near-Infrared Organic Optoelectronic Materials and Their Functional Devices Xiaozhang Zhu (Institute of Chemistry, Chinese Academy of Sciences)
10:45	Invited	10554	Charge Transfer Doping and Atomic Layer Deposition toward WSe₂-FET via Self-Assembled Monolayer using F6-TCNNQ Nobuyuki Aoki (Chiba University)
11:00	Invited	10496	Molecular Orientation at Organic semiconductor/Dielectric Interfaces and their OFET Device Characteristics Takayuki Miyamae (Chiba University)
11:15	Invited	10195	Organic Electrochemical Transistors with Electroactive Composite Films based on Nature-Derived Matrix Materials Felix Sunjoo Kim (Chung-Ang University)
11:30	Oral	10234	Reusable Film-based Fluorescent Platform for Sarin Substitute and Ammonia Visual Detection with an Instantaneously-Response Ming Zhang (Jilin University)
11:45	Oral	10485	Controlled Exciton Dynamics in Nanohybrid Heterojunctions based on Two-Dimensional Organic Materials Jiawei Qiao (Shandong University)

STP | Surface Treatment & Protection | Seletar 1

Session Chairs: Hong Fei Liu, Wan-Yu Wu

10:00	Invited	10090	Knowledge-based Development of PVD Multicomponent and Nanoscale Multilayer Protective Hard Coatings Yin-Yu Chang (National Formosa University)
10:20	Invited	10019	Surface Integrity Enhancement of Metallic Coatings Produced by Direct Energy Deposition Hongfei Liu (Institute of Materials Research and Engineering)
10:40	Invited	10024	Improving Oil Lubrication Effectiveness of Ti-Ti Tribopair by Thermal Oxidation Yong Sun (De Montfort University)
11:00	Invited	10082	Solid-Liquid-Ice Interface for Aircraft Anti/De-Icing Materials Yizhou Shen (Nanjing University of Aeronautics and Astronautics)
11:20	Oral	10112	Robust and Photothermal Polyurea Coatings with Self-Repairing Ability for Anti-Icing/De-Icing and Long-Term Corrosion Protection Jun Li (Harbin Institute of Technology)
11:35	Oral	10183	Isostructural Soft Ceramic and Superhard Metallic Ti_{1-x-y}Mo_xN_y Coatings Fabricated via High-Through Magnetron Sputtering Shenghao Zhou (Ningbo Institute of Materials Technology & Engineering, Chinese Academy of Sciences)
11:50	Oral	10227	Study on the Wear Resistance and Thermodynamic Stability of (MNbTaZrTi)N (M=Cr, Hf) High-Entropy Nitride Coatings at Elevated Temperatures Haiyang Yu (Nanjing University of Aeronautics and Astronautics)
12:05	Oral	10410	The Investigation of Laser Conditions on the Surface Properties for AZ31 Magnesium Alloys Yu-Cheng Liu (Ming Chi University of Technology)

Program Details

Day 3 (Wednesday, 17 July) 10:00 – 12:00

SMM | Smart Materials and Microsystems | Seletar 2

Session Chairs: Xingang Luan, Linxi Dong

10:00	Invited	10346	Performance Analysis of TSV and MEMS Capacitive Sensor Integration Based on COMSOL Linxi Dong (Hangzhou Dianzi University)
10:20	Invited	10262	SiBCN-based Ceramic Films for High Temperature Electrode of SAW Sensors Xingang Luan (Northwestern Polytechnical University)
10:40	Oral	10570	Self-Powered Wearable Electrical Stimulation Patch with Integrated Triboelectric Nanogenerator for Tendinopathy Treatment Kaihang Zhang (Zhejiang University)
10:55	Oral	10493	An Integrated Vertical Force Transmission Structure of MEMS Piezoresistive Tactile Sensor for Sensitivity Enhancement Shan Wang (Hangzhou Dianzi University)
11:10	Oral	10086	Optimization of LiNbO₃/SiC Layered Structure for High-performance RF MEMS SAW Devices Qiaozhen Zhang (Shanghai Normal University)
11:25	Oral	10280	Interface Modulation and Structure Design of Lead-Free Piezoelectric Composite Films for Enhanced Energy Harvesting and Self-Powered Sensing Qilong Zhang (Zhejiang University)
11:40	Oral	10423	Activating Morphotropic Phase Boundary Behavior in Porous Ferroelectric Polymer Films toward High Performance Self-Powered Sensing Heng Yao (Zhejiang University)
11:55	Oral	10391	Self-Powered TENG with High Humidity Sensitivity Based on PVA Film Modified by the Synergistic Effect of LiCl and MXene Jing Wang (Zhejiang University)

2DM | 2D Materials | Seletar 3

Session Chairs: Yu Zhou, Xiaolong Chen

10:00	Invited	10257	Ultrafast Two-Dimensional Flash Memory Chunsen Liu (Fudan University)
10:20	Invited	10488	Electronics and Optoelectronics Based on 2D Tellurium Chaoliang Tan (The University of Hong Kong)
10:40	Invited	10146	Strong Correlations in Rhombohedral Multilayer Graphene Shuigang Xu (Westlake University)
11:00	Invited	10049	Single-Atom Sites Confined in 2D Layered Double Hydroxide Material Design Based on Electrostatic Repulsion Principle Zhao Cai (China University of Geosciences)
11:20	Invited	10474	Two-Dimensional Materials Based Artificial Synapse for Neuromorphic Visual Perception Yuan Li (Huazhong University of Science and Technology)
11:40	Oral	10340	Exploration Towards a New Phase Diagram for Bilayer MoS₂ with Both Stacking and Pressure Degrees of Freedom Chenyin Jiao (University of Electronic Science and Technology of China)
11:55	Oral	10311	Collective Modulation of Solution-Processed Molybdenum Disulfide for Tunable Electronics and Optics Songwei Liu (The Chinese University of Hong Kong)

Program Details

Day 3 (Wednesday, 17 July) 10:00 – 12:00

CBF | Carbon-Based Films and Hard Coating Technology | Sentosa

Session Chairs: Lang Hu, Qimin Wang

10:00	Invited	10221	Probing the Structure and Property Relation of Nitride Hard Coatings at the Atomic Scale Zaoli Zhang (Austrian Academy of Sciences)
10:20	Invited	10366	Investigating the Energetic Band Diagrams of Oxygen-Terminated CVD Grown e6 Electronic Grade Diamond Kang Liu (Harbin Institute of Technology)
10:40	Invited	10097	Study on Tetrahedral Amorphous Carbon (Ta-C) Composite Films Application in Stainless Steel Bipolar Plates of Proton Exchange Membrane Fuel Cells (PEMFCs) Xia Zhengwei (Hefei University of Technology)
11:00	Oral	10084	Novel Diamond and Ta-C Composite Coatings for Efficient Heat Dissipation in GaN Semiconductor Devices Kesheng Guo (Ji Hua Laboratory)
11:15	Oral	10214	Multilayer C/C Diamond like Carbon Coatings for Load Bearing Applications: A Complete Systematic Investigation Muhammad Usman (City University of Hong Kong)
11:30	Oral	10219	Mechanical Properties and Microstructure of Sputtering MoN/MoWN Nanolayered Coatings Hsu Wan Chang (National United University)
11:45	Oral	10509	Synthesis and Exploration of Heat Transfer Properties in Diamond-Like Carbon Copper Composite Films Deposited on Stainless Steel Substrates Mohd Sarim Kan (Maulana Azad National Institute of Technology Bhopal)

MSD | Materials Simulation, Design & AI | Sembawang

Session Chairs: Zheng Jianwei, Shi Junqin

10:00	Invited	10424	Electrochemical Energy Storage Materials Calculation and Design Siqi Shi (Shanghai University)
10:20	Invited	10299	From Data to Device: Leveraging AI to Overcome Optimization Challenges Yu Yang Liu (Deepverse Ltd)
10:40	Invited	10309	Multiscale Simulation Empowers the Construction of Digital Materials R&D Platform Kui Gong (Hongzhiwei Technology Co., Ltd)
11:00	Oral	10028	Thermodynamic Description of Polycrystalline Phase Segregation in Dual-doped Cs_xRb_{1-x}Pb(Br_yI_{1-y})₃ Film System Han Miao (Shanghai University)
11:15	Oral	10031	Microstructure Evolution and Stability of BaZrO₃/Y₂O₃/Al₂O₃ Ternary Ceramics Interfaces in Highly Active TiAl Melts Lu Mao (Shanghai University)
11:30	Oral	10038	Designing Two-Dimensional Laser Frequency Doubling Materials from Traditional Crystals Guoyu YANG (Jimei University)
11:45	Oral	10051	Effect of Al and Ca on the interaction between the BaZrO₃ crucible and the Ni-based Superalloy Yusong Zhao (Beijing Institute of Aeronautical Materials)

Program Details

Day 3 (Wednesday, 17 July) 13:30 – 15:00

OEP | Organic Electronics and Photonics | Kallang
Session Chairs: Junliang Yang, Jian Zhang

13:30	Invited	10349	Efficient and Stable Perovskite Optoelectronic Devices via Charge Carrier Transport Modulation and Defects Passivation Jingbi You (Institute of Semiconductors, Chinese Academy of Sciences)
13:45	Invited	10417	Realizing Highly Stable Perovskite Quantum Dots for Opto-Electronic Applications Chang-Lyoul Lee (Gwangju Institute of Science and Technology)
14:00	Invited	10036	Enhancing Indoor Perovskite Photovoltaics through the Implementation of Bilayer Hole Transport Layers Chih-Ping Chen (Ming Chi University of Technology)
14:15	Invited	10429	Remarkably Improved Photovoltaic Performance and Stability of Perovskite Solar Cells by Adoption of n-Type Cathode Interlayers Myoung Hoon Song (Ulsan National Institute of Science and Technology)
14:30	Invited	10290	Lattice Battery Solar Cells Exceeding Shockley-Queisser Limit Xiaoming Wen (Rmit University)
14:45	Oral	10333	Octahedron Distortion-Triggered Dipole Spin Interaction in Multiferroic Magnetoelectric Perovskites Xiangqian Lu (Shandong University)

STP | Surface Treatment & Protection | Seletar 1
Session Chairs: Zhong Chen, Wan-Yu Wu

13:30	Invited	10022	Preparation of Phosphate Superhydrophobic, Superoleophobic, and Superoleophobic Adhesive Coatings Jun Hu (Norwest University)
13:50	Invited	10029	A Durable Bendable Superhydrophobic Surface with Anti-icing, Anti-condensation, and Weathering-resistant Properties Xinghua Wu (Guangdong University of Technology)
14:10	Invited	10133	Eco-Friendly Bio-Epoxy Coatings for Corrosion-Resistant and Easy-Cleaning Applications Shunli Zheng (Anhui Medical University)
14:30	Oral	10106	Exploring Plasma Treatment for Durable Transparent Superhydrophilic Surfaces Lan Wei (Nanyang Technological University)
14:45	Oral	10005	Preparation of Janus Particles with Large Wetting Contrast via Interface Assembly and UV Irradiation Jasmine Si Jia Tan (Nanyang Technological University)
15:00	Oral	10169	Influence of Si₃N₄ on Molten Salts Corrosion Resistance of Sealing Treated APS YSZ Coatings by AlPO₄-based Composite Sealing Agent Jichun Wang (Southwest University of Science and Technology)

Program Details

Day 3 (Wednesday, 17 July) 13:30 – 15:00

SMM | Smart Materials and Microsystems | Seletar 2

Session Chairs: Haitao Ye, Shigeng Song

13:30	Invited	10303	Simulation and Experimental Investigation of Ag SERS Substrates Deposited by Using Glancing Angle Deposition Shigeng Song (University of the West of Scotland)
13:50	Invited	10151	Using Diamond to Fight Fungi in Space Haitao Ye (University of Leicester)
14:10	Oral	10568	Freeze-drying Induced Gradient Microporous Composite Film with High Ionic Conductivity for Ultrasensitive Wearable Iontronic Pressure Sensor Jie Li (Zhejiang University)
14:25	Oral	10569	Ultra-Sensitive Humidity Sensing based on Coherent Perfect absorber-lasing system Jianhui Wu (Zhejiang University)
14:40	Oral	10302	Magnetolectric Coupling in Flexible Magnetostrictive/Piezoelectric Nanocomposites Yajun Qi (Hubei University)
14:55	Oral	10226	Improving Infrared Photodetection Performance by Ultraviolet-Ozone Treatment in Lead Sulfide Films Jing Sun (Hunan University)
15:10	Oral	10211	Wideband and Ultrahigh Steep Skirts Heterogeneous Integration Filter for 5G N77 Applications Weipeng Xuan (Hangzhou Dianzi University)

2DM | 2D Materials | Seletar 3

Session Chairs: Yu Zhou, Xiaolong Chen

13:30	Invited	10319	Ultrafast Photoresponse in 2D van der Waals Materials and Heterostructures Xiao Wang (Hunan University)
13:50	Invited	10492	Two-Dimensional Electronic Devices towards Intelligent Vision Sensors Zhenxing Wang (National Center for Nanoscience and Technology)
14:10	Invited	10096	Realization of Two-Dimensional Kagome Lattice and its Potential Valleys Confine Effects Lijie Zhang (Hunan University)
14:30	Invited	10077	Magnetic and Topological Properties of an Fe(biphenolate)₃ Network Xiang-Long Yu (Southern University of Science and Technology)
14:50	Invited	10043	Room-Temperature Spin Injection in van der Waals Layered Semiconductors Xu Li (Xiamen University)

Program Details

Day 3 (Wednesday, 17 July) 13:30 – 15:00

CBF | Carbon-Based Films and Hard Coating Technology | Sentosa
Session Chairs: Lang Hu, Qimin Wang

13:30	Invited	10377	Research on Deep-sea Anti-Tribocorrosion Carbon-Based Coatings and Failure Mechanisms Peiling Ke (Ningbo Institute of Materials Technology and Engineering)
13:50	Invited	10466	PVD Hard Oxide Coatings for Tribological and Cutting Applications Yuxiang Xu (Guangdong University of Technology)
14:10	Oral	10273	Investigation on the Cavitation Erosion of Graphite-Like Carbon Coatings Strengthened by Periodic Gradient Bias Zhiqian Huang (Southeast University)
14:25	Oral	10274	Investigation on CrN Transition Layer on the Mechanical Properties and Corrosion Resistance of DLC Coating Jianming Wang (Southeast University)
14:40	Oral	10509	Synthesis and Exploration of Heat Transfer Properties in Diamond-Like Carbon/Copper Composite Films Deposited on Stainless Steel Substrates Mohd Sarim Khan (Maulana Azad National Institute of Technology Bhopal)

MSD | Materials Simulation, Design & AI | Sembawang
Session Chairs: Li honghe, Shi Siqi

13:30	Invited	10404	Physics-based AI for Material Design Joyjit Chatteraj (Institute of High-Performance Computing, Agency for Science, Technology and Research)
13:50	Oral	10095	Analytical Model for Gaussian Traps in Organic Thin-Film Transistor: The Application of DEVSIM Qiusong Chen (Guizhou Education University of China)
14:05	Oral	10281	Plastic Deformation and Tribological Properties of Cu/Ta Nanoscale Multilayer Films by Molecular Dynamics Simulations Junqin Shi (Northwestern Polytechnical University)
14:20	Oral	10313	Thermomechanical Properties of Shape Memory Polymer IBOA-PEGDA System by Molecular Dynamics Simulation Taehyub Lee (Nanyang Technological University)
14:35	Oral	10246	Density Functional Theory Investigations on the Influence of Substituents and Solvents on Dynamic Covalent Bonds Qiubo Chen (Institute of High-Performance Computing, Agency for Science, Technology and Research)
14:50	Oral	10538	Multiscale simulation of Vitrimers Zheng Jianwei (Institute of High-Performance Computing, Agency for Science, Technology and Research)

Program Details

Day 3 (Wednesday, 17 July) 15:30 – 18:30

OEP | Organic Electronics and Photonics | Kallang

Session Chairs: Jingbi You, Chang-Lyoul Lee

15:30	Invited	10419	Conjugated Polyelectrolytes are Compatible with Perovskites: Their Diverse Applications in Perovskite Optoelectronic Devices Han Young Woo (Korea University)
15:45	Invited	10098	Printing Organic and Perovskite Solar Cells and their Modules Junliang Yang (Central South University)
16:00	Invited	10467	Preparation of High-Quality Perovskite Thin Films and Efficient Fully Printed Carbon-Based Mesoscopic Perovskite Solar Cells Jian Zhang (Guilin University of Electronic Technology)
16:15	Invited	10571	Self-healing Flexible Perovskite Solar Cells Jinwei Gao (Gannan Normal University, South China Normal University)
16:30	Invited	10470	Epitaxy and Doping of Metal Halide Perovskite Semiconductor Thin Films Bingqiang Cao (University of Jinan)
16:45	Invited	10512	Exploring Photoexcitation Dynamics in Perovskites Using Ultrafast Broadband Photoluminescence Spectroscopy Kai Chen (Victoria University of Wellington)
17:00	Invited	10312	Lead-Free Perovskite and Photovoltaic Devices Bo Qu (Peking University)
17:15	Oral	10461	Buried Interface Regulation of Perovskite Thin Films and High-Efficiency Fully-Printed Carbon-based Perovskite Solar Cells Dongjie Wang (Guilin University of Electronic Technology)

STP | Surface Treatment & Protection | Seletar 1

Session Chairs: Mary Donnabelle Balela, Wan-Yu Wu

15:30	Invited	10573	The Potential of Kapok Fibers as Customizable Sorbents with Reduced Secondary Waste Mary Donnabelle L. Balela (University of The Philippines)
15:50	Invited	10025	Enhancing Corrosive Wear Resistance and Antibacterial Ability of Ti₆Al₄V by Laser Clad CrMoNbW High-Entropy Coating with Adding Copper Xiulin Ji (Shantou University)
16:10	Invited	10237	Manufacture, Microstructure, and Mechanical Properties of Refractory Metal Nitride Coatings Fan-Bean WU (National United University)
16:30	Oral	10067	Experimental and Theoretical Study on Mechanical and High Temperature Performances of CrHfNbTaTiC_xN_y High Entropy Coatings Yin Mengjuan (Nanjing University of Aeronautics and Astronautics)
16:45	Oral	10074	Effects of Thickness Ratio on Phase Structures, Mechanical Properties, and Oxidation Resistance of CrSiN/WSiN Bilayer Films Yu-Ting Ye (National Taiwan Ocean University)
17:00	Oral	10071	Effects of Silicon Content on The Characterization of (CrTaWSi)_x Thin Films Li-Zhu Wang (National Taiwan Ocean University)
17:15	Oral	10042	Study on Low-Temperature Plasma Nitriding and Properties of Carbon Steel with Structural Defects Induced by Fast Multiple Rotation Rolling Changyu Lv (Shandong Jianzhu University)

Program Details

Day 3 (Wednesday, 17 July) 15:30 – 18:30

2DM | 2D Materials | Seletar 3
Session Chairs: Yu Zhou, Xiaolong Chen

15:30	Invited	10551	Reconfigurable Photodetection from Two-Dimensional Materials Jinshui Miao (Shanghai Institute of Technical Physics)
15:50	Invited	10268	Physical Property Modulation in 2D Homo- and Hetero-Structures via Pressure Engineering Juan Xia (University of Electronic Science and Technology of China)
16:10	Invited	10445	Bringing 2D FETs from Research Labs to Mass Production: The Gap to Bridge Yury Illarionov (Southern University of Science and Technology)
16:30	Invited	10478	Multifunctional Programmable Soft Actuator Based on 2D Materials Xiuju Song (Zhejiang University)
16:50	Invited	10245	2D Materials for High Performance Integrated Modulators and Photodetectors Junjia Wang (Southeast University)
17:10	Invited	10552	Cr₂Te₃ Encapsulated Liquid Metal for Wearable Sensors Yixiong Feng (Zhejiang University)
17:30	Invited	10414	Broadband Miniaturized Spectrometers Based on 2D Materials. Andreas Liapis (Aalto University)
17:50	Invited	10546	Surface/Interface-Dominated Growth Dynamics of Novel Transition Metal Dichalcogenide Monolayers Chao Zhu (Southeast University)
18:10	Invited	10330	Flexo-Photovoltaic Effect in MoS₂ Jie Jiang (Zhejiang University)

KSC | Korea-Singapore Joint Science and Engineering Special Symposium | Seletar 2
Session Chairs: Gu Young Cho, Taeyong Kim

15:30	Invited	10463	A Study on Manufacture of Hard-faced Forming Tools Using a DED Process Dong-Gyu Ahn (Chosun University)
15:50	Invited	10241	Transient Strain-Induced Electronic Structure Modulation in a Semiconducting Polymer Imaged by Scanning Ultrafast Electron Microscopy Taeyong Kim (Seoul National University)
16:10	Invited	10542	Fabrication and Characterization of Porous Perovskite Thin Film Cathode for Low Temperature Solid Oxide Fuel Cells Go Young Cho (Dankook University)
16:30	Invited	10531	Hydrogen Energy Electrochemical/Thermochemical Clean Hydrogen Production Technology Sangwook Park (Seoul National University)
16:50	Invited	10519	A Novel Machine Learning Model for Copper Electroplating Process Optimizing Chemical Additives Seoung Jai Bae (Dankook University)
17:10	Oral	10223	Fabrication of GDC/YSZ Bilayer Electrolyte by Reactive Sputtering for Thin-Film Metal-Supported Solid Oxide Fuel Cells Suk Won Cha (Seoul National University)

Program Details

Day 3 (Wednesday, 17 July) 15:30 – 18:30

ENS | Energy & Sustainability | Sentosa
Session Chairs: Jihwan An, Woosung Park

*** This session will start at 15:00.**

15:00	Invited	10017	Molecular Transport in the Low-Dimensional Environment Towards Efficient Separation Hyung Gyu Park (Postech)
15:20	Invited	10464	Development of Vertical Tissue Culture/Observation Platform with Air-liquid Interface/Tissue Separability Jeong-Won Lee (Chosun University)
15:40	Invited	10560	New Aqueous Redox Flow Batteries Yongchai Kwon (Seoul National University of Science and Technology)
16:00	Invited	10248	Carbon-Based Optoelectronic Conversion Towards High Performance and Intelligence Xingzhan Wei (Chongqing Institute of Green and Intelligent Technology, Chinese Academy of Sciences)
16:20	Invited	10521	Surface Engineering of Solid Oxide Cell Electrodes by Powder Atomic Layer Deposition Jihwan An (Pohang University of Science and Technology)
16:40	Oral	10435	Investigating the Efficiency of Vanadium Redox Flow Battery Electrodes with VNbMoTaWO Films by HiPIMS Technology: Effect of W Contents Bih-Show Lou (National Taiwan University of Science and Technology)
16:55	Oral	10400	Probing Local Heat Generation within a Coin Cell Woosung Park (Sogang University)
15:10	Oral	10225	Multi-element Oxide-Sulfide Heterostructure for Efficient Electro-Fenton Oxidation Yemima Purba (National Cheng Kung University)

TFD | Thin Film Devices | Sembawang
Session Chairs: Pao-Hsun Huang, Chia-Hsun Hsu

15:30	Invited	10536	Study on the Properties of Gallium Oxide grown on SiC Substrate and Applied to Schottky Barrier Diodes Ray Hua Horng (National Yang Ming Chiao Tung University)
15:50	Invited	10336	The photoelectric devices from perovskite 1D microwire to 2D nanostructure Hsiang-Chen Chui (Dalian University of Technology)
16:10	Oral	10058	Epitaxial Growth for Large-Area GaN Films on 2D MoS₂ by PA-MBE Iwan Susanto (National Dong Hwa University)
16:25	Oral	10582	Achieving Low Subthreshold Swing of Thin Film Transistors by Adoption of High-k HfO₂ Dielectric Annealed at Different Atmospheres MingJie Zhao (Xiamen University of Technology)
16:40	Oral	10187	Titanium-Doped Hafnium Oxide Thin Film with High Dielectric Constant Deposited by PEALD and its Application in Thin Film Transistors Xiao-Ying Zhang (Xiamen University of Technology)

Program Details

Day 4 (Thursday, 18 July) 08:00 – 10:00

OEP | Organic Electronics and Photonics | Kallang
Session Chairs: Feng Li, Hui Xu

08:00	Invited	10240	Organic Microlaser Materials and Devices Yong Sheng Zhao (Institute of Chemistry Chinese Academy of Sciences)
08:15	Invited	10489	Light Manipulation in Organic Light-Emitting Devices by Using a Bifunctional Meta-Electrode Jing Feng (Jilin University)
08:30	Invited	10356	Novel Strategies in Printable Photon-Upconversion, OLEDs and Wearable Electronics Le Yang (Institute of Materials Research and Engineering, Agency for Science, Technology and Research)
08:45	Invited	10415	Effects of Energy Level Alignment on the Operating Voltage of Organic Light-Emitting Diodes Hirohiko Fukagawa (NHK)
09:00	Oral	10507	Micro/Nano-structured Metallic Electrodes in Organic Light-Emitting Devices Yan-Gang Bi (Jilin University)
09:15	Oral	10147	Optical Modeling of OLEDs with Non-uniform Layers Based on Single Surface Approximation Linya Chen (Huazhong University of Science and Technology)
09:30	Oral	10430	Tailored Molecular Orientation Polarization Control in Organic Amorphous Films through Intermittent Deposition Method Masahiro Ohara (Chiba University)
09:45	Oral	10360	Fluorescence lifetime dynamics: Investigating Alq3 Luminescence with Cu, In, Ga and Sn Metal Layers in Alq3/metal/Alq3 Thin film Multi-Stacks P Issac Nelson (ANEH Scientific Foundation)

STP | Surface Treatment & Protection | Seletar 1
Session Chairs: Zhong CHEN, Wan-Yu WU

08:00	Invited	10075	Advanced Polymer Composite Electrolyte Film towards All Solid-State Li Metal Batteries Yuxin Tang (Fuzhou University)
08:20	Invited	10405	Bond Layer Materials for Environmental Barrier Coatings Guifang Han (Shandong University)
08:40	Invited	10362	Multifunctional Surfaces with Superwettability for Multiphase Separation Yuekun Lai (Fuzhou University)
09:00	Invited	10288	Zn₂TiO₄-ZnO Heterostructure Fabricated by Unilateral Diffusion on Titanium to Achieve Dual Functions of Osteogenesis and Preventing Bacterial Infections Huaqiong LI (University of Chinese Academy of Sciences)
09:20	Oral	10411	Novel Biodegradable Ti-Ca-P based Conversion Coatings on Medical Magnesium Alloy to Improve Corrosion Resistance Chun-Shang Chi (Ming Chi University of Technology)
09:35	Oral	10286	Recent Development in Interface Modification for Dissimilar Materials Joining Guan Yingchun (Beihang University)
09:50	Oral	10305	Investigating the Impact of Laser-Induced Periodic Surface Structures on the Microstructure and Properties of Metallic Surfaces Qirui Zhang (Beihang University)
10:05	Oral	10388	Laser Surface Texturing of SS304 Substrate for Improving Coating Adhesion Performance Wang Xincal (Singapore Institute of Manufacturing Technology, Agency for Science, Technology and Research)

Day 4 08:00 – 10:00

Program Details

Day 4 (Thursday, 18 July) 08:00 – 10:00

PST | Part Surface Technology and Green Manufacturing | Seletar 2

Session Chairs: Ke Zhang, Songhua Li

08:00	Invited	10199	Research Progress on Key Technology Theory and Methods of Ultra-precision Full Ceramic Bearing Zhang Ke (Shenyang University of Technology)
08:20	Invited	10202	Study on the Influence of PTFE Lubrication Methods on the Friction and Wear Characteristics of Silicon Nitride Ceramics in a Wide Temperature Range Environment Songhua Li (Shenyang Jianzhu University)
08:40	Invited	10087	Study on Tribological Properties of Polydopamine as Lubricating Coating Lixiu Zhang (Shenyang Jianzhu University)
09:00	Oral	10161	Intelligent Recognition Algorithm for Cutting Load State Based on DBSCAN Algorithm Dehong Zhao (Shenyang Jianzhu University)
09:15	Invited	10502	Research on Magnetic-Thermal Coupling Modeling and Simulation of Motorized Spindle based on Digital Twin Wang Zhan (Shenyang Jianzhu University)
09:35	Invited	10298	Study on Nanoscale Scratching Characteristics of Single-crystal GaN Yan Haipeng (Hebei University of Science and Technology)

OTF | Optical Thin Films | Seletar 3

Session Chairs: Xiaoyi Wang, Jinlong Zhang

08:00	Invited	10044	An Integrated Order Blocking Filter for Near Infrared Hyperspectral Imaging System Weibo Duan (Shanghai Institute of Technical Physics, Chinese Academy of Sciences)
08:20	Invited	10266	Pixel-level Spectral Filter and Its Applications Haigui Yang (Changchun Institute of Optics, Fine Mechanics and Physics, Chinese Academy of Sciences)
08:40	Invited	10578	Biomimetic Microstructures for Radiation Colling Xu Hongbo (Harbin Institute of Technology)
09:00	Oral	10450	Structural and Optical Properties of Novel NiV-based Multilayer Mirrors for the Soft X-ray Region Zile Wang (Tongji University) 4.63"
09:15	Oral	10449	Exposure Response Kinetics in UV Photoresist Characterized using In-Situ Spectroscopic Ellipsometry and Dynamic Exposure Modeling Jiamin Liu (Huazhong University of Science and Technology)
09:30	Oral	10140	Research on High Reflective Reflective Film in large Aperture Mirror Surface Jie Tian (Nanjing Institute of Astronomical Optics and Technology)
09:45	Oral	10197	Infrared Optical Coatings for the Atmosphere Radiation Hyperspectral Sounder Tianyan Yu (Shanghai Institute of Technical Physics, Chinese Academy of Sciences)
10:00	Oral	10289	Research on the Key Technology of 2-Meter Ultra-Wide Spectrum Composite Membrane System Haifeng Wang (Changchun Institute of Optics, Fine Mechanics and Physics, Chinese Academy of Sciences)

Program Details

Day 4 (Thursday, 18 July) 08:00 – 10:00

ENS | Energy & Sustainability | Sentosa
Session Chairs: Lidong Sun, Daniel Chua

08:00	Invited	10365	Nanostructured Carbon Materials as Multifunctional Electrodes for PEM Fuel Cells Daniel Chua (National University of Singapore)
08:20	Oral	10500	High temperature stability and CMAS resistance of (Gd_{0.2}Y_{0.8})₃Al₅O₁₂ (GYAG)/YSZ thermal barrier coatings prepared by PS-PVD Xingya Zhu (School of Materials Science and Engineering, Beihang University)
08:35	Oral	10108	Ex-situ Observation of Microstructure Evolution and Electrical Resistance Transition in Micro Joints under Electron Current Stressing Yi-An Wu (Yuan Ze University)
08:50	Oral	10439	Highly Efficient and Stable Inverted Perovskite Solar Cells Enabled by Homogenized Fullerene with Enhanced Electron Transport Zhigang Zang (Chongqing University)
09:05	Oral	10465	Characterization of Yb₂SiO₅-based Environmental Barrier Coating prepared by Plasma Spray Physical Vapor Deposition Wenting He (Beihang University)
09:20	Oral	10535	Study on Interfacial Band Alignment of p-CdTe Multiple Composite Photoelectrode and Mechanism of Efficient Solar Water Splitting for Hydrogen Production Xiangyan Chen (Northwest Institute for Non-Ferrous Metal Research)
09:35	Oral	10110	Visible Transparent Radiative Cooling Coating for Building Thermal Management and Energy Saving Shuang Tao (Nanyang Technological University)
09:50	Oral	10156	Morphology Controlled of NiCo₂O₄ as Superior Bifunctional Oxygen Reduction Reaction/Oxygen Evolution Reaction Electrocatalyst for Zinc-air Battery Muhammad Ghufron (National Cheng Kung University)
10:05	Oral	10166	Structural and Morphological Evolution of High Entropy MOF-Derived Electrocatalyst during Oxygen Evolution using In Situ Transmission Electron Microscopy Brahmanu Wisnu Saputro (National Cheng Kung University)

OEP | Organic Electronics and Photonics | Sembawang
Session Chairs: Hiroyuki Ishii, Toyo Kazu Yamada

08:00	Invited	10353	The Effect of Weak Density-Of-States above HOMO/Valence Band Onset on Electric Properties of Organic and Inorganic Semiconductors Hisao Ishii (Chiba University)
08:20	Invited	10481	Ultrafast Charge Carrier Dynamics in Graphite and Metal/Semiconductor Nanostructures revealed by Femtosecond Diffuse Reflectance Spectroscopy Akihiro Furube (Tokushima University)
08:40	Invited	10420	Impacts of Interfacial Modifications on Functionalities of Organic Semiconductors Kouki Akaike (National Institute of Advanced Industrial Science and Technology)
09:00	Invited	10436	Photoemission Angular Distribution (PAD) of Well-Ordered DPh-BTBT Films - Origin of Mixed-Orbital Carrier Transport Yoichi Yamada (University of Tsukuba)
09:20	Invited	10350	Well-Crystallized Epitaxial Thin Films of Molecular Semiconductors on Organic Semiconductor Single Crystals (II) Yasuo Nakayama (Tokyo University of Science)
09:40	Invited	10315	Enhanced Terahertz Generation in Nonlinear Thin film Crystals Dongwei Zhai (Qingdao University)
10:00	Oral	10447	Density of States of In-Gap States of Organic Semiconductors determined by Photoemission Total and Partial Yield Spectroscopies using Low-Energy Photons: Observation of the Initial Density of States, Exciton Fusions, and Negative-Polarons Nakazawa Ryotaro (Chiba University)
10:15	Oral	10307	The Correlation between Reduction Potentials by Cyclic Voltammetry and Electron Affinities by Low-Energy Inverse Photoelectron Spectroscopy Mihiro Kubo (Chiba University)

Program Details

Day 4 (Thursday, 18 July) 10:30 – 12:00

OEP | Organic Electronics and Photonics | Kallang
Session Chairs: Yong Sheng Zhao, Jing Feng

10:30	Invited	10008	Light-Emitting Radicals and their Devices Feng Li (Jilin University)
10:45	Invited	10479	Host Engineering for Efficient Cluster Light-Emitting Diodes Hui Xu (Heilongjiang University)
11:00	Invited	10550	Progress in Organic Optoelectronic Films by Means of Molecular and Nanoscale Design Linghai Xie (Nanjing University of Posts & Telecommunications)
11:15	Invited	10361	Efficient Blue Delayed Fluorescence Molecules with Ultrafast Bipolar Charge Transport for Simplified Non-Doped Thick-Layer Organic Light-Emitting Diodes Zujin Zhao (South China University of Technology)
11:30	Invited	10490	Organic Single-Crystalline Semiconductor Thin Films for Light-Emitting Devices Ran Ding (Jilin University)
11:50	Oral	10484	High-Performance Stretchable Organic Light-Emitting Devices based on Wrinkles with Controlled Morphology Da Yin (Jilin University)

TFD | Thin Film Devices | Seletar 1
Session Chairs: Ming-Jie Zhao, Xiao-Ying Zhang

10:30	Invited	10306	Polarity-Differentiated and Charge-Regulated Graphene Field-Effect Transistors for Bio-Medical Applications Jer-Chyi Wang (Chang Gung University)
10:50	Invited	10343	Advancements in Micro-nano Fabrication for Thin-Film Lithium Niobate Nanodevices in Integrated Photonics Liting Wu (Micro-Nano Device Fabrication Center, Yongjiang Laboratory)
11:10	Oral	10153	Highly-Performance Gas Sensor Based on PANI/MWCNTs/Pd Ternary Hybrid for Trace-Level Ammonia Detection at Room Temperature Peidong Li (Northeastern University)
11:25	Oral	10171	Effect of Ar/O₂ Plasma Parameters on Plasma-Enhanced Atomic Layer Annealing of Dielectric Thin Films Geongu Han (Seoul National University of Science and Technology)
11:40	Oral	10207	A Solar-Blind Photodetector based on the Metal-Doped Ga₂O₃ Films Yu-Quan Zhu (Jimei University)
11:55	Oral	10342	Ferroelectric Resistance Switching in Epitaxial BiFeO₃/La_{0.7}Sr_{0.3}MnO₃ Heterostructures Hongyan Qi (Hubei University of Education)

Program Details

Day 4 (Thursday, 18 July) 10:30 – 12:00

PST | Part Surface Technology and Green Manufacturing | Seletar 2
Session Chairs: Ke Zhang, Songhua Li

10:30	Oral	10061	Stability Study of Beam Structures in the Integrated Construction of Prefabricated Buildings with an Attached Lifting Scaffold Defang Zou (Shenyang Jianzhu University)
10:45	Oral	10209	Research on the Performance and Surface Quality of Micron Diamond Coated Tools in Cutting Workpieces of Different Materials Xu Bai (Shenyang University of Technology)
11:00	Oral	10279	Critical depth and damage mechanism of nanoscale cutting graphene on silicon substrate Zewei Yuan (Shenyang University of Technology)
11:15	Oral	10130	Research on the Friction, Lubrication and Temperature Rise Characteristics of Silicon Nitride Full Ceramic Ball Bearing at Low Temperature Jian Sun (Shenyang Jianzhu University)
11:30	Oral	10206	Research on Tribological Behavior of Self-Lubricating Cage of Full Ceramic Ball Bearing under Cryogenic and Oil-Free Lubrication Conditions Zhongxian Xia (Shenyang Jianzhu University)
11:45	Oral	10231	Research on Friction and Wear Characteristics of Full Ceramic Ball Bearings under Low Temperature Conditions Chao Wei (Shenyang Jianzhu University)

OTF | Optical Thin Films | Seletar 3
Session Chairs: Xinbin Cheng, Weibo Duan

10:30	Invited	10344	Nonlinear Effect of Optical Coatings Jinlong Zhang (Tongji University)
10:50	Invited	10565	Research on the Application of Composite Materials in High-Power Laser Coatings Tingting Zeng (Shanghai Institute of Optics and Fine Mechanics, Chinese Academy of Sciences)
11:10	Oral	10259	Vanadium Dioxide-Based Perfect Absorber with Switchable Narrowband to Broadband Absorption Capabilities Yi Zhao (Changchun Institute of Optics, Fine Mechanics and Physics, Chinese Academy of Sciences)
11:25	Oral	10213	An infrared Broadband Thin-Film Polarizing Beam Splitter with High Environmental Reliability Baojian Liu (Shanghai Institute of Technical Physics, Chinese Academy of Sciences)
11:30	Oral	10367	Randomized Metallic Mesh-based Multiband Optical Window for Low-Diffraction EMI-Shielding Yujie Liu (Zhejiang University)
11:45	Oral	10326	Backscattering Measurement System for HR Films of Gravitational Wave Detection Telescopes Wang Yiping (Sun Yat-Sen University)
12:00	Oral	10455	Effect of Laser Peening without Coating on Electrochemical Corrosion and Microstructure Behavior of Zr-4 Alloys Shi-jia Yu (Southwest Jiaotong University)

Program Details

Day 4 (Thursday, 18 July) 10:30 – 12:00

ENS | Energy & Sustainability | Sentosa
Session Chairs: Pei-Chen SU, Yongjin YOON

10:30	Oral	10320	Enhancing Drone Flight Time using SOFC with ALD Thin Film Coating Yong-Jin Yoon (Korea Advanced Institute of Science and Technology)
10:45	Oral	10348	Superwetting Surfaces for Energy and Environmental Applications from Capillary Tubes to Micro Channels Lidong Sun (Chongqing University)
11:00	Oral	10393	Design and Fabrication of Biomimetic (Gd_{0.9}Yb_{0.1})₂Zr₂O₇ Thermal Barrier Coatings and their Mechanism on Molten CMAS Resistance Yiqian Guo (Beihang University)
11:15	Oral	10421	Machine Learning-Assisted CMAS Viscosity Prediction and its Application in the Infiltration Dynamics Analysis of CMAS into TBCs Dongrui Liu (Beihang University)
11:30	Oral	10089	In Situ Growth of Copper-Iron Bimetallic Nanoparticles in A-site Deficient Sr₂Fe_{1.5}Mo_{0.5}O_{6-σ} as an Active Anode Material for Solid Oxide Fuel Cells Wu Yujie (Nanyang Technological University)
11:45	Oral	10072	Effect of ALD-Derived Oxygen Vacancy Rich Nano-Thin Coatings on Improving Perovskite Air Electrodes in Solid Oxide Cells Jiyeon Shin (Nanyang Technological University)
12:00	Oral	10073	Atomic Layer Deposited Ru Nanoparticles on SFMO Electrode for Enhancing Electrochemical Kinetics Jeong Woo Shin, Pei-Chen Su (Nanyang Technological University)
12:15	Oral	10188	Anode Support Proton Conducting Fuel Cell with Air Spray Coated Thin Film Electrolyte Hao-Yang Li (Nanyang Technological University)

OEP | Organic Electronics and Photonics | Sembawang
Session Chairs: Hiroyuki Ishii, Toyo Kazu Yamada

10:30	Invited	10321	Conduction Band Structure of Organic Semiconductors and Partially-Dressed Polaron Formation Hiroyuki Yoshida (Chiba University)
10:50	Invited	10363	Effects of Partially Dressed Polaron Formation on Mobility of Organic Semiconductors Hiroyuki Ishii (University of Tsukuba)
11:10	Invited	10347	Direct Imaging of the Inherent Functionality of Molecular Machines on Host Crown ether Array Toyo Kazu Yamada (Chiba University)
11:30	Oral	10518	Multimode Optical Switch based on Polymer Waveguide Xibin Wang (Jilin University)

Program Details

4 (Thursday, 18 July) 13:30 – 15:00

OEP | Organic Electronics and Photonics | Kallang
Session Chairs: Hui Huang, Satoshi Kera

13:30	Invited	10533	Charge Separation Enabled by Intramoiety Delocalized Excitations in Organic Photovoltaic Materials Chunfeng Zhang (Nanjing University)
13:45	Invited	10378	Application of Spontaneous Orientation Polarization to Electret-Based Vibrational Energy Harvesters Yuya Tanaka (Gunma University)
14:00	Invited	10501	Interface Material Design for Efficient and Stable Organic Solar Cells Xiangjian Wan (Nankai University)
14:15	Invited	10030	Organic Thin Films-based Photovoltaics for Indoor Operation Jae Won Shim (Korea University)
14:30	Oral	10504	High-Resolution Patterning of Fluorescent Films by Femtosecond Laser Direct Writing Yue-Feng Liu (Jilin University)

TFD | Thin Film Devices | Seletar 1
Session Chairs: Dong Lin, Yan Liu

13:30	Invited	10242	Asymmetric supercapacitor fabrication based on thin film electrodes doped with AgNWs, MoS₂, and MXene Jung-Jie Huang (Da-Yeh University)
13:50	Oral	10379	Linear study of magnetic sensing for MTJ devices based on CoFeB/MgO/CoFeB magnetic films with large aspect ratio Xing Liu (Shenzhen Technology University)
14:05	Oral	10413	CeO_x Thin Films as Transparent Nanomaterials for Efficient Gas Sensing Damian Wojcieszak (Wroclaw University of Science and Technology)
14:20	Oral	10448	Optimization of the Gasochromic Response to Hydrogen of WO₃ Thin Films Deposited by PVD Technique with Possible Application in Optical Gas Sensors Michal Mazur (Wroclaw University of Technology)
14:35	Oral	10553	A flexible wearable cross shaped transducer array for blood pressure estimation Mengyao Su (Hangzhou Dianzi University)
14:50	Oral	10038	Designing Two-Dimensional Laser Frequency Doubling Materials from Traditional Crystals Guoyu Yang (Jimei University)

PST | Part Surface Technology and Green Manufacturing | Seletar 2
Session Chairs: Ke Zhang, Songhua Li

13:30	Oral	10070	Preparation and Mechanical Properties of Multilayer Diamond Coatings on Si₃N₄ Ceramic Substrate Yan Guangyu (Shenyang Jianzhu University)
13:45	Oral	10132	Study on Distribution of Lubricating Oil Film in Contact Micro-zone of Full Ceramic Ball Bearings and the Influence Mechanism on Service Performance Jinmei Yao (Shenyang Jianzhu University)
14:00	Oral	10572	Research on Temperature Rise Characteristics of Silicon Nitride Full-ceramic Ball Bearing Grease Lubrication for High-Speed Motorized Spindle Yonghua Wang (Shenyang Jianzhu University)
14:15	Oral	10190	Study on Dynamic Characteristics of All-ceramic Ball Bearings at Low Temperature Environment Bao Zhigang (Shenyang Jianzhu University)
14:30	Oral	10175	Study on the Aging of Diamond Abrasives in the Grinding Process of Silicon Nitride Ceramic Balls Tian Junxing (Shenyang Jianzhu University)
14:45	Oral	10136	Experimental Study on High Efficient and Precision Internal Grinding of Silicon Nitride Ceramic Thin-Wall Bearing Ring Chuang Zou (Shenyang Jianzhu University)

Program Details

Day 4 (Thursday, 18 July) 13:30 – 15:00

BHC | Biomedical and Healthcare | Seletar 3

Session Chairs: Yixiang Ou, Peng-An Zong

13:30	Invited	10078	Recent Advances and Strategies for High-Performance Coatings Deposited by Deep oscillation Magnetron Sputtering Yixiang Ou (Beijing Academy of Science and Technology)
13:50	Invited	10251	MXene-based Wearable Thermoelectric Respiration Sensor Peng-an Zong (Nanjing Tech University)
14:10	Invited	10026	Neuromorphic Electro-Stimulation Based on Atomically Thin Semiconductor for Damage-Free Inflammation Inhibition Shuiyuan Wang (Fudan University)
14:30	Invited	10101	Preparation and High Temperature Corrosion Behavior of Accident-tolerant Coatings on Nuclear Cladding Tubes Jin Xiaoyue (Beijing Academy of Science and Technology)
14:45	Oral	10253	Preparation of PPy/TiO₂ Composite Coatings with Patterned Surface Potential and its Cellular Responses Yang Yi (Zhejiang University)

NNN | Nanostructures, Nanocomposites & Nanoparticles | Sentosa

Session Chairs: Yujie Chen, Sam Zhang

13:30	Oral	10208	Uncovering Thin Film Structural Evolution through In-situ Spin-Coating and GISAXS/GIWAXS Analysis Chun-Jen Su (National Synchrotron Radiation Research Center)
13:45	Oral	10576	Large Boost in the Pressure Sensitivity of The Transition Metal Doped ZnO Thin Film Based Piezoelectric Energy Harvesting Device Sanjaya Brahma (National Cheng Kung University)
14:00	Oral	10264	Superaerophobic 0D nickel – 2D ceria supported 316L for Enhanced OER and HER Activity Chakrapani Gunarasan Jothi Prakash (Chosun University)
14:15	Oral	10124	Adjustable and Ultrahigh Photothermal Effect Response of TiN Films Achieved by Adjusting Plasmonic Structure in One-Step Method Wei Longjun (Southwest Jiaotong University)
14:30	Oral	10577	Research on The Near-infrared Quantum Dot Thin Film Solar Cells for Tandem Photovoltaics Mingyu Li (Huazhong University of Science and Technology)
14:45	Oral	10119	Structural Properties of He-Irradiated Zr/Nb Multilayer Tao Wang (Institute of Fluid Physics, China Academy of Engineering Physics)

Program Details

Day 4 (Thursday, 18 July) 15:30 – 17:00

OEP | Organic Electronics and Photonics | Kallang
Session Chairs: Hiroyuki Yoshida

15:30	Invited	10499	Precise and Scalable Synthesis of Conjugated Polymers Hui Huang (University of Chinese Academy of Sciences)
15:45	Invited	10328	Insight into the charge transport mechanisms of molecular crystals Satoshi Kera (Institute for Molecular Science)
16:00	Invited	10431	Molecular Carbons with Different Topologies: Synthesis, Electronic Properties and Open-Shell Singlet Diradical Ground States Chunyan Chi (National University of Singapore)
16:15	Invited	10304	Luminescence of the Molecules with Double Excitation Character Yong-Jin Pu (RIKEN Center for Emergent Matter Science)

PST | Part Surface Technology and Green Manufacturing | Seletar 2
Session Chairs: Ke Zhang, Songhua Li

15:30	Oral	10210	Research on wear performance of diamond coated tools cutting glass-ceramic materials Tongxiang Zheng (Shenyang Jianzhu University)
15:45	Oral	10059	Study on friction and wear properties of silicon nitride-based element-doped diamond-like carbon films Wang Xiaolong (Shenyang Jianzhu University)
16:00	Oral	10055	Wear resistance of CrAlAgN coating on silicon nitride surface: Experimental study and first-principles calculations He Lu (Shenyang Jianzhu University)
16:15	Oral	10056	Research on the lubrication characteristics of PEEK retainer debris on the wear behavior of full ceramic bearings Jiancheng Guo (Shenyang Jianzhu University)
16:30	Oral	10063	Laser-induced layer-by-layer removal and thermo-mechanical action mechanisms of FeCo-based multilayer wave-absorbing coatings Zhaoru He (Nanjing University of Aeronautics and Astronautics)
16:45	Oral	10284	Predictions of Friction and Wear in Ball Bearings Based on a 3D point Contact Mixed EHL Model Fengyan (Harbin Engineering University)
17:00	Oral	10123	Preparation and Research on Gradient TiN Thin Films on Si₃N₄ Ceramic Substrates based on PVD Wang He (Shenyang Jianzhu University)

BHC | Biomedical and Healthcare | Seletar 3
Session Chairs: Yixiang OU, Peng-An ZONG

15:30	Oral	10263	PVTF-based Janus Membrane Accelerates Bone Regeneration Through Synergistic Immunomodulation and Osteogenesis Enhancement Haoqing Liu (Zhejiang University)
15:45	Oral	10138	Tribocorrosion response of hard yet tough TiZrCN nanocomposite coatings in simulated body fluids Haoqi Wang (Beijing Academy of Science and Technology)
16:00	Oral	10093	Determination of Harmful Substances in Cosmetic Packaging Inner Coating by XRF combined Infrared Spectroscopy Qili Jiang (Beijing Academy of Science and Technology)
16:15	Oral	10596	Preparation of surface microstructure on polyimide films based on ion beam technology Pang Pan (Beijing Academy of Science and Technology)

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About Thin Films Society



Introduction to the Thin Films Society (TFS)

Sam ZHANG^{*†}

Professor, Harbin Institute
of Technology, Harbin, China

(Received January 17, 2024)

1. Introduction

The inception of the Thin Films Society (TFS) marked a milestone in the realm of thin films and coatings technologies. Established in 2009 in Singapore, the Society emerged as the world pioneering professional society dedicated to the art of science and technology of thin films and surface coatings. Created explicitly for thin films enthusiasts worldwide spanning academic researchers and students, industrial practitioners, equipment suppliers, and product designers—the Society's primary aim is to foster the exchange of cutting-edge knowledge and shared experiences within this specialized field.

The society is composed of an Executive Committee, with President, Vice President, Treasury, Secretary General and Specialty Secretaries on Education, Technical, Publication, Membership and Operations. In addition, Regional Vice Presidents were selected from countries or regions in Asia and beyond. These Regional Vice Presidents have easy access and right channels to reach the thin films and coatings researchers in their respective countries or regions.

The Society's ordinary membership is on invitation basis. Distinguished individuals who have established a reputation or track record of success in the field of thin films and coatings are also invited to apply for the TFS Fellowship, which may be gained through either a technical contribution or through managerial or entrepreneurial skills which have led to recognition in these fields, or through other routes which have contributed to the work and objectives of the Society.



Fig. 1. (color online). Thin Films Society Logo.

2. Thin Films Society Conference Series

The signature event of TFS is the “ThinFilms” Conference Series : “The International Conference on the Technological Advances in Thin Films and Surface Coatings”. The conference series, a hallmark biennial event initiated in 2002 (ThinFilms2002) with a humble gathering of 70 papers, skyrocketed to prominence with over 800 papers presented in its 5th event, the “ThinFilms2010”, and remains the size of 600–800 papers presented thereafter. The locations of the conference series are based at its birthplace in Singapore (ThinFilms2002, ThinFilms2004, ThinFilms2006, ThinFilms2008, ThinFilms2012 and ThinFilms2016) with some of the conferences held in China (ThinFilms2010 in Harbin, ThinFilms2014 in Chongqing, and ThinFilms2018 in Shenzhen). The scheduled ThinFilms2020 and ThinFilms2022 were unfortunately not realized due to the COVID-19 pandemic.

Each of the conference events features a Special Issue journal publication in SCI Q1 ranked journals. High quality work presented in the ThinFilms Conference qualifies for submission to the special issues, and selected papers are published after stringent peer review process handled by guest editors.

Despite the temporary hiatus due to the pandemic, the upcoming ThinFilms2024 conference, marking the 10th event in this prestigious series, signifies a triumphant return after the break and commemorates 20 years of this pivotal global event within the thin films community.

3. Thin Films Society Webinar Series

Since July 2022, Thin Films Society started the new initiative of monthly webinars with cutting edge research talks delivered by experts from all over the world. This is an extension of the Society's educational program. The online webinars have been well-received by our audience since the first launch, attracting a total of more than ten thousand participants during the live broadcast sessions. The online platform further strengthened the interaction and knowledge exchange of the thin films and surface coating community.

* E-mail : samzhang@hit.edu.cn

† President of Thin Films Society

4. International Network & Collaboration

The Society has a robust international network strategically bolstered by Regional Vice Presidents. The Regional Vice Presidents are highly esteemed scholars carefully selected from diverse regions around the world including China, Germany, Japan, South Korea, Taiwan, and USA. These leaders serve as vital connectors, providing direct access and robust channels to reach thin films and coatings researchers in their respective territories. This network acts as an international conduit, ensuring swift and effective distribution of critical information, equipment insights, and testing methodologies to the global thin film's community.

In 2023, TFS signed an official collaboration agreement with Japanese Society of Vacuum and Surface Science to promote and enlarge the exchange of scientific, technical, and professional knowledge, and thereby to better serve the interests and welfare of the members in both societies.

In addition to its flagship conference, the Thin Films Society actively supports and/or sponsors various academic conferences and workshops hosted by allied societies and industry associations through “Thin Films Society Workshop” activities. A few recent years’ events include:

- Thin Films Society Workshop 2011 @ Sanya (22nd December 2011 at Sanya Wan Financial Resort, Hainan, China)
- Thin Films Society Workshop 2013 @ Chongqing (13th July 2013, Chongqing, China)
- Thin Films Society Workshop 2015 @ Taichung (15–18 July 2015 at Da-Yeh University, Taiwan)
- Thin Films Society Workshop 2017 @ Jeju cum Korea Society of Precision Engineering Spring Meeting (17–19 May 2017 at Ramada Plaza Jeju, South Korea)
- Thin Films Society Workshop 2017 @ Jinan cum sponsorship to the Thin Films & Photonics and Organic Electronics Interdisciplinary Workshop (26–27 September 2017 at Jinan, China)
- Thin Films Society Workshop 2018 @ Sendai in concordance with the 6th International Symposium on Advanced Ceramics (ISAC-6) and 7th Asia-Oceania Ceramic Federation Conference (AOCF-7) (12–14 March 2018 at Sendai, Japan)
- Thin Films Society Workshop 2018 @ Kashgar, Xinjiang on Interdisciplinary Technologies (TFIW2018) (1–4 June 2018 at Kashgar, Xinjiang, China)

- Thin Films Society Workshop 2019 @ Sapporo (29–31 May 2019 at Sapporo, Hokkaido, Japan)
- Thin Films Society Workshop 2023 @Zhengzhou cum Forum on New Materials Development of the Central 6 Provinces of China, (Zhengzhou, Henan, China, Dec. 15–17, 2023.)

Other selected activities include co-organization for the Taiwan Association for Coating and Thin Film Technology (TACT) 2015 and 2020 Conferences, the 2nd China International Vacuum Coating Technical Conference & Exhibition (14–16 June 2017 at Shenzhen), and so on.

The Society has been actively expanding our network by co-hosting or participating in organization of conferences to bring closer the interaction of thin film enthusiasts around the world.



Fig. 2. (color online). Selected Thin Films Society Workshop activities.

5. Looking Forward

As the Thin Films Society embarks on its journey beyond its formative years, it continues to serve as the beacon of innovation, collaboration, and advancement within the dynamic world of thin films and coatings. With ThinFilms2024 on the horizon, the global community eagerly awaits this milestone event, poised to celebrate two decades of invaluable contributions and discoveries in this specialized field. We welcome you to visit the Thin Films Society website (thinfilms.sg) to learn more about our activities.

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Program Overview

[Day 1] 15 July (Mon)

14:00~19:00 Registration (Registration Counter)

[Day 2] 16 July (Tue)

08:30~17:00 Registration (Registration Counter)

8:30	Opening Ceremony					4 th Floor Atrium Ballroom	
8:40	Plenary Talk 1, 2, 3						
10:10	Tea Break						
10:40	Plenary Talk 4, 5, 6					4 th Floor, Atrium Ballroom	
12:10	Lunch					4 th Floor, Changi 1~3	
13:30	OEP Kallang	STP Seletar 1	SMM Seletar 2	2DM Seletar 3	SMT Sentosa	CIA Sembawang	
15:00	Tea Break						
15:30	OEP Kallang	STP Seletar 1	SMM Seletar 2	2DM Seletar 3	SMT Sentosa	CIA Sembawang	
17:30	Free & Easy						

[Day 3] 17 July (Wed)

08:30	Poster Session					4 th Floor Atrium Ballroom	
10:00	OEP Kallang	STP Seletar 1	SMM Seletar 2	2DM Seletar 3	CBF Sentosa	MSD Sembawang	
12:00	Lunch					4 th Floor, Changi 1~3	
13:30	OEP Kallang	STP Seletar 1	SMM Seletar 2	2DM Seletar 3	CBF Sentosa	MSD Sembawang	
15:00	Tea Break						
15:30	OEP Kallang	STP Seletar 1	KSC Seletar 2	2DM Seletar 3	ENS Sentosa	TFD Sembawang	
18:30	Banquet					4 th Floor Atrium Ballroom	

[Day 4] 18 July (Thu)

8:00	OEP Kallang	STP Seletar 1	PST Seletar 2	OTF Seletar 3	ENS Sentosa	OEP Sembawang	
10:00	Tea Break						
10:30	OEP Kallang	TFD Seletar 1	PST Seletar 2	OTF Seletar 3	ENS Sentosa	OEP Sembawang	
12:00	Lunch					4 th Floor, Changi 1~3	
13:30	OEP Kallang	TFD Seletar 1	PST Seletar 2	BHC Seletar 3	NNN Sentosa		
15:00	Tea Break						
15:30	OEP Kallang		PST Seletar 2	BHC Seletar 3			

2DM 2D Materials **BHC** Biomedical and Healthcare **CBF** Carbon-Based Films and Hard Coating Technology **CIA** Coating towards Industrial Applications **ENS** Energy & Sustainability **KSC** Korea-Singapore Joint Science and Engineering Special Symposium **SMM** Smart Materials and Microsystems **SMT** The 2nd International Symposium on Smart Coating Techniques **STP** Surface Treatment & Protection **MSD** Materials Simulation, Design & AI **NNN** Nanostructures, Nanocomposites & Nanoparticles **OEP** Organic Electronics and Photonics **OTF** Optical Thin Films **PST** Part Surface Technology and Green Manufacturing **TFD** Thin Film Devices

[Day 5] 19 July (Fri)

Technical Tour (Limited Seats) * **NTU / CleanTech Park**

* Registration at front counter with \$10 deposit required.