

Nov. 15-18 2021 TAIPEI TAIWAN



TACT 2021

International Thin Film Conference Oral Session Program Book

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Plenary and keynote speeches

2021/11/15

Opening, & Plenary Session chair:

Prof. Ming-Tzer Lin National Chung Hsing University, Taiwan

Time	Oral number	Presenting Author	Title	Affiliation
09:00–09:20	Opening	Prof. Jia-Hong Huang	Opening talks	President of TACT
		Prof. Sea-Fue Wang		President of National Taipei University of Technology, Taiwan
09:20–10:10	Plenary	Prof. Horacio Dante Espinosa	Multiscale Mechanics of Metamaterials	Northwestern University, USA

2021/11/15

Keynote I & II Session chair:

Prof. Jyh-Wei Lee Ming Chi University of Technology, Taiwan

Time	Oral number	Presenting Author	Title	Affiliation
10:30–11:10	Keynote I	Prof. Eun Ha Choi	Nonthermal atmospheric pressure plasma (NAP) sources and their plasma treated liquid (PTL) for oral administration of cancer treatment and inactivation of human corona virus 229E	Kwangwoon University, Korea
11:10–11:50	Keynote II	Prof. Jinn P. Chu	Metallic glass coatings: properties, application, and beyond	National Taiwan University of Science and Technology, Taiwan

2021/11/15**Keynote III & IV** Session chair:

Prof. Jia-Hong Huang National Tsing Hua University, Taiwan

Time	Oral number	Presenting Author	Title	Affiliation
15:40–16:20	Keynote III	Prof. Paul H. Mayrhofer	Coatings from intermetallic phases having a high-entropy metal sublattice; A case study of nitrides and diborides	TU Wien University, Austria
16:20–17:00	Keynote IV	Dr. Jörg Vetter	Sustainable Surface Solutions = Enabler for ecological transformations?	Oerlikon Balzers Coatings Germany GmbH, German

2021/11/16**Keynote V & VI** Session chair:

Prof. Chau-Chang Chou National Taiwan Ocean University, Taiwan

Time	Oral number	Presenting Author	Title	Affiliation
09:00–09:40	Keynote V	Prof. Richard R.Chromik	Cold-Sprayed Metal Matrix Composites	McGill University, Canada
09:40–10:20	Keynote VI	Prof. Yu-Lin Shen	Deformation, SurfacePatterns, and their NumericalPrediction	University of New Mexico, USA

2021/11/17**Keynote VII & VIII** Session chair:

Prof. Bohr-Ran Huang National Taiwan University of Science and Technology, Taiwan

Time	Oral number	Presenting Author	Title	Affiliation
11:00–11:40	Keynote VII	Prof. Yi-Jun Jen	Metamaterial inspired optical coatings for various filters	National Taipei University of Technology, Taiwan
11:40–12:20	Keynote VIII	Prof. Kazuhiro Ohkawa	Red micro-LEDs made of InGaN grown by MOVPE	King Abdullah University of Science and Technology, Saudi Arabia

2021/11/18**Closing** Session chair:

Prof. Chau-Chang Chou National Taiwan Ocean University, Taiwan

Time	Oral number	Presenting Author	Title	Affiliation
15:45 – 16:45	Closing	Prof. Ming-Tzer Lin	Announcement of Student award	Chair of Student Award
		Prof. Chau-Chang Chou	Lucky draw & Others	Chair of Academic Committee

Student award competition

2021/11/17 Oral competition I

Session chair:

Ming-Tzer Lin	National Chung Hsing University, Taiwan	H. C. Huang	National Taiwan University of Science and Technology, Taiwan
Chuan-Pu Liu	National Cheng Kung University, Taiwan	Yu-Ze Chen	National Cheng Kung University, Taiwan
Chen-Kuei Chung	National Cheng Kung University, Taiwan	T-C Wei	Chung Yuan Christian University, Taiwan
Ming-Hung Tsai	National Chung Hsing University, Taiwan	Po-Liang Liu	National Chung Hsing University, Taiwan

Time	Oral number	Presenting Author	Title	Affiliation
13:30 - 13:45	Preparation & Announcement			
13:45 - 14:00	G-O-43	I-Sheng Ting	Evaluation of stress relief efficiency in ZrN/Zr and ZrN/Ti bilayer thin films using an energy balance model	National Tsing Hua University, Taiwan
14:00 - 14:15	C-O-98	Ching-Yao Cheng	Low Temperature Metal-to-Metal Direct Bonding on Highly (111) Oriented Nanotwinned Silver and Fine-grained Silver Thin Films	National Tsing Hua University, Taiwan
14:15 - 14:30	A-O-112	Song-Yu Chen	Polydopamine Coating on Graphite Felt by Tornado-type Atmospheric Pressure Plasma Jet for Vanadium Redox Flow Batteries	National Taiwan University of Science and Technology, Taiwan
14:30 - 14:45	B-O-150	Wei-Cheng Chang	Effect of substrate bias to thermal stability and microstructure evolution in highly (111)-oriented nanotwinned Ag thin films during annealing process	National Tsing Hua University, Taiwan
14:45 - 15:00	D-O-156	Jun Yen Lee	Effective Reduction of Non-twinned Transition Region in Sputtered Nanotwinned Ag Thin Films	National Tsing Hua University, Taiwan

15:00 - 15:15	F-O-165	Jian-Jie Wang	Ultra-High Hardness Nanotwinned High Entropy Alloys CoCrFeNi Thin Films: Modifying Residual Stress without Scarifying Hardness Through Tuning Substrate Bias	National Tsing Hua University, Taiwan
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2021/11/17 Oral competition II

Session chair:

Ming-Tzer Lin	National Chung Hsing University, Taiwan	H. C. Huang	National Taiwan University of Science and Technology, Taiwan
Chuan-Pu Liu	National Cheng Kung University, Taiwan	Yu-Ze Chen	National Cheng Kung University, Taiwan
Chen-Kuei Chung	National Cheng Kung University, Taiwan	T-C Wei	Chung Yuan Christian University, Taiwan
Ming-Hung Tsai	National Chung Hsing University, Taiwan	Po-Liang Liu	National Chung Hsing University, Taiwan

Time	Oral number	Presenting Author	Title	Affiliation
15:30 – 15:45	B-O-196	Yu-An Chien	Nanoparticle Reinforced High Strength Ni-TiO ₂ Composite Film Electroplated by Supercritical Carbon Dioxide Assisted Method	Tokyo Institute of Technology, Japan
15:45 – 16:00	B-O-269	Yu-Tang Luo	Facile high haze transparent electrode preparation by atmospheric pressure plasma jet for photovoltaic application	National Taiwan University, Taiwan
16:00 – 16:15	B-O-280	Lei Huang	Control of Self-Assembly Seeding of Diamond Nanoparticles on Nanowall Structures for Enhancing Field Emission	Kyushu University, Japan
16:15 – 16:30	F-O-364	Sen-You Hou	Biocompatibility evaluation of ZrTiNbTaFe thin films: in vitro and in vivo study	Chang Gung University, Taiwan

2021/11/17 Poster competition I

Session chair:

Prof. He-Yun Du Ming Chi University of Technology, Taiwan

Prof. Chia-Yun Chen National Cheng Kung University, Taiwan

Prof. Kuan-Che Lan National Tsing Hua University Taiwan

Dr. Sumanta Kumar Sahoo National Cheng Kung University, Taiwan

Time	Oral number	Presenting Author	Title	Affiliation
13:30 – 14:45 (6-7 minutes for each presentation)	A-P-114	Jung-Bin Chen	Plasma Functional Treatment on Graphite Felt Using Atmospheric Pressure Plasma Jets for All-Vanadium Redox Flow Battery	National Taiwan University of Science and Technology, Taiwan
	B-P-38	Nghi Nhan Nguyen Thi	Multi-Application of Piezo-composite Thin Film	National Cheng Kung University, Taiwan
	B-P-49	Wei-Chieh Chen	Study on the phase transition of low-temperature deposited tantalum film using high-power pulsed magnetron sputtering (HiPIMS)	National Chung Hsing University, Taiwan
	B-P-82	Yiming Jiang	Electrodeposition of Nickel-Cobalt Alloy Films and their Micro-Hardness	Tokyo Institute of Technology, Japan
	B-P-110	Hiroki Kawakami	Non-enzymatic Polypyrrole/Nano-Gold Composite Electrode for Glucose Oxidation	Tokyo Institute of Technology, Japan
	B-P-131	Ting-Hsun Lai	Effects of Process Parameters on Structure and Properties of Molybdenum Nitride Thin Films by High-Power Impulse Magnetron Sputtering	National Tsing Hua University, Taiwan
	B-P-333	Igamcha Moirangthem	Microstructural, optical and mechanical properties of tungsten oxide films fabricated using superimposed HiPIMS-MF system	National Taiwan University of Science and Technology, Taiwan
	B-P-367	Zi-Ling Zeng	Design of superhydrophobic SERS substrate by deposited organic conjugated molecules and noble metal nanoislands	National Taiwan University of Science and Technology, Taiwan

	C-P-206	Po Wei Cheng	Supercritical Carbon Dioxide Assisted Metallization of 3D-Printed Polymer Structure as Functional Components in Electronic Devices	Institute of Innovative Research, Tokyo Institute of Technology, Japan
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2021/11/17 Poster competition II

Session chair:

Prof. Chia-Lin Li National Taiwan University, Taiwan

Prof. Ko-Wei Lin National Chung Hsing University, Taiwan

Prof. Her-Hsiung Huang National Yang Ming Chiao Tung University, Taiwan

Prof. Jen-Chuan Tung Chang Gung University, Taiwan

Prof. Shih-Hsun Che National Taiwan University of Science and Technology, Taiwan

Time	Oral number	Presenting Author	Title	Affiliation
15:30 – 17:00 (6-7 minutes for each presentation)	D-P-40	Matthew Wei-Jun Liu	Effect of Coating Architecture on Stress Relief Mechanism of TiZrN Coating on Silicon Substrate	National Tsing Hua University, Taiwan
	D-P-163	Yiqun Feng	The fracture toughness of V(1-x)/2Mo(1-x)/2Nx coatings measured by internal energy-induced cracking method	National Tsing Hua University, Taiwan
	D-P-348	Sheng-Yan Chen	Microstructure and mechanical properties investigation of TiZrSiN coatings: Effect of Si content	Ming Chi University of Technology, Taiwan
	E-P-198	Kuan Syun Wang	The thiol-end group dendritic polymer graft Au nanoparticle arrays on low-damage plasma treated CVD-graphene TEM grid as highly efficient SERS platform	National Taiwan University, Taiwan
	E-P-242	Yen-Ting Lin	Raman Enhanced Chip with Bionic Nepenthes Structure Applied in Biomedical Detection	Ming Chi University of Technology, Taiwan
	F-P-218	Van Dung Nguyen	High-entropy High-k Ba(Ti,Zr,Ta,Hf,Mo)O ₃ Films for Advanced Gate Stacks	National Cheng Kung University, Taiwan

	F-P-250	Taro Omura	Effect of Current Density on Micro-Mechanical Characteristic of Electrodeposited Gold Evaluated from Cyanide Bath	Tokyo Institute of Technology, Japan
	F-P-380	Kan Fang Rong	Property evaluation of TiZrNbTaFeB high entropy alloy coatings: Effect of Ti and B contents	Ming Chi University of Technology, Taiwan
	G-P-116	Yi-Hsuan Wang	Study of stress relief mechanism in TiN/Ti bilayer thin film using energy balance model	National Tsing Hua University, Taiwan
	G-P-378	Yi-Tzu Wu	First-principles Study on Evaluating Coating Materials for High-Ni NMC Cathodes in Solid- and Liquid-states Li-ion Batteries	National Taiwan University of Science and Technology, Taiwan

HiPIMS forum

HiPIMS Forum, TACT2021 will provide a platform for six invited speakers from research institute, industry and academia in Europe and Asia. These invited speakers will present the fundamental scientific aspects, the latest application-oriented results, and the real application of HiPIMS in industries. Attendees can discuss with six invited speakers during the Q & A time.

2021/11/16

HiPIMS Session chair:

Prof. Jyh-Wei Lee Ming Chi University of Technology, Taiwan

Time	Presenting Author	Title	Affiliation
14:20 - 14:25	Prof. Jyh-Wei Lee	Opening	Ming Chi University of Technology, Taiwan
14:25 - 14:45	Prof. Arutjun P. Eghisarian	High-Quality CMOS-compatible TiN Thin Films for Next Generation Optoelectronic and Plasmonic Devices	Sheffield Hallam University, Sheffield, UK
14:45 - 15:05	Dr. Ralf Bandorf	Using optical emission for control of ionization and stoichiometry in metallic and reactive HIPIMS processes	Fraunhofer Institute for Surface Engineering and Thin Films, Braunschweig, Germany
15:05 - 15:25	Dr. Denis Kurapov	Beyond HIPIMS – smooth, defect free coatings for demanding cutting tool applications	Global Market Segment Manager, Cutting tools at Oerlikon Balzers, Germany
15:25 - 15:45	Prof. Jón Tómas Guðmundsson	Optimizing the deposition rate and the ionized flux fraction in high power impulse magnetron sputtering	University of Iceland, Iceland
15:45 – 16:05	Prof. Tetsuhide Shimizu	Low temperature growth of stress-free single phase α -W films using HiPIMS with synchronized pulsed substrate bias	Tokyo Metropolitan University, Japan

16:05 - 16:25	Prof. Jyh-Wei Lee	Research and industrial applications of HiPIMS technology in Taiwan	Ming Chi University of Technology, Taiwan
16:25 - 17:00	Q & A time		

Symposium A. Coatings for sustainable energy

2021/11/15

A1 Session chair:

Prof. Chen-Hao Wang National Taiwan University of Science and Technology, Taiwan

Prof. Han-Yi Chen National Tsing Hua University, Taiwan

Time	Oral number	Presenting Author	Title	Affiliation
13:30 - 14:00	A-I-360	Han-Yi Chen	Nanoporous Carbon-Modified Electrodes for Sustainable Microbial Fuel Cells	National Tsing Hua University, Taiwan
14:00 - 14:15	A-O-402	Yun-Ting Ou	Electrode modification by metal-organic frameworks derived catalyst for improving the performance of vanadium redox flow batteries	National Taiwan University of Science and Technology, Taiwan
14:15 - 14:30	A-O-157	Kai-Hsiang Lo	Solvent-free synthesis of ZIF-67 thin films as the catalyst for the directly growth of carbon nanotubes or the fabrication of electrical double layer capacitors	Ming Chi University of Technology, Taiwan
14:30 - 14:45	A-O-159	Po-Hung Yeh	Sulfurization of VSB-5 hexagonal nanorod arrays for the performance boosting of the supercapacitors	Ming Chi University of Technology, Taiwan
14:45 - 15:00	A-O-170	Van Thanh Nguyen	Room temperature synthesis of 3D cobalt vanadate nanosheet arrays on Ni foam coupled with a redox additive electrolyte for enhanced supercapacitor performance	National Cheng Kung University, Taiwan
15:00 - 15:15	A-O-266	Rose Anne Acedera	Templated synthesis of CoFe ₂ O ₄ on carbonized KOH-activated kapok fibers as supercapacitor electrode material	University of the Philippines Diliman, Philippine

2021/11/16

A2 Session chair:

Prof. He-Yun Du Ming Chi University of Technology, Taiwan

Prof..Hsin-Chih Huang National Taiwan University of Science and Technology, Taiwan

Time	Oral number	Presenting Author	Title	Affiliation
10:30 – 11:00	A-I-67	He-Yun Du	Investigation and optimization of cathode structure by hierarchical sulfur confinement for high performance Lithium sulfur battery	Ming Chi University of Technology, Taiwan
11:00 – 11:30	A-I-313	Hsin-Chih Huang	Electrodeposited Hydrangea-like Cobalt Oxyhydroxide Supported by Thin-Layer Copper for Oxygen Evolution Reaction	National Taiwan University of Science and Technology, Taiwan
11:30 – 11:45	A-O-217	Tien-Hsiang Hsueh	The effect of lithium cobalt oxide (LCO) cathode deposited by Atmospheric plasma spraying (APS) on LCO-coated aluminum foil in gel polymer electrolyte lithium battery	Institute of Nuclear Energy Research, Taiwan
11:45 – 12:00	A-O-50	Wei Li	Electrochemical capacitor characteristics of MoS ₂ coated onto honeycomb-shaped carbon nanotubes	National Taiwan University of Science and Technology, Taiwan
12:00 – 12:15	A-O-365	Takashi Harumoto	Stress-induced magnetic anisotropy in palladium cobalt alloy film and its application to hydrogen sensor	Tokyo Institute of Technology, Japan

2021/11/17

A3 Session chair:

Prof. Yu-Lin Kuo

National Taiwan University of Science and Technology, Taiwan

Prof. Sagung Dewi Kencana

National Taiwan University of Science and Technology, Taiwan

Time	Oral number	Presenting Author	Title	Affiliation
9:00 – 9:30	A-I-307	Sagung Dewi Kencana	The Preparation La _{0.6} Sr _{0.4} Co _{0.2} Fe _{0.8} Mesoporous Cathode Material via Atmospheric-Pressure Plasma Jet for Solid Oxide Fuel Cells Application	National Taiwan University of Science and Technology
9:30 – 9:45	A-O-10	Tai-Nan Lin	Fabrication and performance evaluation for low-temperature anode-supported solid oxide fuel cell with samarium-doped ceria electrolyte	Institute of Nuclear Energy Research
9:45 – 10:00	A-O-349	Po-Hao Wang	Influences of Feedstocks on Microstructures of Plasma Sprayed SOFC anode	National Taipei University of Technology
10:00 – 10:15	A-O-62	Yen-Yu Chen	Fabrication of BaCeZrYYbO _{3-d} Thin Films by Colloidal Coating Processes for Sustainable Energy Application	Chinese Culture University
10:15 – 10:30	A-O-109	Min-Chen Chuang	Fabrications and electrical properties of (Bi ₂ Te ₃) _{100-x} Cox thin films deposited by direct current magnetron sputtering	Ming Chi University of Technology
10:30 – 10:45	A-O-232	Iuliia Papina	Fabrication and Characterization for Vanadium Oxynitride Thin Films by Magnetron Sputtering	National Yang Ming Chiao Tung University
10:45 – 11:00	A-O-69	Shao-Ju Shih	Preparation and characterization of SiO ₂ -polymethyl methacrylate films for radiative cooling applications	National Taiwan University of Science and Technology, Taiwan

2021/11/17

A4 Session chair:

Prof. Meng-Lin Tsai National Taiwan University of Science and Technology, Taiwan

Prof. Cheng-Ying Chen Ming Chi University of Technology, Taiwan

Time	Oral number	Presenting Author	Title	Affiliation
13:30 – 14:00	A-I-328	Cheng-Ying Chen	Nontoxic/ Earth-abundant Metal Chalcogenide Materials for Photovoltaics: $\text{Cu}_2\text{ZnSn}(\text{S},\text{Se})_4$ and $\text{Cu}_2\text{BaSn}(\text{S},\text{Se})_4$	Ming Chi University of Technology, Taiwan
14:00 – 14:15	A-O-133	Cheng-Yu Liu	Preparation, Structure and Properties of Perovskite Oxides as Transparent Conducting Films	National Dong Hwa University, Taiwan
14:15 – 14:30	A-O-137	Shui-Yang Lien	Enhanced electron transport in Ta ⁵⁺ doped TiO ₂ prepared by plasma-enhanced atomic layer deposition for perovskite solar cells	Xiamen University of Technology, China
14:30 – 14:45	A-O-138	Shui-Yang Lien	Optoelectronic properties of Ga-doped ITO thin films deposited by plasma enhanced atomic layer deposition	Xiamen University of Technology, China
14:45 – 15:00	A-O-249	Montree Hankoy	Effect of Oxygen Flow Rate on Physical, Optical and Electrical Properties of SnO ₂ Thin Films Prepared by Reactive DC Magnetron Sputtering	King Mongkut's Institute of Technology Ladkrabang, Thailand
15:00 – 15:15	A-O-54	Aparporn Sakulkalavek	Enhanced Thermoelectric Properties of Bi ₂ Te ₃ Film via CuI Doping	King Mongkut's Institute of Technology Ladkrabang, Thailand

Symposium B. Nanostructured and nanocomposite coatings

2021/11/15

B1 Session chair:

Prof. Hong-Ying Chen National Kaohsiung University of Science and Technology, Taiwan

Time	Oral number	Presenting Author	Title	Affiliation
13:30 – 14:00	B-I-406	Neeraj Khare	Nanocomposites for Clean Energy Generation	Indian Institute of Technology Delhi, India
14:00 – 14:15	B-O-118	Mai Ugajin	Time-resolved Photoluminescence Study of Alq3 in the presence of Ag Nanomesh Structure	Kitami Institute of Technology, Japan
14:15 – 14:30	B-O-150	Wei-cheng chang	Effect of substrate bias to thermal stability and microstructure evolution in highly (111)-oriented nanotwinned Ag thin films during annealing process	National Tsing Hua University, Taiwan
14:30 – 14:45	B-O-269	Yu-Tang Luo	Facile high haze transparent electrode preparation by atmospheric pressure plasma jet for photovoltaic application	National Taiwan University, Taiwan
14:45 – 15:00	B-O-309	Yi-Xiu Chen	Outstanding Rate Capability of Silicon-based Anode by Interlayered Silver Nanoparticles for Lithium-Ion Thin-film Battery	National Cheng Kung University, Taiwan

2021/11/16

B2 Session chair:

Prof. Fan-Yi Ouyang

National Tsing Hua University, Taiwan

Time	Oral number	Presenting Author	Title	Affiliation
10:30 – 10:45	B-O-324	C. A. Ku	A novel application of nanostructured anodic alumina to alcohol vapor sensing and the structure analysis	National Cheng Kung University, Taiwan
10:45 – 11:00	B-O-335	Muhammad Muqeet Rehman	Characterization of graphene flower-doped ZnO thin film, and its application to triboelectric nanogenerator	Jeju National University, Korea
11:00 – 11:15	B-O-376	Aimee Lorraine M. Blaquera	Oil adsorption kinetics of calcium stearate-coated kapok fibers	University of the Philippines Diliman, Philippine
11:15 – 11:30	B-O-351	Khan Shenawar Ali	Humidity Sensing Behaviour on 2-Dimensional In ₂ Se ₃ Layer	Jeju National University, Korea

2021/11/17

B3 Session chair:

Prof. Chia-Yun Chen

National Cheng Kung University, Taiwan

Time	Oral number	Presenting Author	Title	Affiliation
9:00 – 9:30	B-I-433	Shang-Jui Chiu	Structural enhancement of BiFeO ₃ /SrTiO ₃ artificial superlattices	National Synchrotron Radiation Research Center, Taiwan
9:30 – 9:45	B-O-260	Cheng-Wei Chang	Magnetic properties of MnGa thin film on BCC, FCC, and HCP crystal underlayers	Yuan Ze University, Taiwan
9:45 – 10:00	B-O-30	Ya-Hsueh Lin	Magnetic Fe ₃ O ₄ Composite Particles with Ag-TiO ₂ -xN _x Shell Structure for Dye Adsorption and Visible-Light Photocatalysis	National Chung Hsing University, Taiwan
10:00 – 10:15	B-O-317	Wei-En Ke	Magnetic property of epitaxial high entropy oxide	National Yang Ming Chiao Tung University, Taiwan
10:15 – 10:30	B-O-361	Xinxing Xu	Soft magnetic properties of AlN/Fe-Co-N/AlN thin films	Tokyo Institute of Technology, Japan

2021/11/17

B4 Session chair:

Prof. Shang-Jui Chiu

National Synchrotron Radiation Research Center, Japan

Time	Oral number	Presenting Author	Title	Affiliation
13:30 – 13:45	B-O-64	Nan-Ming Lin	Green LED Mirror Tunnel with a Metal-based half Mirror	Technology Research Institute, Taiwan
13:45 – 14:00	B-O-147	Nan-Ming Lin	Design and Fabrication of Distributed Bragg Reflector and Its application to LED Mirror Tunnel	Technology Research Institute, Taiwan
14:00 – 14:15	B-O-329	Wenchang Li	Constituting-layer-thickness effect on primitive exchange coupling in CoPt/MnN layered structures	Tokyo Institute of Technology, Japan
14:15 – 14:30	B-O-330	Qianwen Wang	Enhancement of positive magnetoresistance of graphene by depositing Co particles on the surface	Tokyo Institute of Technology, Japan
14:30 – 14:45	B-O-196	Yu-An Chien	Nanoparticle Reinforced High Strength Ni-TiO ₂ Composite Film Electroplated by Supercritical Carbon Dioxide Assisted Method	Tokyo Institute of Technology, Japan
14:45 – 15:00	B-O-375	Kun-Ta, Lin	Impacts of mutual phase interactions on piezoelectric responses and photocatalytic hydrogen evolution reactions	National Cheng Kung University, Taiwan

2021/11/17

B5 Session chair:

Prof. Kuan-Che Lan

National Tsing Hua University, Taiwan

Time	Oral number	Presenting Author	Title	Affiliation
15:30 – 13:45	B-O-36	Chen Chien-Chieh	Mechanical Properties and High-Temperature Oxidation of CrMoN/TiVxN Multilayered Coatings with Different Vanadium Contents	National Formosa University, Taiwan
15:45 – 16:00	B-O-80	Chih-Min Tu	Fabrication and mechanical properties of sputtering HfN/TiN multilayer film	National United University, Taiwan
16:00 – 16:15	B-O-280	Lei Huang	Control of Self-Assembly Seeding of Diamond Nanoparticles on Nanowall Structures for Enhancing Field Emission	Kyushu University, Japan
16:15 – 16:30	B-O-73	Abdelrahman Zkria	Thermal stability of nanodiamond composite films coated on Silicon and Tungsten carbide substrates by arc plasma deposition method	Kyushu University, Japan
16:30 – 16:45	B-O-372	Lalani Fernando	Biocompatibility and antimicrobial activity of Copper(II) oxide hybridized with Nano silicate platelets	National Chung Hsing University, Taiwan

Symposium C. Semiconductor, optoelectronic, and flexible device films

2021/11/15

C1 Session chair:

Prof. Ching-Lien Hsiao Linköping University, Sweden

Time	Oral number	Presenting Author	Title	Affiliation
13:30 – 14:00	C-I-213	Qixin Guo	Color-tunable emission from rare earth doped gallium oxide films	Saga University, Japan
14:00~14:15	C-O-90	Sian-Hong Ciou	A high sensitivity strain sensor based on Kirigami graphene	Ming Chi University of Technology, Taiwan
14:15~14:30	C-O-98	Ching Yao Cheng	Low Temperature Metal-to-Metal Direct Bonding on Highly (111) Oriented Nanotwinned Silver and Fine-grained Silver Thin Films	National Tsing Hua University, Taiwan
14:30~15:00	C-I-248	Shui-Yang Lien	Titanium-based oxides prepared by plasma-enhanced atomic layer deposition and their applications in perovskite solar cells	Xiamen University of Technology, China
15:00~15:15	C-O-113	Yong Jyun Wang	The application of flexible magnetoelectric element made by $\text{PbZr}_{0.52}\text{Ti}_{0.48}\text{O}_3/\text{CoFe}_2\text{O}_4$ composite ceramics on mica substrate.	National Tsing Hua University, Taiwan

2021/11/16

C2 Session chair:

Prof. Bohr-Ran Huang National Taiwan University of Science and Technology, Taiwan

Time	Oral number	Presenting Author	Title	Affiliation
10:30 – 11:00	C-I-225	Wei-Fang Su	Disruptive Innovation for Photovoltaic Technology: Perovskite Solar Cells	National Taiwan University and Ming-Chi University of Technology, Taiwan
11:00~11:30	C-I-233	Pei-Wen Li	The Wonderful World of Designer Germanium Quantum Dots	National Yang Ming Chiao Tung University, Taiwan
11:30~11:45	C-O-117	Naoya Satoh	Fabrication and Characterization of Blue OLED with Ag thin-film and Ag/ZnS/Ag Multilayered Electrodes	Kitami Institute of Technology, Japan
11:45~12:15	C-I-203	Jian-Jang Huang	Optical frequency modulation based on Acousto- Optical Interactions for visible light communication	National Taiwan University, Taiwan

2021/11/17

C3 Session chair:

Prof. Hiroyuki Oguchi

Applied Chemistry, Japan

Time	Oral number	Presenting Author	Title	Affiliation
9:00~9:30	C-I-362	Prof. Bui Nguyen Quoc Trinh	Solution-Processable ZnO-based and CuO-based Thin Films towards. Application of Oxide-Semiconducting Electronic Devices	Vietnam National University, Vietnam
9:30~9:45	C-O-139	Shui-Yang Lien	Modulated work function of MoO _x thin film deposited by PEALD with various oxygen plasma exposure times	Xiamen University of Technology, China
9:45~10:00	C-O-151	Ting-Kai Lin	Multiferroic and Nanomechanical Properties of Bi _{1-x} Dy _x FeO ₃ Nanocrystalline Films (x = 0.00–0.15)	National Taipei University of Technology, Taiwan
10:00~10:15	C-O-175	Faezeh Alijan Farzad Lahiji	Optical and electrical properties of NiO films grown by reactive magnetron sputtering	Linköping University, Sweden
10:15~10:30	C-O-227	Ing-Song Yu	Nitrogen-rich MoS ₂ surface for the van der Waals epitaxy of GaN films	National Dong Hwa University, Taiwan
10:30~10:45	C-O-251	Chun Fan Wen	Characteristics and applications of ZnGa ₂ O ₄ thin films grown on sapphire substrates by sputtering	National Chung Hsing University, Taiwan

2021/11/17

C4 Session chair:

Prof. Bui Nguyen Quoc Trinh Vietnam National University, Vietnam

Time	Oral number	Presenting Author	Title	Affiliation
11:00~11:30	C-I-226	Prof. Akihiko Fujiwara	Solution Processed Field-Effect Transistor for Printed Electronics	Kwansei Gakuin University, Japan
11:30~11:45	C-O-253	Deng Li Ko	High-stability transparent flexible energy storage device based on antiferroelectric perovskite lead zirconate	National Yang Ming Chiao Tung University, Taiwan
11:45~12:00	C-O-256	WEI-HAN CHEN	High-performing Flexible and Transparent Deep-Ultraviolet Photodiode of NiO-Ga ₂ O ₃ Heteroepitaxy	National Yang Ming Chiao Tung University, Taiwan
12:00~12:15	C-O-265	Yu-Hong Lai	Elasto-magnetoelectric Coupling in Flexible Cr ₂ O ₃ /muscovite Heteroepitaxy	National Yang Ming Chiao Tung University, Taiwan
12:15~12:45	C-I-422	Prof. Heeyeop Chae	Plasma Atomic Layer Etching Processes for Dielectric and Metals	Sungkyunkwan University (SKKU), Korea

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C5 Session chair:

Prof. Akihiko Fujiwara Kwansei Gakuin University, Japan

Time	Oral number	Presenting Author	Title	Affiliation
13:30~14:00	C-I-404	Prof. Hiroyuki Oguchi	Film growth of hydrides toward hydride-based devices	Shibaura Institute of Technology, Japan
14:00~14:15	C-O-286	Hsiang-Wei Tsai	Improving H ₂ Production Using Water-Splitting of LaMO ₃ (M= Al, M, Co, Ni) Photocathode and Au-Nanoparticle Decorated LaFeO ₃	National Cheng-Kung University, Taiwan
14:15~14:30	C-O-302	Eun Chong Ko	Growth of low resistivity Ruthenium thin film by atomic layer deposition	Seoul national university of science and technology, Korea
14:30~14:45	C-O-315	Ahmad Nur Riza	An Atmospheric Pressure Plasma (APP) for Cutting Tin (Sn) Whiskers Growth Driven by Mechanical Stressing	National Taiwan University of Science and Technology, Taiwan
14:45~15:15	C-I-472	Dr. Ching-Lien Hsiao	A comprehensive study of high-quality GaN film grown by magnetron sputter epitaxy	Linköping University, Sweden

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C6 Session chair:

Prof. Kao-Shuo Chang National Cheng Kung University, Taiwan

Time	Oral number	Presenting Author	Title	Affiliation
09:00 - 09:15	C-O-316	Bruno Rao	Development of DC piezoelectric nanogenerators based on ZnO homojunction multilayers	National Cheng-Kung University, Taiwan
09:15 - 09:30	C-O-345	Aftab Saleem	Flexible Memristor for wearable electronics with TaOx as switching layer Comprising Synaptic Behaviour for Neuromorphic Computing	National Yang Ming Chiao Tung University, Taiwan
09:30 - 09:45	C-O-415	Kyeong-Youn Song	Microstructure and Electrical Properties of Co-sputtered CoAl Thin Films as VLSI Interconnect Material	Sungkyunkwan University
09:45 – 10:00	C-O-357	UMESH GAWAI	Interfacial switching AlOx/TaOx based synaptic RRAM for Neuromorphic applications	National Yang Ming Chiao Tung University, Taiwan

Symposium D. Tribological and protective coatings

2021/11/17

D1 Session chair:

Prof. Yin-Yu Chang

National Formosa University, Taiwan

Time	Oral number	Presenting Author	Title	Affiliation
9:00 – 9:30	D-I-373	Tetsuya Takahashi	Contribution towards Sustainable Society through Development of Coating Materials and Equipment by Arc Ion Plating Technology	Kobe Steel Ltd, Japan
9:30 – 9:45	D-O-395	Tai-Cheng Chen	The effect of microstructure on the corrosion behavior of Inconel 625 coatings prepared by various thermal spraying process	Institute of Nuclear Energy Research, Taiwan
9:45 - 10:00	D-O-381	Teng Zhou	Mechanical and tribological property of the Cr/Zr and CrN/Zr coating treated by high temperature oxidation	Southwest Jiaotong University, China
10:00 - 10:15	D-O-358	Hsuan Ming Liao	Developments of the multi-layered acoustic absorption coatings	National Taipei University of Technology, Taiwan
10:15 - 10:30	D-O-336	ziyi zhao	Microstructure, Wear and Corrosion Behaviors of Electrodeposited Ni-diamond Micro-composite Coatings	Jiangsu Ocean University, China

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D2 Session chair:

Prof. Wan-Yu Wu

Da-Yeh University, Taiwan

Time	Oral number	Presenting Author	Title	Affiliation
15:30 – 16:00	D-I-368	Shih-Hsun Chen	Investigation of Plasma Sprayed and Cold Sprayed Al _{0.5} CoCrFeNi ₂ Ti _{0.5} High Entropy Alloy Coatings	National Taiwan University of Science and Technology, Taiwan
16:00 – 16:15	D-O-356	I Mo Haung	Developments of functional coating with various structures for the under water applications	National Taipei University of Technology, Taiwan
16:15 – 16:30	D-O-353	Xi-Zhen Lin	Preparation and characteristics of the thermal sprayed thermal barrier coatings	National Taipei University of Technology, Taiwan
16:30 – 16:45	D-O-297	Che-An Lin	Improve the corrosion resistance of Haynes 282 with ZrN coating	National Tsing Hua University, Taiwan
16:45 – 17:00	D-O-293	Chin-Han Tseng	Structural and mechanical properties of TaWN films	National Taiwan Ocean University, Taiwan
17:00 – 17:15	D-O-277	Kungen Teii	Wetting Behavior of Plasma-Treated Ultrahard Boron Nitride Films	Kyushu University, Japan
17:15 – 17:30	D-O-029	Shi-Yu Huang	Effect of pulse on-time different of substrate bias and target power output on the performance of TiN deposited by HiPIMS process	Ming Chi University of Technology, Taiwan

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D3 Session chair:

Prof. Fan-Bean Wu National United University, Taiwan

Time	Oral number	Presenting Author	Title	Affiliation
9:00 – 9:30	D-I-320	Ben Beake	Optimization of coating microstructure and mechanical properties for improved fracture resistance under impact loading	Micro Materials Ltd Micro, UK
9:30 – 9:45	D-O-350	Zeng Sheng Wei	Development of boron carbide coating by the thermal spraying method	National Taipei University of Technology, Taiwan
9:45 – 10:00	D-O-340	Si-Wei Lin	Thermal spraying YAG coating for the plasma etching protection	Nation Taipei University of Technology, Taiwan
10:00 – 10:15	D-O-264	Wei Chieh Su	Effect of molybdenum disulfide addition on tribocorrosion of plasma electrolytic oxidation coatings on AZ31 magnesium alloy	Ming Chi University of Technology, Taiwan
10:15 – 10:30	D-O-263	Neng-Kun Zheng	The effect of MoS ₂ addition on tribocorrosion by plasma electrolytic oxidation on Ti	Ming Chi University of Technology, Taiwan
10:30 – 10:45	D-O-231	Lama Osman	Ultrananocrystalline diamond film coated on Titanium substrates by Arc Plasma Deposition Technique for biomedical applications.	Dept. of Appl. Sci. for Electr. & Mat., Kyushu Univ., Fukuoka 816-8580, Japan

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D4 Session chair:

Prof. Yin-Yu Chang National Formosa University, Taiwan

Time	Oral number	Presenting Author	Title	Affiliation
11:00 – 11:15	D-O-081	Shu-Yu Hsu	Microstructure and mechanical characteristics of (Mo, Hf)N coatings co-sputtered by input power modulation	National United University , Taiwan
11:15 – 11:30	D-O-220	Bing Hao Liang	Layer Thickness Modulation Effect on Mechanical Properties of Nanolayered Mo-Si-N coatings	National Chung Hsing University, Taiwan
11:30 – 11:45	D-O-156	Lee Jun Yen	Effective Reduction of Non-twinned Transition Region in Sputtered Nanotwinned Ag Thin Films	National Tsing Hua University, Taiwan
11:45 – 12:00	D-O-145	Yi-Jyun Chen	Effect of nitrogen content on the mechanical properties of (NbTaMoW) _{Nx} films	National Taiwan Ocean University, Taiwan
12:00 – 12:15	D-O-084	Cecil Cherian Lukose	Mechanical performance of biocompatible Ti-Au thin films grown on glass and Ti6Al4V substrates.	Northumbria University, England
12:15 – 12:30	D-O-028	Kuo-Chun Lo	Characterization of enhanced TiN coating deposited by an arc-HiPIMS hybrid process: Effect of the power output of HiPIMS	Ming Chi University of Technology, Taiwan
12:30 – 12:45	D-O-015	Yuanyuan Xu	Hard reflective thick Cr-C solid solution by magnetron sputtering: A simple multifunctional coating	Ningbo Institute of Materials Technology and Engineering, China

Symposium E. Organic and biological coatings

2021/11/18

E1 Session chair:

Prof. Her-Hsiung Huang National Yang Ming Chiao Tung University, Taiwan

Time	Oral number	Presenting Author	Title	Affiliation
9:00 – 9:30	E-I-392	Han-Cheol Choe	Surface Modification for Dental Implant Alloy Using Various Experimental Methods	Chosun University, Korea
9:45 – 10:00	E-I-262	Peng Chen	Nanobiotechnology for Smart Surface Designing of Metallic Dental Implants	Tokyo Medical and Dental University, Japan
10:00 – 10:30	E-I-296	Chia-Fei Liu	Using a multiple surface treatment to enhance osteogenesis and inhibit osteoclastogenesis	National Yang Ming Chiao Tung University, Taiwan

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E2 Session chair:

Prof. Po-Yu Chen National Tsing Hua University, Taiwan

Prof. Chia-Fei Liu Natioanl Yang Ming Chiao Tung University, Taiwan

Time	Oral number	Presenting Author	Title	Affiliation
11:00 – 11:30	E-I-197	Po-Yu Chen	Bio-Inspired Hybrid Wettability Surfaces for Fog Collection via Rapid 3D Printing and Atmospheric Pressure Plasma Treatment	National Tsing Hua University, Taiwan
11:30 – 12:00	E-I-221	Han-Yu Hsueh	Frog-Skin-Inspired Slippery Antibiofouling Coatings Through Degradable Block Copolymer Wrinkling	National Chung Hsing University, Taiwan
12:00 – 12:15	E-O-334	Muhammad Muqheet Rehman	High performance biocompatible humidity sensor based on hydrophilic albumin	Jeju National University, Korea
12:15 – 12:30	E-O-339	Chia-Chi Wu	Hydroxyapatite coating with various morphology by the suspension thermal spray	National Taipei University of Technology, Taiwan

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E3 Session chair:

Prof. Ta-Chin Wei Chung Yuan Christian University, Taiwan

Prof. Yi-Chang Chung National University of Kaohsiung, Taiwan

Time	Oral number	Presenting Author	Title	Affiliation
13:30 – 14:00	E-I-387	Yi-Chang Chung	Controllable Catechol-derived polymer coatings on variety of surface	National University of Kaohsiung, Taiwan
14:00 – 14:30	E-I-171	Jrjeng Ruan	Impacts of phase interactions on materials polarity, piezoelectricity and catalytic performance	National Cheng Kung University, Taiwan
14:30 – 14:45	E-O-208	Min-Shin Huang	Low-damage plasma treated CVD-grown bilayer graphene for chemiresistive biosensor applications	Ming Chi University of Technology, Taiwan
14:45 – 15:00	E-O-124	Yu-Cheng Liu	Preparation and characterization of thin film bioactive glass via magnetron sputtering	National Taiwan University of Science and Technology, Taiwan

Symposium F. Metallic and high entropy alloys coatings

2021/11/18

F1 Session chair:

Prof. Shou-Yi Chang National Tsing Hua University, Taiwan

Time	Oral number	Presenting Author	Title	Affiliation
9:00 – 9:30	F-I-414	Ulf Jansson	The Influence of Kinetic Effects in Magnetron Sputtering of High-Entropy Thin Film Materials	Uppsala University, Sweden
9:30 – 9:45	F-O-017	Ngetich Gilbert Kipkirui	Microstructures and mechanical properties of Al _{0.5} CoCrFeNi ₂ Ti _{0.5} thin film coatings	National Taiwan University of Science and Technology, Taiwan
9:45 – 10:00	F-O-035	Kai-Chun Huang	Why do We add Silicon and Boron to be AlTiCrNbSiBN High Entropy Alloy Nitride Hard Coatings?	National Formosa University, Taiwan
10:00 – 10:15	F-O-097	Jyh-Wei Lee	Fabrication of AlCrNbSiTiB thin films using a high power impulse magnetron sputtering technique: Effects of boron addition	Ming Chi university of Technology, Taiwan
10:15 – 10:30	F-O-219	Yuhang Li	Long-term oxidation resistance and degradation behavior of multi-principal amorphous FeCrAlMoSiY coating on Zry-4 in 1200 °C steam	Ningbo Institute of Industrial Technology, China
10:30 – 10:45	F-O-366	Weikai Luo	Magnetic properties and microstructure of Fe _{0.18} Co _{0.36} Ni _{0.21} Al _{0.10} Cr _{0.15} high entropy alloy under different annealing temperature	Tokyo Institute of Technology, Japan

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F2 Session chair:

Prof. Ko-Wei Lin National Chung Hsing University, Taiwan

Time	Oral number	Presenting Author	Title	Affiliation
11:00 – 11:15	F-O-014	Pei-Tzu Lee	Strong Dependence of Sn Electromigration on Its Crystallographic Orientation in a Blech Structure	National Taiwan University, Taiwan
11:15 – 11:30	F-O-123	Hiroteru Ohara	Influence of exposure to water vapor in vacuum on agglomeration of Ag thin films	Kitami Institute of Technology, Japan
11:30 – 11:45	F-O-271	Pattraporn Krajaisri	Investigation of Pulse Current Densities and Temperatures on Electrodeposition of Tin-Copper Alloys	Kasetsart University, Thailand
11:45 – 12:00	F-O-359	Suiyu Qiu	Perpendicular Magnetic Anisotropy of CoPt/VO ₂ Bilayer Films Grown on Glass Substrate	Tokyo Institute of Technology, Japan
12:00 – 12:15	F-O-398	Jeng Shun Lo	Fabrication and evaluation of electroplated grinding tools strengthened with Cr-C and Ni-B deposits using diamond particles in an average size of 150 μm	Chang Gung University, Taiwan
12:15 – 12:30	F-O-169	Jhen-De You	Time-dependent surface wetting property of nano-textured stainless steel thin film deposited by DC magnetron sputtering	National Taiwan University, Taiwan

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F3 Session chair:

Prof. Jyh-Wei Lee

Ming Chi University of Technology, Taiwan

Time	Oral number	Presenting Author	Title	Affiliation
13:30 – 13:45	F-O-374	Jia-Wei Chen	Physical property of epitaxial high entropy alloy films	National Yang Ming Chiao Tung University, Taiwan
13:45 – 14:00	F-O-027	Ting-Wei Liu	Study on microstructure and antimicrobial properties of Zr-Cu-Ti thin film metallic glasses deposited by high power impulse magnetron sputtering	Ming Chi University of Technology, Taiwan
14:00 – 14:15	F-O-103	Cheng-Yi Lai	Mechanical properties and corrosion resistance of TiNbTa films on Ti-6Al-4V alloy	National Taiwan Ocean University, Taiwan
14:15 – 14:30	F-O-393	Chun-Wen Chan	Microstructures and properties evaluation of the thermal sprayed CuNiTi ternary alloy coating	National Taipei University of Technology, Taiwan
14:30 – 14:45	F-O-399	Yu-Chen Liu	Study of the tensile fracture behavior of Cu-, Ni/Cu-, and Cr-C/Ni/Cu-coated Magnesium alloy (AZ31) specimens	Chang Gung University, Taiwan
14:45 – 15:00	F-O-165	Jian-Jie Wang	Ultra-High Hardness Nanotwinned High Entropy Alloys CoCrFeNi Thin Films: Modifying Residual Stress without Scarifying Hardness Through Tuning Substrate Bias	National Tsing Hua University, Taiwan

Symposium G. Topical symposium: theory, simulation, and modelling; quantitative surface analysis

2021/11/16

G Session chair:

Dr. Chun-Wei Pao Research Center for Applied Sciences, Academia Sinica, Taiwan

Time	Oral number	Presenting Author	Title	Affiliation
10:30 – 10:45	G-O-386	Wan-Ta Fan	Numerical Analysis of Improved Hump Characteristics by Quantum Effect in Amorphous In-W-O Nanosheet Thin-Film Transistor	National Yang Ming Chiao Tung University, Taiwan; Slivaco Taiwan Co., Ltd.
10:45 – 11:00	G-O-371	Yves Ira A. Reyes	Effects of different surface facets on the binding of metals to MgO substrate: a DFT study.	Naitonal Tsing Hua University, Taiwan
11:00 – 11:15	G-O-343	Moritz Sontheimer	Deep learning based morphological solder segmentation: baseline on small-scale datasets	National Taiwan University of Science and Technology, Taiwan
11:15– 11:30	G-O-043	I-Sheng Ting	Evaluation of stress relief efficiency in ZrN/Zr and ZrN/Ti bilayer thin films using an energy balance model	National Tsing Hua University, Taiwan