TACT 2019 Oral Program (arranged by Day)

Sunday, November 17, 2019	
09:00-18:00	Registration
13:30-18:00	Company Exhibition
Conference Room: Lecture Hall **Opening: Prof. Ming-Tzer LIN**	
13:30-13:50	Opening President of TACT (**Prof. Jyh-Wei Lee**) President of National Taipei University of Science and Technology (**Prof. Sea-Fue Wang)**
Plenary Speech Chair: Prof. Jyh-Wei Lee	
13:50-14:40	Topics: A historical perspective on plasma assisted PVD, from its beginnings to recent developments Prof. **Allan Matthews** Materials Engineering, School of Materials, University of Manchester, UK
Keynote Session I & II Chairs: Prof. Jyh-Ming Ting, Prof. Ray-Hua Horng	
14:40-15:20	Topics: Versatility of Titania for Photocatalysis: from Transparent to Colored and Black Films Prof. **Ming-Show Wong** Department of Materials Science and Engineering, National Dong Hwa University, TAIWAN
15:20-16:00	Topics: Semiconductor Nanowires for Optoelectronics and Energy Applications Prof. **Chennupati Jagadish** Department of Electronic Materials Engineering, The Australian National University, AUSTRALIA
16:00-16:15	Break
Oral Session Chairs: **Prof. Her-Hsiung Huang, Dr. Chao-Cheng Kaun**	
16:15-16:45	E-I-0028 Electrodeposition mechanism of biofunctional molecules to titanium surface **Takao Hanawa**, Osamu Fukushima Institute of Biomaterials and Bioengineering, Tokyo Medical and Dental University, Japan
16:45-17:15	F-I-0335

	B4C-containing amorphous multilayer X-ray and neutron optics **Fredrik Eriksson**[1], Naureen Ghafoor[1], Sjoerd Broekhuijsen[1], Alexei Vorobiev[2], Jens Birch[1] [1]Department of Physics, Chemistry and Biology, IFM, Linköping University, SWEDEN [2]Institut Max von Laue-Paul Langevin, FRANCE
17:15-17:45	G-I-0334 Element-specific analysis of surfaces and interfaces with nuclear resonance techniques **Katsuyuki Fukutani** Institute of Industrial Science, University of Tokyo, JAPAN Advanced Science Research Center, Japan Atomic Energy Agency (JAEA), JAPAN
18:00-20:00	Welcome Reception

Monday, November 18, 2019

09:00-18:00	Registration
09:00-18:00	Company Exhibition
Conference Room: Lecture Hall **Keynote Session III~VI Chairs: Prof. Yin-Yu Chang, Prof. Yu-Lin Kuo, Prof. Ming-Tzer Lin, Prof. Bohr-Ran Huang**	
09:00-09:40	Topic: Combinatorial Approaches in the Development of PVD High Performance Thin Films for Engineering Applications Prof. **Michael Stüber** Institute for Applied Materials (Applied Materials Physics, IAM), Karlsruhe Institute of Technology (KIT), GERMANY
09:40-10:20	Topic: VHF Plasmas for Plasma Assisted Deposition and Surface Modification Prof. **Geun Young Yeom** School of Advanced Materials Science and Engineering, Sungkyunkwan University, SOUTH KOREA
10:20-10:40	Break
10:40-11:20	Topic: Quantum-Mechanically Guided Materials Design and Experimentally Guided Quantum Mechanical Calculations of Short Range-Ordered Thin Film Materials & a Critical Appraisal of High Entropy Ceramics Prof. **Jochen Schneider** Materials Chemistry, RWTH Aachen University, GERMANY
11:20-12:00	Topic: Plasma Synthesis of Surfaces and Nanoparticles for Single-step, Reagent-free Functionalisation with Multiple Bioactive Agents: Fundamentals and Applications Prof. **Marcela Bilek** School of Aerospace, Mechanical and Mechatronic Engineering, & School of Physics, University of Sydney, AUSTRALIA

12:00-13:30	Lunch
13:30-15:30	Oral Sessions
15:30-16:00	Break
16:00-18:00	Oral Sessions
16:00-18:15	Students Award I
18:00-19:30	Poster Session I

Symposium A. Coatings for Sustainable Energy	
Conference Room: Room 201	
Session A1. Chairs: **Chen-Hao Wang, National Taiwan University of Science and Technology, TAIWAN** **Jih-Jen Wu, National Cheng Kung University, TAIWAN**	
13:30-14:00	A-I-0494 Thin Film Technology for Graphene-Semiconductors to Improvement Efficient of Gas sensor and DSSC Applications **Won-Chun Oh** Hanseo University, SOUTH KOREA
14:00-14:15	A-O-0316 Earth-Abundant Chalcogenide $Cu_2BaSn(S,Se)_4$ Thin Film Growth for Photovoltaic Absorber **You-Syuan Ye**[1,2,3], Je-Ming Lin[1,2,4], Chih-Yang Huang[1], Kuei-Hsien Chen[1,2], Li-Chyong Chen[1,5], Cheng-Ying Chen[1,2,5] [1]Center of Condensed Matter Sciences, National Taiwan University, TAIWAN [2]Institute of Atomic and Molecular Sciences, Academia Sinca, TAIWAN [3]Department of Chemistry, National Taiwan Normal University, TAIWAN [4]Institute of Optoelectronic Sciences, National Taiwan Ocean University, TAIWAN [5]Center of Atomic Initiative for New Materials, National Taiwan University, TAIWAN
14:15-14:30	A-O-0196 Growth path of Cu_2ZnSnS_4 thin films during sulfurization **Chia-Ying Su**, Fitri Nur Indah Sari, Jyh-Ming Ting Department of Materials Science and Engineering, National Cheng Kung University, TAIWAN

14:30-14:45	A-O-0523 Photoelectrochemical Properties of Cuprous Films Electrodeposited on F-Doped Tin Oxide Conductive Glass Hsin-Yu Huang[1], Ching An Huang[1], **Wei Chih Huang**[1], Fu-Yung Hsu[2], Yi-Ting Tsai[2], Mohammad Dani[3] [1]Department of Mechanical Engineering, Chang Gung University, TAIWAN [2]Department of Materials Engineering, Ming Chi University of Technology, TAIWAN [3]Center for Science and Technology of Advanced Materials., INDONESIA
14:45-15:00	A-O-0238 Photoemission-Assisted Plasma Enhanced CVD Synthesis of Nitrogen-Doped Graphite for Pt Alternative Catalyst **Shuichi Ogawa**[1], Susumu Hashimoto[1], Yoshiya Haga[1], Xiang-Bin Han[2], Shen Ye[2], Yuji Takakuwa[1] [1]IMRAM, Tohoku University, JAPAN [2]Graduate School of Science, Tohoku University, JAPAN
15:00-15:15	A-O-0211 Synthesis, Characterization and Piezoelectrically Enhanced Photocatalysis of $Bifeo_3$ Thin Films on FTO Substrate **Nguyen Thi Nghi Nhan**[1], Kao-Shuo Chang[2] [1]Department of Materials Science and Engineering, National Cheng Kung University, TAIWAN [2]Promotion Center for Global Materials Research (PCGMR), National Cheng Kung University, TAIWAN
15:15-15:30	A-O-0079 Performance Evaluation for Anode-Supported Solid Oxide Fuel Cell with LSC-Based Cathode **Tai-Nan Lin**, Wei-Xin Kao, Chun-Yen Yeh, Hong-Yi Kuo, Yung-Neng Cheng, Ruey-Yi Lee Institute of Nuclear Energy Research, Taoyuan City, TAIWAN R.O.C.
15:30-16:00	Break
Session A2. Chairs: **Yu-Lin Kuo, National Taiwan University of Science and Technology, TAIWAN** **Shih-Chieh Hsu, Tamkang University, TAIWAN**	
16:00-16:30	A-I-0031 Novel Nitride and Oxide Thin-Film Materials for Thermoelectrics **Per Eklund** Linköping University, SWEDEN
16:30-16:45	A-O-0406 Thermoelectric Properties of Bi_2Te_3-Sb_2Te_3 Thin Films deposited by Co-Magnetron Sputtering Process **Athorn Vora-ud**[1,2], Mati Horprathum[3], Tosawat Seetawan[1,2] [1]Program of Physics, Faculty of Science and Technology, Sakon Nakhon Rajabhat University, THAILAND

	[2]Thin Films Laboratory, Center of Excellence for Alternative Energy, Sakon Nakhon Rajabhat University, THAILAND [3]National Electronics and Computer Technology Center, THAILAND
16:45-17:00	A-O-0220 Study on Thermoelectric Properties Optimization of Mixed-Phase Bismuth Telluride Thin Films Deposited via Co-Evaporation **Ya-Cheng Lin**[1], Yen-Ju Wu[2], Shih-Chieh Hsu[3], Yibin Xu[2], Tung-Han Chuang[4], Sheng-Chi Chen[1, 5,] [1]Department of Materials Engineering and Center for Plasma and Thin Film Technologies, Ming Chi University of Technology, TAIWAN [2]Center for Materials research by Information Integration (CMI2), Research and Services Division of Materials Data and Integrated System (MaDIS), National Institute for Materials Science (NIMS), JAPAN [3]Department of Chemical and Materials Engineering, Tamkang University, TAIWAN [4]Institute of Materials Science and Engineering, National Taiwan University, TAIWAN [5]College of Engineering, Chang Gung University, TAIWAN
17:00-17:15	A-O-0154 Experimental Investigation on the Sputtering Process for Tantalum Oxynitrides Films **Chuan Li**[1,2], J. H. Hsieh[3], Y. R. Chuang[1], [1]Department of Biomedical Engineering, National Yang Ming University, TAIWAN [2]Department of Mechanical Engineering, National Central University, TAIWAN [3]Department of Materials Engineering, Ming Chi University of Technology, TAIWAN
17:15-17:30	A-O-0153 Fabrication and Characterization of Thermochromic VO_2 Thin Films Prepared by High Power Impulse Magnetron Sputtering **Pi-Chun Juan**[1], Hong-Jun Lin[1], Guo-Ren Li[1], Wei-Fan Lin[1], Cheng-Li Lin [2] [1]Department of Materials Engineering, Ming Chi University of Technology, TAIWAN [2]Department of Electronic Engineering, Feng Chia University, TAIWAN
17:30-17:45	A-O-0094 Multi-Component N-Type Copper Sulfo Oxide and P-Type Copper Sulfoxy Nitride Thin Films **Noto Susanto Gultom**, Ming-Hao Yu, Hairus Abdullah, Dong-Hau Kuo Department of Materials Science and Engineering, National Taiwan University of Science and Technology, TAIWAN
17:45-18:00	A-O-0383 Effect of Oxygen on The Structure, Composition, and Optical Properties of Ta_3N_5 Semiconductor Thin Films Grown by Magnetron Sputter Epitaxy **Jui-Che Chang**[1], Fredrik Eriksson[1], Mauricio A. Sortica[2], Grzegorz Greczynski[1], Zhangjun Hu[3], Daniel Primetzhofer[2], Lars Hultman[1], Jens Birch[1], Ching-Lien Hsiao[1] [1]Division of Thin Film Physics, Department of Physics, Chemistry and Biology (IFM), Linköping University, SWEDEN [2]Division of Applied Nuclear Physics, Department of Physics and Astronomy, Uppsala University, SWEDEN [3]Dvision of Molecular Surface Physics and Nanoscience, Department of Physics, Chemistry and Biology (IFM), Linköping University, SWEDEN

Symposium B. Nanostructured and Nanocomposite Coatings	
Conference Room: Lecture Hall	
Session B1. Chairs: **Jaroslav Vlcek, University of West Bohemia, CZECH** **Anni Wang, TU Ilmenau, GERMAN**	
13:30-14:00	B-I-0012 Low-temperature deposition of high-performance thermochromic VO_2-based coatings for energy saving smart windows **Jaroslav Vlcek**, Tomas Barta, Jiri Houska University of West Bohemia, CZECH
14:00-14:15	B-O-0011 Pulse electrochemical deposition of poly nanostructural two-dimensional MoS2 thin films as a counter electrode for Dye-Sensitized Solar Cells **Jian-Hong Ye**, Chien-Kuo Hsieh Department of Materials Engineering, Min Chi University of Technology, TAIWAN
14:15-14:30	B-O-0162 Preparation and application of high-performance ternary organic solar cells Yang-Yen Yu, **Kai-Yu Shih**, Tzung-Wei Tsai, Chih-Ping Chen Department of Materials Engineering, Ming Chi University of Technology, TAIWAN
14:30-14:45	B-O-0183 Interfacial materials for high-performance organic solar cells application Yang-Yen Yu, **Jhong-Ci Wang,** Ching Tseng, Wei-Chen Jian, Chih-Ping Chen Department of Materials Engineering, Ming Chi University of Technology, TAIWAN
14:45-15:00	B-O-0184 Achieving energy confinement of a solar cell via metamaterial perfect absorber Tsung-Yu Huang, **Yin-Syuan Jhang** Department of Materials Engineering, Ming Chi University of Technology, TAIWAN
15:00-15:15	B-O-0265 Materials genome evolution of surface plasmon enhanced Au nanoparticles decorated ZnO nanorods in application of CO_2 photoreduction **Sheng-Che Yen**[1], Yu-Lin Chen[1], Jih-Jen Wu[2], Jen-Sue Chen[1], Yen-Hsun Su[1] [1]Department of Material Science and Engineering, National Cheng Kung University, TAIWAN [2]Department of Chemical Engineering, National Cheng Kung University, TAIWAN
15:15-15:30	B-O-0253 Nonenzymatic glucose sensor based on NiO electrophoretically deposited indium tin oxide electrode **Nguyen Quoc Dung**[1], Tran Quoc Toan[1], Phung Thi Oanh[2], Dao Thi Thu Ha[1], Dang Duc Dung[3], Dang Van Thanh[2], Nguyen Nhat Huy[4,] [1]Thai Nguyen University of Education, Thai Nguyen city, VIETNAM [2]Faculty of Basic Science, TNU-University of Medicine and Pharmacy, VIETNAM [3]Department of General Physics, School of Engineering Physics, Hanoi University of

	Science and Technology, VIETNAM [4]Ho Chi Minh City University of Technology, VIETNAM
15:30-16:00	Break
Session B2 Chairs: **Jaroslav Vlcek, University of West Bohemia, CZECH** **Anni Wang, TU Ilmenau, GERMAN**	
16:00-16:15	B-O-0040 Non-enzymatic sensing of glucose based on Au nanoparticles-TiO_2/polyaniline thin film composite **Wan-Ting Chiu**[1], Tso-Fu Mark Chang[2], Masato Sone[2], Agnès Tixier-Mita[1], Hiroshi Toshiyoshi[1] [1] Institute of Industrial Science (IIS), The University of Tokyo, JAPAN [2] Institute of Innovative Research (IIR), Tokyo Institute of Technology, JAPAN
16:15-16:30	B-O-0490 Graphene oxide (GO)/reduced-GO and their composite with polymer nanostructure thin films for memory device application E. S. Ganya[1], S. J. Moloi[1], **Sekhar C. Ray**[1], W. F. Pong[2] [1]Department of Physics, CSET, University of South Africa, SOUTH AFRICA [2] Department of Physics, Tamkang University, TAIWAN
16:30-16:45	B-O-0333 Nano-composite coating for self-cleaning applications **Boutamart Mustapha** [1, 2], Briche Samir [1], Belaïche Mohammed [2] [1]Energy Storage and Multifunctional Coatings center, Moroccan Foundation for Advanced Science, Innovation and Research (MAScIR), MOROCCO [2]Semiconductor and Environmental Sensor Technology Team, Energy Research Center. Faculty of Sciences, Mohammed V University, MOROCCO
16:45-17:00	B-O-0507 Fabrication of TiN coatings using superimposed HiPIMS and MF: MF Power effect **Yang,Wun-Sian**, Jyh-Wei Lee Department of Materials Engineering, Ming Chi University of Technology, TAIWAN
17:00-17:15	B-O-0555 Buffer-facilitated epitaxial growth of NiO/ZnO Yan-Ru Lin, **Huang-Wen Chen**, Guan-Wen Chen Department of Materials Engineering, Ming Chi University of Technology, TAIWAN
17:15-17:30	B-O-0401 Gold-catalyzed vapor growth of In_2O_3 nanostructures for gas sensors **Yu-Ta Chen**, Wenjea J. Tseng Department of Materials Science and Engineering, National Chung-Hsing University, TAIWAN

Symposium C. Semiconductor, Optoelectronic and Flexible Device Films	
Conference Room: Room 303	
Session C1. Chairs: **Bui Nguyen Quoc Trinh, VIETNAM National University, VIETNAM**	
13:30-14:00	C-I-0375 Defect investigation in 2-D nanomaterials with Tip-Enhanced Raman Scattering **Mun Seok Jeong**[1], Chanwoo Lee[1], Seung Mi Lee[2] [1]Sungkyunkwan University (SKKU), Republic of KOREA [2]Korea Research Institute of Standards and Science (KRISS), Republic of KOREA
14:00-14:30	C-I-0024 Plasma - Surface Interactions on Aluminum Oxide **Chiu-Ying Tai**, Xing Chen, Johannes Chiu, Michael Harris, Ilya Pokidov Plasma & Reactive Gas Solutions, MKS Instruments, USA
14:30-14:45	C-O-0209 Synthesis and characterization of $Bi_4Ti_3O_{12}$ film using modified hydrothermal method **Jeanne Ranny de Guzan**[1], Kao-Shuo Chang[2] [1] Department of Material Science and Engineering, National Cheng Kung University, TAIWAN [2]Promotion Center for Global Materials Research (PCGMR), National Cheng Kung University, TAIWAN
14:45-15:00	C-O-0020 Role of oxygen partial pressure on structure and properties of sputtered transparent conducting films of La-doped $BaSnO_3$ **Alok Tiwari**, Ming-Show Wong Department of Material Science & Engineering, National Dong Hwa University, TAIWAN
15:00-15:15	C-O-0134 Prepared High Deposition Rate of Aluminum Oxide Thin Film by 40.68 MHz PEALD and Observation Electrical Performance **Jia-Hao Lin**[1], Wei-Chen Tien[2], Cheng-Yuan Hung[2], Hung-Wei Wu[3], Jia-Yan Lin[4], Shih-Kun Liu[5, 6], Yung-Der Juang[7] [1]Department of Electronic Engineering, National Kaohsiung University of Science and Technology, TAIWAN [2]Opto-electronics technology section energy and agile system department, Metal Industries Research & Development Centre, TAIWAN [3]Department of Computer and Communication, Kun Shan University, Taiwan [4]Department of Greenergy, National University of Tainan, TAIWAN [5]Institute of Photonics and Communications, National Kaohsiung University of Science and Technology, TAIWAN [6]Ph.D. Program in Biomedical Engineering, Kaohsiung Medical University, TAIWAN [7]Department of Materials Science, National University of Tainan, TAIWAN
15:30-16:00	Break

Session C2. Chairs: **Akihiko Fujiwara, Kwansei Gakuin University, JAPAN**	
16:00-16:30	C-I-0026 Galvanic action by small water on thin metal arrays with micro/nano gap and its sensor application **Jin Kawakita** National Institute for Materials Science, Tsukuba, JAPAN
16:30-16:45	C-O-0155 Optical Spectroscopic Investigation on the Sputtered Vanadium Oxides Films **Chuan Li**[1,2], J. H. Hsieh[3], C. M. Su[1], [1]Department of Biomedical Engineering, National Yang Ming University, TAIWAN [2]Department of Mechanical Engineering, National Central University, TAIWAN [3]Department of Materials Engineering, Ming Chi University of Technology, TAIWAN
16:45-17:00	C-O-0133 Quick Response of Moisture Sensor for Advanced Detection of Dew Condensation **Yusuke Kubota**[1,2], Yukihiro Sakamoto [2], Jin Kawakita [1] [1]National Institute for Materials Science, JAPAN [2]Chiba Institute of Technology, JAPAN
17:00-17:15	C-OP-0120 Rapid Thermal Annealing on Si film and pn-junction formation by Si paste **Huan Zhu**[1], Yoshimine Kato[1, 2], Kungen Teii[3] [1]Department of Automotive Science, Graduate School of Integrated Frontier Science, Kyushu University, JAPAN [2]Department of Material Science and Engineering, Faculty of Engineering, Kyushu University, JAPAN [3]Department of Applied Science for Electronics and Materials, Kyushu University, JAPAN
17:15-17:30	C-O-0129 Synthesis and Selenization of CIGS particle with different copper ratios by solvothermal method **Ming-Lin Yang** Department of Electrical Engineering, NUTN, TAIWAN
17:30-17:45	C-O-0232 The Study of Flexible Transparent Conductive Oxide of IMO on Muscovite **En-Liang Chen**[1], Ying-Hao Chu [1]Department of Materials Science and Engineering, National Chiao Tung University, TAIWAN
17:45-18:00	C-O-0312 Preparation of Molybdenum-Doped Zinc Oxide Films by Magnetron Sputtering Process **Shen-how Zhu** [1], Yijia J. Chen[1,2], Tien-Chai Lin[3] [1]Department of Materials Science and Engineering, National Dong Hwa University, TAIWAN [2]Department of Optoelectronic Engineering, National Dong Hwa University, TAIWAN [3]Department of Electrical Engineering, Kun Shan University, TAIWAN

Symposium C. Semiconductor, Optoelectronic and Flexible Device Films	
Conference Room: Room 304	
Session C3. Chairs: **Nguyen Hoang Nam, VNU University of Science, VIETNAM**	
13:30-14:00	C-I-0013 Enhancement of direct band gap electroluminescence in asymmetric metal/Ge/metal diodes **Dong Wang**[1], Takayuki Maekura[1], Keisuke Yamamoto[1], Hiroshi Nakashima[2] [1]Interdisciplinary Graduate School of Engineering Sciences, Kyushu University, JAPAN [2]Global innovation center, Kyushu University, JAPAN
14:00-14:30	C-I-0386 Regular arrays of GaN nanorods grown by liquid-target magnetron sputter epitaxy **Ching-Lien Hsiao**, Elena Alexandra Serban, Justinas Palisaitis, Muhammad Junaid, Lars Hultman, Per O. Å. Persson, Jens Birch Linköping University
14:30-14:45	C-O-0411 Morphological Evolution Tuning of Semi-Polar (11-22) GaN on m-plane Sapphire via In-Situ Multiple Ammonia Treatment (I-SMAT) Method **Afiq Anuar**[1], Abdullah Haaziq Ahmad Makinudin[1], Al-Zuhairi Omar[1], Ahmad Shuhaimi Abu Bakar[2], Azzuliani Supangat[2] [1]Department of Physics, Faculty of Science, University of Malaya, MALAYSIA [2]Low Dimensional Materials Research Centre, Department of Physics, Faculty of Science, University of Malaya, MALAYSIA
14:45-15:00	C-O-0379 Enhancing the Performance of Organic Light Emitting Diode via a Co-host Approach **Kiran Kishore Kesavan**[1], Sujith Sudheendran Swayamprabha[1], Iram Siddiqui[1], Fu-Ching Tung[2], Jwo-Huei Jou[1] [1]Department of Materials Science and Engineering, National Tsing Hua University, TAIWAN [2]Department of Solid State Lighting Technology, Industrial Technology Research Institute, TAIWAN
15:00-15:15	C-O-0550 Index obtained by PCVD method deposited on glass as a new class of optical materials **Janusz Jaglarz** Cracow University of Technology, POLAND
15:15-15:30	C-O-0061 The Investigation of Magnetic and Corrosion Resistance Properties on the Synthesized Ternary Ti/Co/Ni Nanocomposites Via Spinning Method and Thermal Treatment Phuri Kalnaowakul[1], Tonghathai Phairatana[2], Prissana Robkhob[3], **Aphichart Rodchanarowan**[1]

	[1]Department of Materials Engineering, Faculty of Engineering, Kasetsart University, THAILAND [2]Institute of Biomedical Engineering, Faculty of Medicine, Prince of Songkla University, THAILAND [3]Department of Physics, Faculty of Science, Kasetsart University, THAILAND
15:30-16:00	Break
Session C4. Chairs: **Ching-Lien Hsiao, Linköping University, SWEDEN**	
16:00-16:30	C-I-0469 Coating of Multifunctional Nanomaterials for Biomedical Applications **Nguyen Hoang Nam**[1,2], Nguyen Hoang Luong[1,2] [1]VNU University of Science, Vietnam National University, Hanoi, VIETNAM [2]Vietnam Japan University, Vietnam National University, Hanoi, VIETNAM
16:30-16:45	C-O-0132 Effect of multi-component nanocomposite under external field on thermoelectric properties of films **Guojian Li,** Shiying Liu, Yongjun Piao, Mingdi Lan, Qiang Wang Northeastern University, CHINA
16:45-17:00	C-O-0346 Fabrication and Application of Cuprite (Cu_2O) Film with Various Morphologies Using Hydrothermal Method **Yu-Xian Li**, Kao-Shuo Chang Department of Materials Science & Engineering, National Cheng Kung University, TAIWAN
17:00-17:15	C-O-0218 Effect of Solvent Additive on the Performance of Organic Photodetectors Yu-Ching Huang[1], **Zhi-Hao Huang**[1], Chia-Feng Li [1], Po-Hung Liu[1], Yan-Cheng Peng[1], Yun-Ming Sung[2] [1]Department of Materials Engineering, Ming Chi University of Technology, TAIWAN [2]Organic Electronics Research Center, Ming Chi University of Technology, TAIWAN
17:15-17:30	C-O-0241 Influence of annealing atmosphere on structural, optical and electrical properties of sol-gel derived Sb-doped ZnO thin films **Wuttichai Sinornate**, Wisanu Pecharapa College of Nanotechnology, King Mongkut's Institute of Technology Ladkrabang, THAILAND
17:30-17:45	C-O-0230 Development of Flexible Germanium Device and its Application **Jia-Wei Chen**, Ying-Hao Chu Department of Materials Science and Engineering, National Chiao Tung University, TAIWAN

17:45-18:00	C-O-0062 Dielectric Quality Enhancement for Ge pMOSFET by In-situ Low Temperature Treatment in Atomic Layer Deposition Process **Dun-Bao Ruan**, Kuei-Shu Chang-Liao, Ji-Syuan Li, Shih-Han Yi, Chi-Wei Liu Department of Engineering and System Science, National Tsing Hua University, TAIWAN

Symposium D. Tribological and Protective Coatings	
Conference Room: Room 204	
Session D1. Chairs: **Fan-Bean Wu, National United University, TAIWAN** **Kentaro Shinoda, AIST, JAPAN**	
13:30-13:45	D-OP-0166 The Oxidation Behavior of ZrO_2-Coated Zircaloy-4 with ZrN Interlayer **I-Sheng Ting**[1], Hsiao-Ming Tung[2], Jia-Hong Huang[1] [1]Department of Engineering and System Science, National Tsing Hua University, TAIWAN [2]Institute of Nuclear Energy Research, TAIWAN
13:45-14:00	D-O-0234 A comparative study on the tribological behavior of various thermally-sprayed Inconel 625 coatings in saline solution **Tai-Cheng Chen**[1], Tung-Yuan Yung[1], Chau-Chang Chou[2], Jhih-Gang Chen[2], Ren-Fong Cai[3], Jiunn-Yuan Huang[1] [1]Nuclear Fuels and Materials Division, Institute of Nuclear Energy Research (INER), TAIWAN [2]Department of Mechanical and Mechatronic Engineering, National Taiwan Ocean University (NTOU), TAIWAN [3]Department of Electron Microscopy Development and Application, Material and Chemical Research Laboratories, Industrial Technology Research Institute (ITRI), TAIWAN
14:00-14:15	D-O-0246 Development and performance evaluation of ceramic-based coating on SA387 steel using HVOF thermal spray process **Avi Gupta**, Deepak Kumar, V.K. Agarwal Indian Institute of Technology, Delhi, INDIA
14:15-14:45	D-I-0558 Impact of RTIC Phenomenon in Kinetic Spray Coating **Jun Akedo** National Institute of Advanced Industrial Science and Technology (AIST), JAPAN
14:45-15:00	D-O-0259 Adhesion strength improvement of TiC-based hard coating film by treated WC-Co surface using aqua regia and CF4 plasma

	Kazuki Fuji[1], Daichi Kiyokawa[1], Chihiro Tanaka[1], Naoki Okamoto[1], Takeyasu Saito[1], Kouji Higuchi[2], Akira Kitajima[2] [1]Dep. of chemical engineering, Osaka Prefecture University, JAPAN [2]Industrial Science Research Institute, Osaka University, JAPAN
15:00-15:15	D-O-0378 Effect of borax concentration on the corrosion performance of the plasma electrolytic oxidation grown oxide coating on aluminum **Getinet Asrat Mengesha**[1,2], Jinn P. Chu[1], Bih-Show Lou[3,4], Jyh-Wei Lee[2,5,6,7] [1]Department of Materials science and Engineering, National Taiwan University of Science and Technology, TAIWAN [2]Department of Materials Engineering, Ming Chi University of Technology, TAIWAN [3]Chemistry Division, Center for General Education, Chang Gung University, TAIWAN [4]Department of Nuclear Medicine and Molecular Imaging Center, Chang Gung Memorial Hospital, TAIWAN [5]Center for Plasma and Thin Film Technologies, Ming Chi University of Technology, TAIWAN [6]Department of Mechanical Engineering, Chang Gung University, TAIWAN [7]Plastic and Reconstructive Surgery, and Craniofacial Research Center, Chang Gung Memorial Hospital, TAIWAN
15:15-15:30	D-O-0169 The chemistry of silicon oxide (SiO_x) coatings using microwave plasma enhanced chemical vapour deposition (PECVD) with varying hexamethyldisiloxane **Emily McNulty**[1], Liuquan Yang[1], Tomasz Liskiwiecz[2], Ivan Kolev[3], Anne Neville[1] [1]Institute of Functional Surfaces, School of Mechanical Engineering, University of Leeds, UNITED KINGDOM [2]Manchester Metropolitan University, UNITED KINGDOM [3]IHI Hauzer Techno Coating B.V, NETHERLANDS
15:30-16:00	Break
Session D2. Chairs: **Fan-Bean Wu, National United University, Taiwan** **Jun Akedo, AIST, Japan**	
16:00-16:15	D-O-0499 Self-Growing Functional Layers on SKD11 Die Steels by Atmospheric Pressure Plasma **Jie-Long Wang**[1], Jhao-Yu Guo[1], Wan-Ting Chung[1], Yu-Lin Kuo[1], Wei-Ren Zhang[1], Hsien-Po Wang[12], Hsing-Ju Sheng[2], Chun-Chi Chou[3] 1.Department of Mechanical Engineering, National Taiwan University of Science and Technology, TAIWAN 2.Click Sun Shine Corp, TAIWAN 3.GIE Optics Inc TAIWAN
16:15-16:30	D-O-0048 Friction behavior of DC-Arc AlTiN and AlCrN coatings on laser textured surface using a novel open pin on disc tribological tests

	Sarvesh Kumar Mishra, Sudarsan Ghosh, Sivanandam Aravindan Department of Mechanical Engineering, Institute of Technology Delhi, INDIA
16:30-17:00	D-I-0559 Hybrid aerosol deposition: connection of cold spray and thermal spray of ceramics **Kentaro Shinoda** National Institute of Advanced Industrial Science and Technology (AIST), JAPAN
17:00-17:15	D-O-0522 Co electrodeposition behavior of Ni and 10-μm-sized diamond particles in Ni-Watt baths Ching An Huang[1], **Hsin Yu Huang**[1], Shaun Ting Chen[1], Aphichart Rodchanorowan[2] [1]Department of Mechanical Engineering, Chang Gung University, TAIWAN [2]Department of Materials Engineering, Kasetsart University, THAILAND
17:15-17:30	D-O-0324 Hydrogenation of zirconium alloy with chromium and yttrium-based protective coatings **Arseniy Evsin,** Leon Begrambekov, Alexander Kaplevsky National Research Nuclear University MEPhI, RUSSIAN FEDERATION
17:30-17:45	D-O-0533 Research of the Nickel-Based Alloy Coatings Applied on the Conductive Rails Contact Surfaces for Electromagnetic Catapults Apparatus **Li-Shan Hsu**[1], Pao-Chang Huang[2], Kuang-Hsu Hou[2], Ming-Der Ger[3] [1] School of Defense Science, CCIT, National Defense University, TAIWAN [2] Department of Power Vehicle and Systems Engineering, CCIT, National Defense University, TAIWAN [3] Department of Chemical and Materials Engineering, CCIT, National Defense University, TAIWAN
17:45-18:00	D-O-0059 Wear Mechanism of Cast Iron Brake Rotor Altered by Plasma Electrolytic Oxidation Coating for Reduction of Wear and Emission **Ran Cai**, Chen Zhao, Jiayi Sun, Xueyuan Nie University of Windsor, Windsor, CANADA
18:00-18:15	D-O-0309 Surface Treatments for low background experiments **G. Keppel[1],** O. Azzolini[1], A. Camacho[1], O. Cremonesi[2], A. De Biasi[1], C. Pira[1], E. Previtali[2], V. Rampazzo[1], V. Palmieri[1] [1]INFN, Laboratori Nazionali di Legnaro, Legnaro (PD), ITALY [2]INFN, Sezione Milano Bicocca, Milano, ITALY

Symposium E. Organic and Biological Coatings
Conference Room: Room 202
Session E1. Chairs: **Mary Donnabelle L. Balela, University of the Philippines, PHILIPPINES**

Po-Yu Chen, National Tsing-Hua University, TAIWAN	
13:30-14:00	E-I-0256 Functional element coatings on low elastic modulus Ti-alloys for biomaterials **Han-Cheol Choe** Department of Dental Materials & Research Center of Nano-Interface Activation for Biomaterials, Chosun University, KOREA
14:00-14:30	E-I-0022 Atmospheric-pressure microplasmas and their potential applications **Dongping Liu** School of Electrical Engineering, Dalian University of Technology, CHINA
14:30-15:00	E-I-0359 Creation of three-dimensional porous structure on titanium surface to promote bone cell response in dental implant application **Ying-Sui Sun**[1], Jia-Yi Wen[2], Her-Hsiung Huang[1] [1] Department of Dentistry, National Yang-Ming University, TAIWAN [2] Institute of Oral Biology, National Yang-Ming University, TAIWAN
15:00-15:15	E-O-0545 Hydrophilicity and optic property of polyethylene glycol (PEG) coating on polydimethylsiloxane (PDMS) for fast prototyping and its application to microfluidic chip C. C. Lai, **C.K. Chung** Department of Mechanical Engineering, and Center for Micro/Nano Science and Technology, National Cheng Kung University, TAIWAN
15:15-15:30	E-O-0472 Type I collagen immobilization on electron beam melted 3D-printed porous Ti-24Nb-4Zr-8Sn alloy scaffold enhances osteogenic differentiation **Chia-Fei Liu**, Her-Hsiung Huang Department of Dentistry, National Yang-Ming University, TAIWAN
15:30-16:00	**Break**

Symposium F. Metallic and High-Entropy Alloy Coatings	
Conference Room: Room 202	
Session F1. Chairs: **Ko-Wei Lin, National Chung Hsing University, TAIWAN** **Chih Chen, National Chiao Tung University, TAIWAN**	
16:00-16:30	F-I-0589 Electrodeposition and properties of highly (111)-oriented nanotwinned Cu and its applications in microelectronic packaging industry **Chih Chen**, J.Y. Juang, K.C. Shie, Y.J. Li, K. N. Tu Department of Materials Science and Engineering, National Chiao Tung University, TAIWAN
16:30-16:45	F-O-0115 Significant improvement of etching characteristics of electroplated Cu films through microstructure modification Cheng-Yu Lee[1], **Ping-Chou Lin**[1], Chih-Hao Chang[1], Wei-Ling Chou[1], Hung-Cheng Liu[2], Cheng-En Ho[1] [1]Department of Chemical Engineering & Materials Science, Yuan Ze University, TAIWAN (R.O.C.). [2]Kinsus Interconnect Technology Corp. TAIWAN
16:45-17:00	F-O-0225 Ultrasound-assisted electroless deposition of Co-P hard magnetic films Chiao-Chi Lin[1], **Ching-Cheng Chuang**[2], Xuan-Hong Li[1], Tsung-Shune Chin[1], Jen-Yuan (James) Chang[2], Cheng-Kuo Sung[2], Sheng-Ching Wang[3] [1]Department of Materials Science and Engineering, Feng Chia University, Taiwan [2]Department of Power Mechanical Engineering, National Tsing Hua University, Taiwan [3]Department of Mechanical Engineering, National United University, Taiwan
17:00-17:15	F-O-0015 Structural analysis of nickel electroplating material prepared by deep-eutectic solvent **Wei-Chun Wang**, Kun-Cheng Peng Department of Materials Engineering, Ming Chi University of Technology, TAIWAN
17:15-17:30	F-O-0161 H_2 annealing effect on redaction of NiO films grown on Ni (111) surfaces **Bingruo Zhang** [1], Nobuhisa Kamata[1], Shuichi Ogawa[1], Akitaka Yoshigoe[2], Yuji Takakuwa[1] [1]Tohoku University, JAPAN [2]Japan Atomic Energy Agency, JAPAN
17:30-17:45	F-O-0568 Influence of palladium thickness on the solder reaction with Au/Pd(P)/Ni(P) multilayer: Eutectic Sn-Ag system **Wei-Ling Chou**[1], Cheng-Hsien Yang[1], Ming-Kai Lu[1], Cheng-Yu Lee[1], Tsai-Tung Kuo[1,2], and Cheng-En Ho[1,] [1]Department of Chemical Engineering & Materials Science, Yuan Ze University,

	TAIWAN [2]Taiwan Uyemura Limited Company, TAIWAN
17:45-18:00	F-O-0270 Joining technology of surface modifications for aluminium alloy **Yi-Hsin Huang**[1], Sheng-Chi Chen[1,2], Tze-Yang Yeh[3], Ching-Ming Yang[3] [1]Department of Materials Engineering and Center for Plasma and Thin Film Technologies, Ming Chi University of Technology, TAIWAN [2] College of Engineering, Chang Gung University, TAIWAN [3] RD of Amulaire Thermal Technology, TAIWAN

Symposium G. Topical Symposium: Theory, Simulation, and Modeling; Quantitative Surface Analysis	
Conference Room: Room 205	
Session G1. Chairs: **Chun-Wei Pao, Research Center for Applied Sciences, Academia Sinica, TAIWAN**	
13:30-14:00	G-I-0149 Wrinkling of Thin Films on a Compliant Substrate: Its Prediction and Modeling Strategy Siavash Nikravesh, **Yu-Lin Shen** Department of Mechanical Engineering, University of New Mexico, USA
14:00-14:30	G-I-0557 Magnetic Properties of Thin Films Driven by Quantum-Well Resonances **Chao-Cheng Kaun** Research Center for Applied Sciences, Academia Sinica, TAIWAN
14:30-15:00	G-I-0464 Chemical composition-dependent phase stability of TiAlN **Marcus Hans**, Jochen M. Schneider Materials Chemistry, RWTH Aachen University, GERMANY
15:00-15:15	G-O-0525 DFT study of hydrogen storage by using defective graphene supported platinum catalysts **Amita Sihag**[1], Yi-Cheng Lin[1], Matthew Dyer[2], Hsin-Yi Tiffany Chen[2] [1]Department of Engineering and System Science, National Tsing Hua University, TAIWAN [2]Department of Chemistry, University of Liverpool, UNITED KINGDOM
15:15-15:30	G-O-0437 Modeling of a microwave plasma enhanced chemical vapor deposition system based on finite element method **Kaviya Aranganadin**[1], Yilang Jiang[1], Jing-Shyang Yen[2], Hua-Yi Hsu[3], Ming-Chieh Lin[1] [1]Multidisciplinary Computational Laboratory (MCL), Department of Electrical and Biomedical Engineering, Hanyang University, SOUTH KOREA [2]Department of Electronic Engineering, National Taipei University of Technology,

	TAIWAN [3]Department of Mechanical Engineering, National Taipei University of Technology, TAIWAN
15:30-16:00	Break

Student Awards Semi-final	
Conference Room: Room 205	
Session Chairs: **Jau-Shiung Fang, National Formosa University, TAIWAN** **Yin-Yu Chang, National Formosa University, TAIWAN**	
16:00-16:15	A-O-383 Effect of oxygen on the structure, composition, and optical properties of Ta_3N_5 semiconductor thin films grown by magnetron sputter epitaxy **Jui-Che Chang** Division of Thin Film Physics, Department of Physics, Chemistry and Biology (IFM), Linköping University, SWEDEN
16:15-16:30	B-O-122 Electrochemical Alcohol Sensing Behavior of Atomic Gold Clusters Modified Polyaniline **Yu-An Chien** Institute of Innovative Research, Tokyo Institute of Technology, JAPAN
16:30-16:45	B-O-124 Evaluation of the Fracture Toughness of VMoN Thin Films: Effect of Compositions **Yi-Qun Feng** Department of Engineering and System Science, National Tsing Hua University, TAIWAN
16:45-17:00	C-O-152 Giant Resistance Change on flexible ZnO/muscovite Heterostructure **Min Yen** Department of Materials Science and Engineering, National Chiao Tung University, TAIWAN
17:00-17:15	C-O-175 EGFET based IZO membrane on the flexible sensor for dopamine detection in the male mice brain **Sayani Palit** Department of Electronics Engineering, Chang Gung University, TAIWAN
17:15-17:30	D-O-48 Friction behavior of DC-Arc AlTiN and AlCrN coatings on laser textured surface using a novel open pin on disc tribological tests **Sarvesh Kumar Mishra** IIT Delhi, INDIA

17:30-17:45	D-O-6 Mechanical properties and thermal stability of $Zr_{1-x}Ta_xB_y$ films grown by hybrid high-power impulse and dc magnetron co-sputtering (HiPIMS/DCMS) **Babak Bakhit** Thin Film Physics Division, Department of Physics (IFM), Linköping University, SWEDEN
17:45-18:00	E-O-205 Effect of voltage on the incorporation of hydroxyapatite and fluorapatite on coating surface by using plasma electrolytic oxidation technique **Aqmar Zakaria** Hokkaido University, Graduate School of Engineering, JAPAN
18:00-18:15	F-O-351 Structure and properties of MoNbTaVW high entropy alloy thin films **Ao Xia** Department of Materials Science, Montanuniversität Leoben, AUSTRIA

Tuesday, November 19, 2019	
09:00-18:00	Registration
09:00-18:00	Company Exhibition
Conference Room: Lecture Hall **Keynote Session VII~X Chairs: Prof. Jang-Hsing Hsieh, Prof. Yu-Lin Shen, Prof. Chau-Chang Chou**	
09:00-09:40	Topic: Transcutaneous Nonthermal Biocompatible Plasma (NBP) Sources and their Models for Plasma Medicine to Agricultures Prof. **Eun Ha Choi** Plasma Bioscience Research Center, Kwangwoon University, SOUTH KOREA
09:40-10:20	Topic: Optical Coatings of Tomorrow: from Passive Interference Filters towards Multifunctional Systems and Smart Nanostructures Prof. **Ludvik Martinu** Engineering Physics, Ecole Polytechnique de Montreal (Polytechnique Montreal), CANADA
10:20-10:40	Break
10:40-11:20	Topic: Measurement of Residual Stress on Transition Metal Nitride Hard Coatings by Average X-ray Strain (AXS) Combining with Nanoindentation Methods Prof. **Jia-Hong Huang** Department of Engineering and System Science, National Tsing Hua University, TAIWAN
11:20-12:00	Reviewers and Authors Workshop
12:00-13:30	Lunch
13:30-15:30	Oral sessions
15:30-16:00	Break
16:00-19:30	Poster Session II
18:00-20:30	Banquet Banquet Hall, THE HOWARD PLAZA HOTEL TAIPEI (#160, Ren-Ai Rd., Sec.3, Taipei,)

Symposium B. Nanostructured and Nanocomposite Coatings

Conference Room: Lecture Hall

Session B3. Chairs:
Jia-Hong Huang, National Tsing Hua University, TAIWAN
Heng-Jui Liu, National Chung Hsing University, TAIWAN

13:30-14:00	B-I-0477 Defect engineering on $TiO_2/SrRuO_3$ thin film heterostructures for potential visible-light optoelectronic device **Heng-Jui Liu**[1,2], Chin-Han Huang[1, 2], Cheng-Ying Chen[2,3], Yu-Chen Chen[2,3], Jauyn Grace Lin[2,3] [1]Materials Science and Engineering, National Chung Hsing University, TAIWAN [2] Center for Atomic Initials for New Materials, National Taiwan University, TAIWAN [3] Center for Condensed Matter Sciences, National Taiwan University, TAIWAN
14:00-14:15	B-O-0030 Enhancement in visible light photocatalytic activity of WO_3/Ag-Cr thin films prepared by magnetron sputtering **Chadrasekhar Loka,** Young Woong Jo, Kee-Sun Lee Kongju National University, KOREA
14:15-14:30	B-O-0123 Improved crystallinity of ZnO film formed on FTO substrate with inserting multi-buffer films Sujun Guan[1], Akihiro Mori[1], Shuji Komuro[2], **Xinwei Zhao**[1] [1] Department of Physics, Tokyo University of Science, JAPAN [2] Faculty of Science and Engineering, Toyo University, JAPAN
14:30-14:45	B-O-0125 UV plasmonic behaviour of fluoride thin films with metal nanoparticles fabricated by pulsed laser deposition and evaporation **Jan Lancok,** Sergei Chertopalov, Tomáš Zikmund, Jiří Bulíř, Michal Novotný, Eva Marešová, Lenka Volfová Institute of Physics CAS, CZECH
14:45-15:00	B-O-0151 Performance enhancement of perovskite solar cells using polymer as additive in active layer Yang-Yen Yu, **Wei-Chen Chien**, Ching Tseng, Chih-Ping Chen Department of Materials Engineering, Ming Chi University of Technology, TAIWAN
15:00-15:15	B-O-0296 Structural, morphological and photoluminescence properties of Ga- and F-doped ZnO nanorod-structured films grown by hydrothermal process on ZnO sol-gel derived seeding films **Wisanu Pecharapa[1],** Kanokthip Boonyarattanakalin[1], Krisana Chongsri[2] [1]College of Nanotechnology, King Mongkut's Institute of Technology Ladkrabang, THAILAND [2]Department of Applied Physics, Faculty of Science and Technology, Rajabhat

	Rajanagarindra University, THAILAND
15:15-15:30	B-O-0325 Characterization and photodegradability of gallium oxide nanocrystals prepared by chemical bath deposition **Hui Li[1,2],** Che-Yuan Yeh[1], Yi-Guo Shang[1], Sam Zhang[2], Dong-Sing Wuu[1] [1]Department of Materials Science and Engineering, National Chung Hsing University, TAIWAN [2] Centre for Advanced Thin Films and Devices, Faculty of Materials and Energy, Southwest University, CHINA
15:30-16:00	Break

Symposium C. Semiconductor, Optoelectronic and Flexible Device Films	
Conference Room: Room 303	
Session C5. Chairs: **Ray-Hua Horng, National Chiao Tung University, TAIWAN**	
13:30-14:00	C-I-0466 In-Si-O Thin Film Transistors on Hydrophilic and Hydrophobic Substrates **Akihiko Fujiwara** Kwansei Gakuin University, Sanda, Hyogo, JAPAN
14:00-14:30	C-I-0590 Progress and Development of Metal Oxide-based Materials and Devices **Ching-Ting Lee** Department of Electrical Engineering, Yuan Ze University, TAIWAN, Republic of China.
14:30-14:45	C-O-0504 Phase Insulation and Tunneling Transistor **Teresa Oh** Dept. of Semiconductor, Cheongju University, KOREA
14:45-15:00	C-O-0164 Novel packaging via holey polyimide substrate filled with Cu and Sn for flexible electronics **Hee-Bo Ha[1]**, Byung Hoon Lee[2], Ja Myeong Koo[2], and Byungil Hwang[1] [1] School of Integrative Engineering, Chung-Ang University, Republic of KOREA [2]Manufacturing Core Technology Team / Global Technology Center, Samsung Electronics, Republic of KOREA
15:00-15:15	C-O-0029 Graphene composite-based solution-gate transistor as a label-free RNA biosensor **Wei-Ting Huang**[1], Ming-Hsiu Tsai[2], Chih-Ting Lin[2], Chi-Hsien Huang[1] [1]Ming Chi University of Technology, TAIWAN [2]National Taiwan University, TAIWAN

15:15-15:30	C-O-0087 The effect of the Composition Ratio on CZTSe thin film solar cells by Solvothermal Refluxing Method **Jia-Ci Jhou**, Shih-Chang Shei Department of Electrical Engineering, National University of Tainan, TAIWAN
15:30-16:00	Break

Symposium C. Semiconductor, Optoelectronic and Flexible Device Films	
Conference Room: Room 304	
Session C6. Chairs: **Kao-Shuo Chang, National Cheng Kung University, TAIWAN**	
13:30-14:00	C-I-0467 Solution-Processed Cupric Oxide P-type Channel Thin-Film Transistor **Bui Nguyen Quoc Trinh[1,2],** Nguyen Van Dung[1], Nguyen Quang Hoa[3], Nguyen Huu Duc[2], Akihiko Fujiwara[4] [1]Vietnam National University, VNU Vietnam Japan University, Nanotechnology Program, VIETNAM. [2]Vietnam National University, VNU University of Engineering and Technology, Key Laboratory for Micro-Nano Technology, VIETNAM. [3]Vietnam National University, VNU University of Science, Faculty of Physics, VIETNAM. [4]Kwansei Gakuin University, School of Science and Technology, Department of Nanotechnology for Sustainable Energy, JAPAN.
14:00-14:15	C-O-0344 Modulating Different Layer Numbers and Sizes of Directly-Exfoliated Few-Layered Graphene by Controlling Environmentally-Friendly Solvent under Ultrasonic Shock Treatment **Chia-Wei Chang[1]**, Yu-Jie Lin[2], Min-Hsiung Hon[1], Jyh-Ming Ting[1] [1]Department of Materials Science and Engineering, National Cheng Kung University, TAIWAN [2]Material and Chemical Research Laboratories, Industrial Technology Research Institute, TAIWAN
14:15-14:30	C-O-0237 Heterostructure $BiVO_4$-based for Flexible Photo-electrochemical Water Splitting **Yi-Syuan Siao,** Ying-Hao Chu Department of Materials Science and Engineering, National Chiao Tung University, TAIWAN
14:30-15:00	C-I-0588 Recent Progresses in Synthesis, Processing and Applications of Diamond and Nano Carbons **Yonhua Tzeng** Institute of Microelectronics, National Cheng Kung University, TAIWAN

15:00-15:15	C-O-0248 Using Very High-Frequency Plasma Enhanced Chemical Vapor Deposition (VHF-PECVD) Prepared Hydrogenated Amorphous Silicon Nitride (a-SiN_x:H) by Optical Emission Spectroscopy (OES) to Monitor **Jia-Yan Lin**[1], Cheng-Yuan Hung[2], Wei-Chen Tien[2], Hung-Wei Wu[3], Jia-Hao Lin[4], Yung-Der Juang[5], Shih-Kun Liu[6, 7] [1]Department of Greenergy, National University of Tainan, TAIWAN [2]Opto-electronics technology section energy and agile system department, Metal Industries Research & Development Centre, TAIWAN [3]Department of Computer and Communication, Kun Shan University, TAIWAN [4]Department of Electronic Engineering, National Kaohsiung University of Science and Technology, TAIWAN [5]Department of Materials Science, National University of Tainan, TAIWAN [6]Institute of Photonics and Communications, National Kaohsiung University of Science and Technology, TAIWAN [7]Ph.D. Program in Biomedical Engineering, Kaohsiung Medical University, TAIWAN.
15:15-15:30	C-O-0445 Flexible InGaP/GaAs junction solar cell utilizing to the rounded cylindrical receiver **Hyo Jin Kim**, Seok Jin Kang, Hyun Haeng Lee, Young Je Kim, Chaewon Kim, Da Hyeon Wee, Seong Min Kim Photonic Energy Research Center, Korea Photonics Technology Institute, Republic of KOREA
15:30-16:00	Break

Symposium D. Tribological and Protective Coatings	
Conference Room: Room 204	
Session D3. Chairs: **Fan-Bean Wu, National United University, TAIWAN** **Wojciech Gajewski, TRUMPF Huettinger Sp. z o. o, POLAND**	
13:30-13:45	D-O-0006 Mechanical properties and thermal stability of $Zr_{1-x}Ta_xB_y$ films grown by hybrid high-power impulse and dc magnetron co-sputtering (HiPIMS/DCMS) **Babak Bakhit**[1], Ivan Petrov[1,2], J.E. Greene[1,2], Lars Hultman[1], Johanna Rosen[1], Grzegorz Greczynski[1] [1]Thin Film Physics Division, Department of Physics (IFM), Linköping University, SWEDEN [2]Frederick Seitz Materials Research Laboratory and Department Materials Science, University of Illinois, USA
13:45-14:00	D-O-0313 Mechanical Properties of HiPIMS/RFMS co-sputtering Cr-W-N films Li-Chun Chang[1,2], **Cheng-En Wu**[1] [1] Department of Materials Engineering, Ming Chi University of Technology, TAIWAN [2] Center for Plasma and Thin Film Technologies, Ming Chi University of Technology, TAIWAN

14:00-14:15	D-O-0049 Performance evaluation of AlCrN coatings deposited using Arc enhanced HIPIMS technique under dry and hybrid Cryo-MQL environments **Abhishek Singh,** S. Ghosh, S. Aravindan Department of Mechanical Engineering, Indian Institute of Technology Delhi, INDIA
14:15-14:30	D-O-0067 Effects of nitrogen-argon flow ratio on the microstructural and mechanical properties of AlCrN coatings prepared using high power impulse magnetron sputtering **Ching-Yen Lin[1],** Fu-Chi Yang[2], Jian-Fu Tang[3]**,** Chi-Lung Chang[1,2] [1]Department of Materials Engineering, Ming Chi University of Technology, TAIWAN [2]Center for Plasma and Thin Film Technologies, Ming Chi University of Technology, TAIWAN [3]Department of Greenergy Technology, National University of Tainan, TAIWAN
14:30-15:00	D-I-0341 Design of Experiment methods as an effective tool in industrial implementation of HIPIMS technology **Wojciech Gajewski[1]**, Robert Mroczyński[2], Mirosław Puźniak[1,2], Piotr Domanowski[3], Piotr Różański[1], Marcin Żelechowski[1] [1]TRUMPF Huettinger Sp. z o.o., POLAND [2]Institute of Microelectronics and Optoelectronics, Warsaw University of Technology, POLAND [2]Department of Mechanical Engineering, UTP University of Science and Technology, POLAND
15:00-15:15	D-O-0393 Effects of nitrogen flow rates on the microstructure and mechanical properties of tungsten nitride thin films fabricated by superimposed HiPIMS and MF system **Igamcha Moirangthem[1]**, Jyh-Wei Lee[1,2,3,4] [1]Department of Materials Engineering, Ming Chi University of Technology, TAIWAN [2]Center for Plasma and Thin Film Technology, Ming Chi University of Technology, TAIWAN [3]Department of Mechanical Engineering, Chang Gung University, TAIWAN [4]Plastic and Reconstructive Surgery, and Craniofacial Research Center, Chang Gung Memorial Hospital, TAIWAN
15:15-15:30	D-O-0314 Study of effects of Ar/N_2 gas mixture ratio on properties of zirconium nitride thin films **Katerina Horakova,** Jiri Bulir, Vladimir Chab, Ladislav Fekete, Sergii Chertopalov, Jan Lancok Institute of Physics of the Czech Academy of Sciences, CZECH Republic
15:30-16:00	Break

Symposium E. Organic and Biological Coatings	
Conference Room: Room 201	
Session E2. Chairs: **Han-Cheol Choe, Chosun University, KOREA** **Dongping Liu, School of Electrical Engineering, Dalian University of Technology, CHINA**	
13:30-14:00	E-I-0482 Effective unidirectional wetting of liquids on cactus spine-inspired multi-gradient surfaces by 3D printing and surface modification **Po-Yu Chen**, Che-Ni Hsu, Chia-Yi Lin [1]Department of Materials Science and Engineering, National Tsing Hua University, TAIWAN
14:00-14:30	E-I-0172 Fabrication of superhydrophobic coating from modified SiO_2 nanoparticles from geothermal waste **Mary Donnabelle L. Balela**, Mark Verndick Cabading, Kyzyl Sencil Sustainable Electronic Materials Group, Department of Mining, Metallurgical and Materials Engineering, University of the Philippines, PHILIPPINES
14:30-14:45	E-O-0055 Angiogenesis, osseointegration and antibacterial applications of polyelectrolyte multilayers coating added with silver and strontium incorporated bioactive glass **Yu Wen Huang,** Chih-Wei Hsu, Ren-Jei Chung Department of Chemical Engineering and Biotechnology, National Taipei University of Technology, TAIWAN
14:45-15:00	E-O-0352 Enhancing corrosion resistance and bone cell response of 3D-printed interconnected porous Ti-6Al-4V alloy scaffold through surface anodization treatment Hsin-Wen Chi[1], **Jia-Yi Wen[2],** Her-Hsiung Huang[1,2] [1] Department of Dentistry, National Yang-Ming University, Taipei, TAIWAN [2] Institute of Oral Biology, National Yang-Ming University, Taipei, TAIWAN
15:30-16:00	Break

Symposium F. Metallic and High-Entropy Alloy Coatings	
Conference Room: Room 205	
Session F2. Chairs: **Shou-Yi Chang, National Tsing Hua University, Taiwan** **Fan-Yi Ouyang, National Tsing Hua University, Taiwan**	

13:30-13:45	F-O-0338 Optical monitoring of magnetron sputtered ZrN films for plasmonic applications **Jiří Bulíř**, Joris More Chevalier, Ladislav Fekete, Kateřina Horáková, Sergii Chertopalov, Lenka Volfová, Michal Novotný, Ján Lančok Institute of Physics, Czech Academy of Sciences, CZECH Republic
13:45-14:00	F-O-0204 Fabrication of periodic metallic glass nanotube array and its applications **Pak-Man Yiu**, Jinn P. Chu Applied Research Center for Thin-Film Metallic Glass, National Taiwan University of Science and Technology, TAIWAN
14:00-14:15	F-O-0347 Effect of nitrogen flux on the structure and properties of (TiVCrZrNbMoHfTaWAlSi)N film **Yi-Shung Du[1],** Du-Cheng Tsai[1], Zue-Chin Chang[2], Fuh-Sheng Shieu[1] [1]Department of Material Science and Engineering, National Chung Hsing University, TAIWAN [2]Department of Mechanical Engineering, National Chin-Yi University of Technology, TAIWAN
14:15-14:30	F-OP-0527 Microstructure and mechanical property evaluation of V-Nb-Mo-Ta-W and V-Nb-Mo-Ta-W-N_x high entropy alloy thin films **Wen-Hau Wang[1],** Chaur-Jeng Wang[1], Jyh-Wei Lee[2,3,4,5] [1]Department of Mechanical Engineering, National Taiwan University of Science and Technology, TAIWAN [2]Department of Materials Engineering, Ming Chi University of Technology, TAIWAN [3]Center for Plasma and Thin Film Technologies, Ming Chi University of Technology, TAIWAN [4]Department of Mechanical Engineering, Chang Gung University, TAIWAN [5]Plastic and Reconstructive Surgery, and Craniofacial Research Center, Chang Gung Memorial Hospital, TAIWAN
14:30-14:45	F-O-0479 Oxidation behavior of Al-Cr-Nb-Si-Zr nitride thin films **Jian-Jie Wang[1],** Shou-Yi Chang[2], Fan-Yi Ouyang[1] [1]Department of Engineering and System Science, National Tsing Hua University, TAIWAN [2]Department of Material Science and Engineering, National Tsing Hua University, TAIWAN
14:45-15:00	F-O-0431 Thermal oxidation kinetics and thermodynamics analysis of V-Nb-Mo-Ta-W refractory high entropy alloy coatings **Yen-Yu Chen [1],** Sheng-Bo Hung[2], Chaur-Jeng Wang[2], Jyh-Wei Lee[3,4,5,6] [1]Department of Chemical and Materials Engineering, Chinese Culture University, TAIWAN [2]Department of Mechanical Engineering, National Taiwan University of Science and Technology, TAIWAN

	[3]Department of Materials Engineering, Ming Chi University of Technology, TAIWAN [4]Center for Plasma and Coating Technology, Ming Chi University of Technology, TAIWAN [5]Department of Mechanical Engineering, Chang Gung University, TAIWAN [6]Plastic and Reconstructive Surgery, and Craniofacial Research Center, Chang Gung Memorial Hospital, TAIWAN
15:00-15:15	F-O-0364 Corrosion resistance of VNbMoTaWAl high entropy alloy thin films **Sameer Kamrudin Bachani**[1], Sheng-Bo Hung[1], Jyh-Wei Lee[2,3,4,5], Chaur-Jeng Wang[1] [1]Department of Mechanical Engineering, National Taiwan University of Science and Technology, TAIWAN [2]Department of Materials Engineering, Ming Chi University of Technology, TAIWAN [3]Center for Plasma and Thin Film Technology, Ming Chi University of Technology, TAIWAN [4]Department of Mechanical Engineering, Chang Gung University, TAIWAN [5]Plastic and Reconstructive Surgery, and Craniofacial Research Center, Chang Gung Memorial Hospital, TAIWAN
15:15-15:30	F-O-0546 Photo spin voltaic effect in PtMn/$Y_3Fe_5O_{12}$ thin films **Roshni Yadav**[1], Xu Li[2], Ko-Wei Lin[1], Johan van Lierop[3], Antonio Ruotolo[4] [1]Department of Materials Science and Engineering, National Chung Hsing University, Taichung, TAIWAN [2]Department of Physics, Xiamen University, P.R. CHINA [3]Department of Physics and Astronomy, University of Manitoba, CANADA [4]Department of Materials Science and Engineering, City University of Hong Kong, Kowloon, HONG KONG
15:30-16:00	Break

Symposium G. Topical Symposium: theory, simulation, and modeling; quantitative surface analysis	
Conference Room: Room 202	
Session G2. Chairs: **Chao-Cheng Kaun, Academia Sinica, TAIWAN**	
13:30-14:00	G-I-0556 Machine-Learned Potential and Exhaustive Sampling of Complex Materials **Chun-Wei Pao** Research Center for Applied Sciences, Academia Sinica, TAIWAN
14:00-14:30	G-I-0514 Density functional theory investigation of catalytic materials **Hsin-Yi Tiffany Chen** Department of Engineering and System Science, National Tsing Hua University, TAIWAN
14:30-14:45	G-O-0372 Well Width Effect on Band Structure and Optical Gain of Compressively Strained GeSn/Ge Quantum Well **W. J. Fan** School of Electrical and Electronic Engineering, Nanyang Technological University, SINGAPORE
14:45-15:00	G-O-276 Controllable Growth of Urchin-like Gold Nanoparticles by Seed-mediated Coating and Growth to Tune Surface Plasmon Wavelength Using Machine Learning by Artificial Neural Network coupling with Genetic Algorithm **Chia-Chen Wu**, Jen-Sue Chen, Yen-Hsun Su Department of Materials Science and Engineering, National Cheng Kung University, TAIWAN
15:00-15:15	G-O-0010 Investigating thermal sprayed aluminum and zinc composite coating anisotropic properties using nanoindentation with microporomechanics approach **Wai Yeong Huen,** Vanissorn Vimonsatit School of Mechanical and Civil Engineering, Curtin University, AUSTRALIA
15:15-15:30	G-O-0425 Role of Dielectric Character of the Hole Transport Layer on Exciton Recombination Dynamics in Organic Light Emitting Diodes **Iram Siddiqui[1],** Rohit Ashok Kumar Yadav[1], Kiran Kesavan[1], Aayushi Sharma[2], Tzu-Wei Liang[3], Jwo-Huei Jou[1] [1]Department of Materials Science and Engineering, National Tsing Hua University, TAIWAN [2]Department of Chemistry, Birla Institute of Technology & Science Pilani, INDIA [3]Global Science Instruments Co. Ltd., TAIWAN
15:30-16:00	Break

Wednesday, November 20, 2019	
09:00-11:30	Registration
09:00-11:30	Company Exhibition
09:00-11:30	Oral sessions
11:30	Closing, Student Awards, and Raffle Draw

Symposium B. Nanostructured and Nanocomposite Coatings	
Conference Room: Room 201	
Session B4. Chairs: **Jia-Hong Huang, National Tsing Hua University, TAIWAN** **Heng-Jui Liu, National Chung Hsing University, TAIWAN**	
09:00-09:30	B-I-0063 Interfacial Annealing Synthesis of High Entropy Alloys Thin Films **Anni Wang[1]**, Marcus Hopfeld[1], Thomas Kups[1], Dominik Flock[1], Henry Romanus[2], Peter Schaaf[1] [1]TU Ilmenau, Institute of Materials Science and Engineering, Chair Materials for Electrical Engineering and Electronics, GERMANY [2]TU Ilmenau, Institute of Micro- and Nanotechnologies®, GERMANY
09:30-10:00	B-I-0412 X-ray photoelectron spectroscopy studies of $Ti_{1-x}Al_xN$ high-temperature oxidation: the crucial role of Al concentration **Grzegorz Greczynski[1]**, L. Hultman[1], M. Odén[2] [1] Thin Film Physics, Department of Physics (IFM), Linköping University, SWEDEN [2]Nanostructured Materials, Department of Physics (IFM), Linköping University, SWEDEN
10:00-10:15	B-O-0009 Chromium nitride thin films prepared using atmospheric pressure plasma process **Hong-Ying Chen**, Wei-Hsun Yang Department of Chemical and Materials Engineering, National Kaohsiung University of Science and Technology, TAIWAN
10:15-10:30	B-O-0201 Exploration of Boron Nitride Synthesis Via Solvothermal Synthesis **Neon Vicente Bacarro Rosell III[1]**, Kao-Shuo Chang[1,2] [1] Department of Materials Science & Engineering, National Cheng Kung University, TAIWAN [2] Promotion Center for Global Materials Research (PCGMR), National Cheng Kung University, TAIWAN
10:30-10:45	B-O-0397 Fabrication and characterization of cobalt hydroxide nanostructures prepared on

	stainless steel mesh **Kyung Ho Kim**, Syuichiro Amako, Sena Motoyama Yoshio Abe, Midori Kawamura, Takayuki Kiba Kitami Institution of Technology, Kitami, JAPAN
10:45-11:00	B-O-0540 Using E-gun to make Ta_2O_5 film instead of sputter **Zi-De Xie[1]**, Te-Keng Wang[1], Chao-Wei Liu[1], Chin-Yu Liu[1], Pin-Shuo Hwang[1], Yi-Jen Chiu[1], Min-Hsiung Shih[1,2,3], Chao-Kuei Lee[1,2] [1] Department of Photonics, National Sun Yat-sen University, TAIWAN [2] Research Center for Applied Sciences, Academia Sinica, TAIWAN [3] Department of Photonics and Institute of Electro-Optical Engineering, National Chiao Tung University, TAIWAN
11:30-12:00	**Closing, Student Awards, and Raffle Draw**

Symposium B. Nanostructured and Nanocomposite Coatings	
Conference Room: Room 202	
Session B5. Chairs: **Chau-Chang Chou, National Taiwan Ocean University, TAIWAN** **Yu-Wei Lin, Taiwan Instrument Research Institute, National Applied Research Laboratories, TAIWAN**	
09:00-09:30	B-I-0339 Design, metallurgy and manufacturing technologies of high-performance sputtering targets and arc cathodes **Peter Polcik** Plansee Composite Materials GmbH, GERMANY
09:30-09:45	B-O-0017 Shape of Ni-containing nanoislands grown on an Ag-terminated Ge(111) surface **Tsu-Yi Fu**, Agnieszka Tomaszewska , Chun-Liang Lin, Hung-Chang Hsu, Jhen-Hao Li, Ming-Kuan Jhou, Po-I Hsieh, Xiao-Lan Huang Department of Physics, National Taiwan Normal University, TAIWAN
09:45-10:00	B-O-0069 Digital image correlation on FIB ring-core measurement on residual stress of thin films **Yun-Chia Chou[1]**, Wen-Yen Lin[1], Wen-Chieh Pan[1], Ming-Tzer Lin[1] , Terry Yuan-Fang Chen[2] ,Yun-Chia Chou[1] [1]Graduate Institute of Precision Engineering, National Chung Hsing University, TAIWAN [2]Department of Mechanical Engineering, National Cheng Kung University, TAIWAN
10:00-10:15	B-O-0070 Using bulge test for the mechanical behavior study of submicrometer TiNi alloy thin films **Nguyen Tra Anh Khoa** , Chi-Wen Chen, Ming-Tzer Lin Graduate Institute of Precision Engineering, National Chung Hsing University

	Taichung, TAIWAN
10:15-10:30	B-O-0228 Multiferroic properties of $Bi_{1-x}R_xFeO_3$ polycrystalline films on the glass substrates (R = La, Pr, Sm and Ho; x = 0.05-0.15) **T.K. Lin[1]**, H.W. Chang[2], C.R. Wang[3], D.H. Wei[1], C.S. Tu[4], W.C. Chang[2] [1]Institute of Manufacturing Technology and Department of Mechanical Engineering, National Taipei University of Technology, TAIWAN [2]Department of Physics, National Chung Cheng University, TAIWAN [3]Department of Applied Physics, Tunghai University, TAIWAN [4]Department of Physics, Fu Jen Catholic University, TAIWAN
10:30-10:45	B-OP-0377 Metallic glass nanotube array for potential application as nanomechanical resonator in quantum information processing **Juan Carlos C. Novero[1]**, Giancarlo Dominador D. Sanglay[1], Magdaleno R. Vasquez Jr.[1], Pak-man Yiu[2], Jinn P. Chu[2] [1]Department of Mining, Metallurgical, and Materials Engineering, College of Engineering, University of the Philippines, PHILIPPINES. [2]Department of Materials Science and Engineering, National Taiwan University of Science and Technology, TAIWAN
10:45-11:00	B-O-0391 Hardening magnesium alloy through nanocomposite coating **Yi-Man Zhao**[1], Wen-Ling Xie[1], Bin Liao[2], Pan Pang[2], Dong-Sing Wuu[3], Sam Zhang[1] [1]School of Materials and Energy, Southwest University, CHINA [2]School of Nuclear Science and Technology, Beijing Normal University, CHINA [3]Department of Materials Science and Engineering, National Chung Hsing University, TAIWAN
11:30-12:00	**Closing, Student Awards, and Raffle Draw**

Symposium C. Semiconductor, Optoelectronic and Flexible Device Films	
Conference Room: Lecture Hall	
Session C7. Chairs: **Bohr-Ran Huang, National Taiwan University of Science and Technology, TAIWAN**	
09:00-09:15	C-O-0549 Carrier Dynamics Study of $CH_3NH_3PbI_3$ Perovskite Thin Films **Jing-Wun Syu[1]**, Che-Ting Kuo[2], Jiunn-Chyi Lee[2], Zong-Liang Tseng[1], Ya-Fen Wu[1] [1]Department of Electronic Engineering, Ming Chi University of Technology, TAIWAN [2]Department of Electrical Engineering, Taipei City University of Science and Technology, TAIWAN
09:15-09:30	C-O-0194 Thermal Analysis of Kapton® Substrate

	Sameer Kamrudin Bachani[1], Li-Chun Chang[2,3], Hsuan-Ling Kao[4,5,6], Chaur-Jeng Wang[1] [1]Department of Mechanical Engineering, National Taiwan University of Science and Technology, TAIWAN [2]Department of Materials Engineering, Ming Chi University of Technology, TAIWAN [3]Center for Thin Film Technologies and Applications, Ming Chi University of Technology, TAIWAN [4]Department of Electronic Engineering, Chang Gung University, TAIWAN [5]Centre for Reliability Sciences and Technologies, Chang Gung University, TAIWAN [6]Department of Dermatology, Chang Gung Memorial Hospital, Linkou Branches, TAIWAN
09:30-09:45	C-O-0206 The electrical conduction of wide-bandgap p-doped NiO thin-film fabricated by ICP-CVD technique Pi-Chun Juan[1], Hong-Jun Lin[1], **Guo-Ren Li**[1], Wei-Fan Lin[1], Cheng-Li Lin[2] [1]Department of Materials Engineering, Ming Chi University of Technology, TAIWAN [2]Department of Electronic Engineering, Feng Chia University, TAIWAN
09:45-10:00	C-O-0131 Effect of solvent additive in indoor light performance of organic photovoltaics Yu-Ching Huang[1], **Chia-Feng Li**[1], Zhi-Hao Huang[1], Po-Hung Liu[1], Yan-Cheng Peng[1], Yun-Ming Sung[2] [1]Department of Materials Engineering, Ming Chi University of Technology, TAIWAN [2]Organic Electronics Research Center, Ming Chi University of Technology, TAIWAN
10:00-10:30	C-I-0521 ZnO-based Hybrid-structures for Sensing Applications **Bohr-Ran Huang** Graduate Institute of Electro-Optical Engineering and Department of Electronic Engineering, National Taiwan University of Science and Technology, TAIWAN
10:30-10:45	C-O-0119 Enhancing the sensitivity of a sensor through design of an oblique-flat-sheet based metamaterial perfect absorbers **Tsung-Yu Huang**, Xin-Xian-Wu Department of Materials Engineering and Center for Thin Film Technologies and Applications, Ming Chi University of Technology, TAIWAN
10:45-11:00	C-O-0307 Effect of TiW layer in high performance TaO_x-based flexible conductive bridge synaptic memory for wearable neuromorphic electronics **Sailesh Rajasekaran**[1], Firman Mangasa Simanjuntak [2], Sridhar chandrasekaran[3], Aftab Saleem[3], Tseung-Yuen Tseng[4] [1]Department of Materials Science and Engineering, National Chiao Tung University, TAIWAN [2] World Premier Institute (WPI)- Advanced Institute for Materials Research, Tohoko University, JAPAN [3] Department of Electrical Engineering and Computer Science, National Chiao Tung University, TAIWAN [4] Institute of Electronics, National Chiao Tung University, TAIWAN

11:30-12:00	Closing, Student Awards, and Raffle Draw

Symposium D. Tribological and Protective Coatings

Conference Room: Room 204

Session D4. Chairs:
Fan-Bean Wu, National United University, TAIWAN
Kirsten Bobzin, RWTH Aachen University, GERMANY

09:00-09:30	D-I-0534 In operando cutting studies of hard tool coatings using high energy X-ray scattering. **Jens Birch**[1], Lina Rogström[2], Y.H. Chen[2], M. P. Johansson Jõesaar[1,3], J. Eriksson[3], M. Fallqvist[3], J. M. Andersson[3], N. Schell[4], M. Odén[2] [1]Thin Film Physics division, Dept. of Physics, Chemistry and Biology (IFM), Linköping University, SWEDEN [2] Nanostructured Materials, Dept. of Physics, Chemistry and Biology (IFM), Linköping University, SWEDEN [3] Seco Tools AB, SWEDEN [4] Helmholtz-Zentrum Geesthacht (HZG), GERMANY
09:30-09:45	D-O-0090 Fatigue behavior of AIP-TiAlN coated γ-TiAl intermetallic compound **Kenji Yamamoto**[1], Daisuke Matsuwaka[1], Takeo Miyamura[1], Hitoshi Ishida[1], NithyaGnana Poorani[2], Yuichi Otsuka[2], Yukio Miyashita [2], Yoshiharu Mutoh[2] [1]Kobe Steel Ltd. JAPAN [2]Nagaoka University of Technology, JAPAN
09:45-10:00	D-O-0480 Growth and Characterization of CrB_2/TiB_2 Superlattices by Magnetron Sputtering Naureen Ghafoor, **Samira Dorri**, Fredrik Eriksson, Justinas Palisaitis, and Jens Birch Thin Film Physics Division, Department of Physics, Chemistry and Biology (IFM), Linköping University, SWEDEN
10:00-10:30	D-I-0471 PVD Tool Coatings for High Temperature Cutting Processes **Kirsten Bobzin**, T. Brögelmann, N.C. Kruppe, M. Arghavani, M. Welters Surface Engineering Institute, RWTH Aachen University, GERMANY
10:30-10:45	D-O-0054 Ceramic based composite coating on AZ91 alloy to combat surface related degradation Harprabhjot Singh, Sanjeet Kumar, **Deepak Kumar**, Deepak Kumar Centre for Automotive Research and Tribology, Indian Institute of Technology Delhi, INDIA
10:45-11:00	D-O-0188 Effect of welding wire preheating on erosive wear behaviour of Fe-Cr-C hardfacing developed by submerged arc welding **Abhishek Kumar Pandey**, Sunil Pandey

	Department of Mechanical Engineering, Indian Institute of Technology Delhi, INDIA
11:30-12:00	Closing, Student Awards, and Raffle Draw
Symposium D. Tribological and Protective Coatings	
Conference Room: Room 205	
Session D5. Chairs: **Wan-Yu Wu, Da-Yeh University, TAIWAN**	
09:00-09:15	D-O-0380 Mechanical properties, bonding characteristics, and thermal stability of magnetron sputtered HfN_x films **Yi-En Ke**[1], Yung-I Chen[1,2*] [1]Department of Optoelectronics and Materials Technology, National Taiwan Ocean University, TAIWAN [2]Center of Excellence for Ocean Engineering, National Taiwan Ocean University, TAIWAN
09:15-09:30	D-O-0513 The Effect of Crystal Growth and Mechanical Properties of MoSiN Multilayer Coatings Fan Bean Wu, Z. X. Lin, Y.C. Liu, **Chi-Ruei Huang** Dept. of Materials Science and Engineering, National United University, TAIWAN
09:30-09:45	D-O-0306 Corrosion studies of LZ91 magnesium alloy with a chromate-free conversion coating and electroless Ni-P plating **Ting-Yu Chen**, Shun-Yi Jian, Kung-Feng Lin, Ming-Der Ger Department of Chemistry & Materials Engineering, Chung Cheng Institute of Technology, National Defense University, TAIWAN
09:45-10:00	D-O-0390 Tribocorrosion study of AZ31 magnesium alloy with plasma electrolytic oxidation treatment **Ismail Rahmadtulloh**[1], Chien-An Yen[1], Bhi-Show Lou[2,3], Jyh-Wei Lee[1,4,5,6] [1]Department of Materials Engineering, Ming Chi University of Technology, TAIWAN [2]Chemistry Division, Center for General Education, Chang Gung University, TAIWAN [3]Department of Nuclear Medicine and Molecular Imaging Center, Chang Gung Memorial Hospital, TAIWAN [4]Center for Plasma and Thin Film Technologies, Ming Chi University of Technology, TAIWAN [5] Department of Mechanical Engineering, Chang Gung University, TAIWAN [6]Plastic and Reconstructive Surgery, and Craniofacial Research Center, Chang Gung Memorial Hospital, TAIWAN

10:00-10:15	D-O-0318 Evaluation of microstructural effects on corrosion behaviour of AZ31B magnesium alloy with a MAO coating and electroless Ni-P plating **Chi-An Chen**[1], Shun-Yi Jian[2], Chia-Hsin Lu[2], Chia-Yu Lee[2], Ming-Der Ger[2] [1]Graduate School of Defense Science, Chung Cheng Institute of Technology, National Defense University, TAIWAN [2]Department of Chemical & Materials Engineering, Chung Cheng Institute of Technology, National Defense University, TAIWAN
10:15-10:30	D-O-0311 Preparation and Investigation of Diamond-Incorporated Copper Coatings on a Brass Substrate by Composite Electrodeposition **Xiaoli Wang**[1,2], Chau-Chang Chou[3,4], Jyh-Wei Lee[5,6], Rudder Wu[7], Hong-Yi Chang[8] [1]Doctoral Degree Program in Ocean Engineering Technology, National Taiwan Ocean University, TAIWAN [2]Jiangsu Key Laboratory of Function Control Technology for Advanced Materials, Jiangsu Ocean University, CHINA [3]Department of Mechanical and Mechatronic Engineering, National Taiwan Ocean University, TAIWAN [4]Center for Marine Mechatronic Systems, National Taiwan Ocean University, TAIWAN [5]Department of Materials Engineering, Ming Chi University of Technology, TAIWAN [6]Center for Plasma and Thin Film Technologies, Ming Chi University of Technology, TAIWAN [7] Research Center for Structural Materials, National Institute for Materials Science, JAPAN [8] Department of Marine Engineering, National Taiwan Ocean University, TAIWAN
10:30-10:45	D-O-0387 Effect of Microstructure Evolution and Mechanical Behavior on MoN and MoSiN Films **Yu-Cheng Liu**, Zheng-Xin Lin, Chi-Ruei Huang, Fan-Bean Wu Department of Materials Science and Engineering, National United University, TAIWAN
10:45-11:00	D-O-0385 Rapid thermal annealing of Cr–Si–N, Ta–Si–N, and Zr–Si–N coatings in glass molding atmospheres Yung-I Chen[1,2], Yi-En Ke[1], **Ming-Ching Sung**[1], Li-Chun Chang[3,4] Department of Optoelectronics and Materials Technology, National Taiwan Ocean University, TAIWAN [2]Center of Excellence for Ocean Engineering, National Taiwan Ocean University, TAIWAN [3]Department of Materials Engineering, Ming Chi University of Technology, TAIWAN [4]Center for Plasma and Thin Film Technologies, Ming Chi University of Technology, TAIWAN
11:30-12:00	Closing, Student Awards, and Raffle Draw