



**The 2019 EITA Conference on New Materials,
Nanotechnology, Healthcare, New Energy and
Sustainable Smart Manufacturing
(EITA-New Materials 2019)**

**"Recent Research Advances in New Materials,
Nanotechnology, Healthcare, New Energy and
Sustainable Smart Manufacturing: Challenges,
Opportunities and Future Directions"**

**National Chiao-Tung University
Hsinchu, Republic of China (Taiwan)**

Wednesday-Thursday, September 11 and 12, 2019

Program

(Draft as of 9/3/19)

Day 1 (Wednesday, September 11, 2019)

9/11 (Wed) 9:00 am - 5:00 pm: Registration

Room: Conference Hall, CPT Building 1F (交映樓1F國際會議廳)

9/11 (Wed) 9:30 am - 9:50 am: Opening Session

Chairs:

Dr. Fang-Chung Chen (陳方中), Professor and Deputy Director, Department of Photonics,
National Chiao-Tung University

Dr. Tsung Sheng Kao (高宗聖), Assistant Professor, Department of Photonics, National Chiao-
Tung University

Room: Conference Hall, CPT Building 1F (交映樓1F國際會議廳)

Welcome Remarks:

Dr. Edward Yi Chang (張翼)

Senior Vice President
National Chiao-Tung University

9/11 (Wed) 9:50 am - 10:40 am: Plenary Session (I):

Chair: **Dr. Fang-Chung Chen (陳方中)**, Professor and Deputy Director, Department of
Photonics, National Chiao-Tung University

Room: Conference Hall, CPT Building 1F (交映樓1F國際會議廳)

Plenary Speaker:

“New frontiers of GaN optoelectronic research”

Dr. Jung Han

William Norton Professor in Technological Innovation
Professor, Department of Electrical Engineering
Yale University

9/11 (Wed) 10:40 am - 10:50 am: Break

9/11 (Wed) 10:50 am – 11:40 am: Plenary Session (II):

Chair: Dr. Tien-Chang Lu (盧廷昌), Chairman of Tin Ka Ping Photonic Center, National Chiao-Tung University

Room: Conference Hall, CPT Building 1F (交映樓1F國際會議廳)

Plenary Speaker:

“Nanoscale interface engendering for functional hetero-junction”

Dr. Kazuhito Tsukagoshi (塚越 一仁)

Group Leader of Pi-electron electronics group
Principle Investigator, WPI-MANA, NIMS

9/11 (Wed) 11:40 am – 1:00 pm: Student Poster Competition:

Presentations

Chair: Dr. Fang-Chung Chen (陳方中), Professor and Deputy Director, Department of Photonics, National Chiao-Tung University

Co-chair: Dr. Tsung Sheng Kao (高宗聖), Assistant Professor, Department of Photonics, National Chiao-Tung University

Room: CPT Building 1F (交映樓1F)

9/11 (Wed) 11:40 am - 1:00 pm: Lunch

Parallel Sessions:

9/11 (Wed) 1:00 pm – 2:30 pm: Technical Session D1-W1-T1:Emerging Technologies and Applications in Materials for Healthcare and Medicine: Bio-Materials, Bio-SoC, Bio-Nanotech, Bio-NEMS/Bio-MEMS, Biomedical Optics and Imaging, Biomedical Engineering and Systems, Biomedical Informatics, Mobile Health, Virtual Reality (VR) in Healthcare

Chair: Dr. Chi-Kuang Sun (孫啟光), Life Distinguished Professor, Graduate Institute of Photonics and Optoelectronics and Chief Director, Molecular Imaging Center, National Taiwan University

Room: Conference Hall, CPT Building 1F

“Mining Perturbed Gene Expression Patterns for Drug Discovery”

Dr. Hsuan-Cheng Huang (黃宣誠)

Director and Professor, Institute of Biomedical Informatics
National Yang Ming University

“Design and Implementation of Wearable Eye Tracker”

Dr. Chih-Peng Fan (范志鵬)

Professor, Department of Electrical Engineering
National Chung Hsing University

Dr. Chih-Ting Lin (林致廷)

Associate Professor, Department of Electrical Engineering
National Taiwan University

9/11 (Wed) 1:00 pm – 2:30 pm: Technical Session D1-W2-T1: Emerging Technologies and Applications in Electronic, Photonic, and Magnetic Materials, Ceramic Materials, Metallurgy and Materials, Organic Polymer, Soft Materials, and Computational Materials

Chair: Dr. Chih-Wei Chu (朱治偉), Deputy Director and Research Fellow, Research Center for Applied Sciences, Academia Sinica

Room: R201, CPT Building

“Exquisite Ge/Si/O interactions enabled self-organized heterostructures of Ge nanodot/SiO₂/SiGe-recess channel for Si electronic/photonic integrated circuits”

Dr. Pei-Wen Li (李佩雯)

Professor, Institute of Electronics
Director, Nano Facility Center
National Chiao Tung University

“Contact Engineering for 2D Field-effect Transistors”

Dr. Po-Wen Chiu (邱博文)

Professor, Department of Electrical Engineering
Director, Center for Nanotechnology, Materials Science, and Microsystem
National Tsing Hua University

“P-Channel SnO TFTs for Oxide-Semiconductor-Based CMOS Technology”

Dr. I-Chun Cheng (陳奕君)

Professor, Department of Electrical Engineering & Graduate Institute of Photonics and Optoelectronics
National Taiwan University

9/11 (Wed) 1:00 pm – 2:30 pm: Technical Session D1-W3-T1: Emerging Technologies and Applications in New Energy Materials and Devices, Perovskite, Power Electronics, Smart Energy Systems and Technologies (SEST), Smart Homes, Smart Buildings, and Smart Communities, Energy Storage and Utilization, Clean/Intelligent Vehicle Technologies, and Artificial Intelligence (AI) Applications in New Materials and Energy

Chair: Dr. Jia-Min Shieh (謝嘉民), Deputy Director General, National Nano Device Laboratories

Room: R202, CPT Building

“ZnO-based Hybrid-structures for Optoelectronic and Sensing Devices”

Dr. Bohr-Ran Huang (黃柏仁)

Distinguished Professor, Graduate Institute of Electro-Optical Engineering and Department of Electronic Engineering
National Taiwan University of Science and Technology

“A Concept of applying the surface defect band from MoS₂ 2D nanoribbons for photon ratchet intermediate band solar cells”

Dr. Yuh-Renn Wu (吳育任)

Professor, Institute of Photonics and Optoelectronics and
Department of Electrical Engineering
National Taiwan University

“Asymmetric Thermo-electrochemical Cell for Low-Grade-Heat-to-Electricity Conversion”

Dr. Shien-Ping Feng (馮憲平)

Associate Professor, Department of Mechanical Engineering
The University of Hong Kong

9/11 (Wed) 1:00 pm – 2:30 pm: Technical Session D1-W4-T1: Smart Tools and Smart Services, Smart Machines, and Sustainable Smart Manufacturing for the Future: Vision, Strategies, and Implementation (Big Data and Intelligence, Advanced Sensors, Autonomous Robots, Robotic Process Automation, Smart Machines (Devices), Simulation, Horizontal and Vertical System Integration, Smart Cities, Smart Supply Chain Management and Logistics 4.0, 5G Wireless Mobile Technology, Internet of Things (IoT), Cyber-Physical Systems, Cybersecurity, Additive and Advanced Manufacturing, Digital Manufacturing, Augmented Reality and Cloud Technologies)

Chair: Dr. Liang-Chia Chen (陳亮嘉)

Distinguished Professor, Department of Mechanical Engineering
National Taiwan University

Room: R203, CPT Building

“Quality Control Problems in Three-dimensional Printing-based Mass Production”

Dr. Tin-Chih Toly Chen (陳亭志)

Distinguished Professor, Department of Industrial Engineering and Management
National Chiao Tung University

Dr. Chun-Yeon Lin (林峻永)

Assistant Professor, Department of Mechanical Engineering
National Taiwan University

9/11 (Wed) 2:30 pm - 2:40 pm: Break

Parallel Sessions:

9/11 (Wed) 2:40 pm – 4:20 pm: Technical Session D1-W1-T2: Emerging Technologies and Applications in Materials for Healthcare and Medicine: Bio-Materials, Bio-SoC, Bio-Nanotech, Bio-NEMS/Bio-MEMS, Biomedical Optics and Imaging, Biomedical Engineering and Systems, Biomedical Informatics, Mobile Health, Virtual Reality (VR) in Healthcare

Chair: Dr. Hsueh-Fen Juan (阮雪芬), Professor, Department of Life Science; Graduate Institute of Biomedical Electronics and Bioinformatics, National Taiwan University

Room: Conference Hall, CPT Building 1F

(3 speakers)

Dr. Chi-Kuang Sun (孫啟光)

Life Distinguished Professor, Graduate Institute of Photonics and Optoelectronics and
Chief Director, Molecular Imaging Center
National Taiwan University

Dr. Wei-Ning Lee (李維寧)

Associate Professor, Department of Electrical and Electronic Engineering
The University of Hong Kong

9/11 (Wed) 2:40 pm – 4:10 pm: Technical Session D1-W2-T2: Emerging Technologies and Applications in Electronic, Photonic, and Magnetic Materials, Ceramic Materials, Metallurgy and Materials, Organic Polymer, Soft Materials, and Computational Materials

Chair: Dr. Pei-Wen Li (李佩雯), Professor, Institute of Electronics, Director, Nano Facility Center, National Chiao Tung University

Room: R201, CPT Building

“An Inkjet Printing Technique for the Fabrication of Scalable Flexible Microsystems”

Dr. Yu-Ting Cheng (鄭裕庭)

Professor, Department of Electronics Engineering
National Chiao Tung University

“Efficiency Enhancement and Lifetime Elongation of Blue Organic Light-emitting Diodes”

Dr. Jiun-Haw Lee (李君浩) and Dr. Tien-Lung Chiu (邱天隆)

Professor, Graduate Institute of Photonics and Optoelectronics
National Taiwan University

“Non-Destructive Metrology Technology in PV Industry”

Dr. Shih-Hung Lin (林士弘)

Associate Professor, Department of Electrical Engineering
TungHai University

9/11 (Wed) 2:40 pm – 4:10 pm: Technical Session D1-W3-T2: Emerging Technologies and Applications in New Energy Materials and Devices, Perovskite, Power Electronics, Smart Energy Systems and Technologies (SEST), Smart Homes, Smart Buildings, and Smart Communities, Energy Storage and Utilization, Clean/Intelligent Vehicle Technologies, and Artificial Intelligence (AI) Applications in New Materials and Energy

Chair: Dr. Bohr-Ran Huang (黃柏仁), Distinguished Professor, Graduate Institute of Electro-Optical Engineering and Department of Electronic Engineering, National Taiwan University of Science and Technology

Room: R202, CPT Building

Dr. Jin-shyr Yang (楊金石)

Deputy General Manager
Taiwan Power Research Institute

Dr. Ming-Yuan Cho (卓明遠)

Professor, Department of Electrical Engineering.
National Kaohsiung University of Applied Sciences

Dr. Yu-Ting Wu (吳毓庭)

Assistant Professor, Department of Engineering Science
National Cheng Kung University

9/11 (Wed) 2:40 pm – 4:10 pm: Technical Session D1-W4-T2: Smart Tools and Smart Services, Smart Machines, and Sustainable Smart Manufacturing for the Future: Vision, Strategies, and Implementation (Big Data and Intelligence, Advanced Sensors, Autonomous Robots, Robotic Process Automation, Smart Machines (Devices), Simulation, Horizontal and Vertical System Integration, Smart Cities, Smart Supply Chain Management and Logistics 4.0, 5G Wireless Mobile Technology, Internet of Things (IoT), Cyber-Physical Systems, Cybersecurity, Additive and Advanced Manufacturing, Digital Manufacturing, Augmented Reality and Cloud Technologies)

Chair:

Room: R203, CPT Building

Dr. Yung-Hui Li (栗永徽)

Associate Professor, Department of Computer Science and Information Engineering
National Central University

"Digital Fusion and Smart City"

Mr. Yonathan Joe (李金輝)

Research Fellow, The Center for IoT Innovation
National Taiwan University of Science and Technology

Dr. Shuo-Yan Chou (周碩彥)

Distinguished Professor, Department of Industrial Management
National Taiwan University of Science and Technology

9/11 (Wed) 4:10 pm – 4:20 pm: Break

Parallel Sessions:

9/11 (Wed) 4:20 pm – 5:50 pm: Technical Session D1-W1-T3: Emerging Technologies and Applications in Materials for Healthcare and Medicine: Bio-Materials, Bio-SoC, Bio-Nanotech, Bio-NEMS/Bio-MEMS, Biomedical Optics and Imaging, Biomedical Engineering and Systems, Biomedical Informatics, Mobile Health, Virtual Reality (VR) in Healthcare

Chair: Dr. Hsuan-Cheng Huang (黃宣誠), Director and Professor, Institute of Biomedical Informatics, National Yang Ming University

Room: Conference Hall, CPT Building 1F

"A CHF Detection System with ECG Signals"

Dr. Hsi-Pin Ma (馬席彬)

Professor, Department of Electrical Engineering

Vice Dean, College of Electrical Engineering and Computer Science
Director, IC Design Technology Center
National Tsing Hua University

"Imaging Mitochondria Dynamics"

Dr. Hsueh-Fen Juan (阮雪芬)

Professor, Department of Life Science; Graduate Institute of Biomedical Electronics and Bioinformatics
National Taiwan University

Dr. Han-Sheng Chuang (Oswald) (莊漢聲)

Associate Professor, Department of Biomedical Engineering
National Cheng Kung University

9/11 (Wed) 4:20 pm – 5:50 pm: Technical Session D1-W2-T3: Emerging Technologies and Applications in Electronic, Photonic, and Magnetic Materials, Ceramic Materials, Metallurgy and Materials, Organic Polymer, Soft Materials, and Computational Materials

Chair: Dr. I-Chun Cheng (陳奕君), Professor, Department of Electrical Engineering & Graduate Institute of Photonics and Optoelectronics, National Taiwan University

Room: R201, CPT Building

"TAO-DFT and Its Applications to Nanomaterials with Radical Nature"

Dr. Jeng-Da Chai (蔡政達)

Professor, Department of Physics
National Taiwan University

"Hydrogen Adsorption, Dissociation And Spillover On Supported Metal Clusters"

Dr. Hsin-Yi Tiffany Chen (陳馨怡)

Assistant Professor, Department of Engineering and System Science
National Tsing Hua University

Dr. Tsung Sheng Kao (高宗聖)

Assistant Professor, Department of Photonics
National Chiao-Tung University

9/11 (Wed) 4:20 pm – 5:50 pm: Technical Session D1-W3-T3: Emerging Technologies and Applications in New Energy Materials and Devices, Perovskite, Power Electronics, Smart Energy Systems and Technologies (SEST), Smart Homes, Smart Buildings, and Smart Communities, Energy Storage and Utilization, Clean/Intelligent Vehicle Technologies, and Artificial Intelligence (AI) Applications in New Materials and Energy

Chair:

Room: R202, CPT Building

Dr. Yu-Bin Chen (陳玉彬)

Professor, Department of Power Mechanical Engineering
National Tsing Hua University

“Synchrotron-based X-ray spectroscopy in energy materials”

Dr. Yan-Gu Lin (林彥谷)

Associate Research Scientist
National Synchrotron Radiation Research Center

“Developing High Performance Perovskite Film and Universal Electrode Buffer Layers for Organic and Perovskite Optoelectronics”

Dr. Wei-Ting Wang (王瑋婷)

Postdoc Fellow, Department of Mechanical Engineering

Dr. Shien-Ping Feng (馮憲平)

Associate Professor, Department of Mechanical Engineering
The University of Hong Kong

9/11 (Wed) 4:20 pm – 5:50 pm: Technical Session D1-W4-T3: Smart Tools and Smart Services, Smart Machines, and Sustainable Smart Manufacturing for the Future: Vision, Strategies, and Implementation (Big Data and Intelligence, Advanced Sensors, Autonomous Robots, Robotic Process Automation, Smart Machines (Devices), Simulation, Horizontal and Vertical System Integration, Smart Cities, Smart Supply Chain Management and Logistics 4.0, 5G Wireless Mobile Technology, Internet of Things (IoT), Cyber-Physical Systems, Cybersecurity, Additive and Advanced Manufacturing, Digital Manufacturing, Augmented Reality and Cloud Technologies)

Chair:

Room: R203, CPT Building

Dr. Liang-Chia Chen (陳亮嘉)

Distinguished Professor, Department of Mechanical Engineering
National Taiwan University

“Off-grid Photovoltaics for Smart Applications”

Dr. Fang-Chung Chen (陳方中)

Professor, Department of Photonics, College of Electrical and Computer Engineering and
Center for Emergent Functional Matter Science
National Chiao Tung University

Day 2 (Thursday, September 12, 2019)

9/12 (Thu) 9:00 am - 5:00 pm: Registration

Room: Conference Hall, CPT Building 1F (交映樓1F國際會議廳)

9/12 (Thu) 9:30 am - 9:50 am: Opening Session

Chair: Dr. Fang-Chung Chen (陳方中), Professor and Deputy Director, Department of Photonics, National Chiao-Tung University

Dr. Tsung Sheng Kao (高宗聖), Assistant Professor, Department of Photonics, National Chiao-Tung University

Room: Conference Hall, CPT Building 1F (交映樓1F國際會議廳)

9/12 (Thu) 9:50 am - 10:40 am: Plenary Session (III):

Chair: Dr. Fang-Chung Chen (陳方中), Professor, Department of Photonics, National Chiao-Tung University

Room: Conference Hall, CPT Building 1F (交映樓1F國際會議廳)

Plenary Speaker:

“VLS growth of 2D Metal Chalcogenides and their Application in Artificial Photosynthesis”

Dr. Kuei-Hsien Chen (陳貴賢)

Distinguished Research Fellow & Director
Institute of Atomic & Molecular Sciences
Academia Sinica

9/12 (Thu) 10:40 am - 10:50 am: Break

9/12 (Thu) 10:50 am – 11:40 am: Plenary Session (IV):

Chair: Dr. Tsung Sheng Kao (高宗聖), Assistant Professor, Department of Photonics, National Chiao-Tung University

Room: Conference Hall, CPT Building 1F (交映樓1F國際會議廳)

Plenary Speaker:

Dr. Chun-Wei Chen (陳俊維)

Distinguished Professor, Department of Materials Science and Engineering
National Taiwan University

9/12 (Thu) 11:40 am – 1:00 pm: Student Poster Competition: Award Ceremony

Chair: Dr. Fang-Chung Chen (陳方中), Professor and Deputy Director, Department of Photonics, National Chiao-Tung University

Co-chair: Dr. Tsung Sheng Kao (高宗聖), Assistant Professor, Department of Photonics, National Chiao-Tung University

Room: CPT Building 1F (交映樓1F)

9/12 (Thu) 11:40 am - 1:00 pm: Lunch

Parallel Sessions:

9/12 (Thu) 1:00 pm – 2:30 pm: Technical Session D2-W1-T1: Emerging Technologies and Applications in Materials for Healthcare and Medicine: Bio-Materials, Bio-SoC, Bio-Nanotech, Bio-NEMS/Bio-MEMS, Biomedical Optics and Imaging, Biomedical Engineering and Systems, Biomedical Informatics, Mobile Health, Virtual Reality (VR) in Healthcare

Chair: Dr. Chi-Kuang Sun (孫啟光), Life Distinguished Professor, Graduate Institute of Photonics and Optoelectronics and Chief Director, Molecular Imaging Center, National Taiwan University

Room: Conference Hall, CPT Building 1F

“Detection of urinary miRNA biomarkers by transmission surface plasmon resonance”

Dr. Ji-Yen Cheng (鄭鄧言)

Research Fellow, Research Center for Applied Sciences
Academia Sinica

“Application of Cross-linked Polypeptide Multilayer Films for Stem Cell Differentiation”

Dr. Chun-Min Lo (羅俊民)

Associate Professor, Department of Biomedical Engineering
National Yang-Ming University

Dr. Tzu-En Lin (林子恩)

Assistant Professor, Institute of Biomedical Engineering
National Chiao-Tung University

9/12 (Thu) 1:00 pm – 2:30 pm: Technical Session D2-W2-T1: Emerging Technologies and Applications in Electronic, Photonic, and Magnetic Materials, Ceramic Materials, Metallurgy and Materials, Organic Polymer, Soft Materials, and Computational Materials

Chair: Dr. Jia-Min Shieh (謝嘉民), Deputy Director General, National Nano Device Laboratories

Room: R201, CPT Building

Dr. Po-Liang Liu (劉柏良)

Professor and Chairman, Graduate Institute of Precision Engineering
National Chung Hsing University

Dr. Lee-Yih Wang (王立義)

Professor, Center for Condensed Matter Sciences
National Taiwan University

“High-Performance GaN-based Ultraviolet Detectors”

Dr. Pinghui Sophia Yeh (葉秉慧)

Associate Professor, Department of Electronic and Computer Engineering
National Taiwan University of Science and Technology

9/12 (Thu) 1:00 pm – 2:30 pm: Technical Session D2-W3-T1: Emerging Technologies and Applications in New Energy Materials and Devices, Perovskite, Power Electronics, Smart Energy Systems and Technologies (SEST), Smart Homes, Smart Buildings, and Smart Communities, Energy Storage and Utilization, Clean/Intelligent Vehicle Technologies, and Artificial Intelligence (AI) Applications in New Materials and Energy

Chair: Dr. Chih-Wei Chu (朱治偉), Deputy Director and Research Fellow, Research Center for Applied Sciences, Academia Sinica

Room: R202, CPT Building

“Photovoltaics and Optical characteristics of Low-dimensional Perovskites”

Dr. Chao-Yu (Peter) Chen (陳昭宇)

Professor, Department of Photonics

Hierarchical Green-Energy Materials (Hi-GEM) Research Center,
National Cheng Kung University

Dr. Yu-Lun Chueh (闕郁倫)

Professor, Department of Materials Science and Engineering

National Tsing Hua University

“Carbon-based counter electrodes for dye-sensitized solar cells”

Dr. Chih-Liang Wang (王致曉)

Assistant Professor, Graduate Institute of Precision Engineering

National Chung Hsing University

9/12 (Thu) 2:30 pm – 2:40 pm: Break

Parallel Sessions:

9/12 (Thu) 2:40 pm – 4:10 pm: Technical Session D2-W1-T2: Emerging Technologies and Applications in Materials for Healthcare and Medicine: Bio-Materials, Bio-SoC, Bio-Nanotech, Bio-NEMS/Bio-MEMS, Biomedical Optics and Imaging, Biomedical Engineering and Systems, Biomedical Informatics, Mobile Health, Virtual Reality (VR) in Healthcare

Chair:

Room: Conference Hall, CPT Building 1F

“2.5D polymer multilayer micromodel for geographic investigations”

Dr. Chia-Wen (Kevin) Tsao (曹嘉文)

Professor, Department of Mechanical Engineering

National Central University

“Triboelectrification as an Efficient Tool for the Development of Self-Powered Sensors and Systems”

Dr. Zong-Hong Lin (林宗宏)

Associate Professor, Institute of Biomedical Engineering, Department of Power Mechanical Engineering, Frontier Research Center on Fundamental and Applied Sciences of Matters,
National Tsing Hua University

“Microfluidic Analytical Systems for Point-of-Care Diagnosis”

Dr. Chien-Fu Steve Chen (陳建甫)

Associate Professor, Institute of Applied Mechanics
Division Director, Nano-Electro-Mechanical-System Research Center
National Taiwan University

9/12 (Thu) 2:40 pm – 4:10 pm: Technical Session D2-W2-T2: Emerging Technologies and Applications in Electronic, Photonic, and Magnetic Materials, Ceramic Materials, Metallurgy and Materials, Organic Polymer, Soft Materials, and Computational Materials

Chair:

Room: R201, CPT Building

“MICAtronics: A New Platform for Flexible Electronics”

Dr. Ying-Hao Eddie Chu (朱英豪)

Distinguished Professor, Department Of Materials Science And Engineering
National Chiao Tung University

“*Ab initio* phase stability and electronic conductivity of the doped-Li₄Ti₅O₁₂ anode for Li-ion batteries”

Dr. Shih-Kang Lin (林士剛)

Associate Professor, Department of Materials Science and Engineering
Vice Director, Hierarchical Green-Energy Materials (Hi-GEM) Research Center
Vice Director, Research & Services Headquarters (RSH)
National Cheng Kung University

“Self-powered GaN-based Nanowire LEDs”

Dr. Chih-Yen Chen (陳智彥)

Assistant Professor, Department of Materials and Optoelectronic Science
National Sun Yat-sen University

9/12 (Thu) 2:40 pm – 4:10 pm: Technical Session D2-W3-T2: Emerging Technologies and Applications in New Energy Materials and Devices, Perovskite, Power Electronics, Smart Energy Systems and Technologies (SEST), Smart Homes, Smart Buildings, and Smart Communities, Energy Storage and Utilization, Clean/Intelligent Vehicle Technologies, and Artificial Intelligence (AI) Applications in New Materials and Energy

Chair:

Room: R202, CPT Building

“A facile, scalable and ecofriendly approach for the fabrication of high performance flexible all-solid-state supercapacitors”

Dr. Rong-Ho Lee (李榮和)

Professor, Department of Chemical Engineering
National Chung Hsing University

“Investigating an All-organic Battery Using Polyisothianaphthene as a Redox-active Bipolar Electrode Material”

Dr. Fu-Ming Wang (王復民)

Professor, Graduate Institute of Applied Science and Technology
National Taiwan University of Science and Technology

“Rendering Stable Metal–Organic Framework-Based Materials Electrochemically Active”

Dr. Chung-Wei Kung (龔仲偉)

Assistant Professor, Department of Chemical Engineering
National Cheng Kung University

9/12 (Thu) 4:10 pm – 4:20 pm: Break

Parallel Sessions:

9/12 (Thu) 4:20 pm – 5:50 pm: Technical Session D2-W1-T3: Emerging Technologies and Applications in Materials for Healthcare and Medicine: Bio-Materials, Bio-SoC, Bio-Nanotech, Bio-NEMS/Bio-MEMS, Biomedical Optics and Imaging, Biomedical Engineering and Systems, Biomedical Informatics, Mobile Health, Virtual Reality (VR) in Healthcare

Chair:

Room: Conference Hall, CPT Building 1F

“Enriching Extracellular Vesicles from Small Samples”

Dr. Chihchen Chen (陳致真)

Associate Professor, Department of Power Mechanical Engineering,
Associate professor, Institute of Nanoengineering and Microsystems,
Department of Power Mechanical Engineering
National Tsing Hua University

“Clinical Feasibility and Mechanism Discussion of Plasma-activated Medium as Adjuvant Therapy on Malignant Pleural Effusion”

Dr. Yun-Chien Cheng (鄭雲謙)

Associate Professor, Department of Mechanical Engineering
National Chiao-Tung University

“Development of a Novel Targeted Drug Delivery System for Liver Tissue Regeneration”

Dr. Yung-Te Hou (侯詠德)

Assistant Professor, Department of Bio-Industrial Mechantronics Engineering
National Taiwan University

9/12 (Thu) 4:20 pm – 5:50 pm: Technical Session D2-W2-T3: Emerging Technologies and Applications in Electronic, Photonic, and Magnetic Materials, Ceramic Materials, Metallurgy and Materials, Organic Polymer, Soft Materials, and Computational Materials

Chair:

Room: R201, CPT Building

“Monolithic 3D-IC with Heterogeneous Integration of Light-energy Harvesters for Internet of Things”

Dr. Chang-Hong Shen (沈昌宏)

Researcher Fellow & Division Director of Planning and Promotion Division
Taiwan Semiconductor Research Institute (TSRI)

“Enhanced Near-Infrared Photoresponse of Inverted Perovskite Solar Cells Through Rational Design of Bulk-Heterojunction Electron-Transporting Layers”

Dr. Chu-Chen Chueh (闕居振)

Assistant Professor, Department of Chemical Engineering
National Taiwan University

“Scalable low-power silicon photonic platform for all-solid-state beam steering”

Dr. You-Chia Chang (張祐嘉)

Assistant Professor, Department of Photonics and Institute of Electro-Optical Engineering,
National Chiao-Tung University

9/12 (Thu) 4:20 pm – 5:50 pm: Technical Session D2-W3-T3: Emerging Technologies and Applications in New Energy Materials and Devices, Perovskite, Power Electronics, Smart Energy Systems and Technologies (SEST), Smart Homes, Smart Buildings, and Smart Communities, Energy Storage and Utilization, Clean/Intelligent Vehicle Technologies, and Artificial Intelligence (AI) Applications in New Materials and Energy
Chair:

Room: R202, CPT Building

“Transfer Printing of Active Layers from controlled Swelling/De-Swelling of PDMS for realizing multilayer Polymer/Perovskite Solar Cells”

Dr. Chih-Wei Chu (朱治偉)

Deputy Director and Research Fellow, Research Center for Applied Sciences
Academia Sinica

“Dispersion Control Through Crystal Ordering: The Case of L11 Ag-Pt”

Dr. Yung-Tin (Frank) Pan (潘詠庭)

Assistant Professor, Department of Chemical Engineering
National Tsing Hua University

“Realization of Eco-Friendly and Scalable Radiative Cooling for Metal Substrates”

Dr. Jui-Yung Chang (張瑞永)

Assistant Professor, Department of Mechanical Engineering
National Chiao-Tung University