



**The EITA Conference on New Materials,  
Nanotechnology and New Energy 2017  
(EITA-New Materials 2017)**

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

**Taubman A Alfred Biomedical Science Research  
Building (BSRB)  
The University of Michigan  
Ann Arbor, Michigan, U.S.A.**

**Saturday, July 1, 2017**

**Program**

**(Draft as of 6/28/17)**

**Building Abbreviations and Addresses (the U-M, Ann Arbor):**

- **BSRB** (Taubman A Alfred Biomedical Science Research Building): 109 Zina Pitcher PL, Ann Arbor, Michigan

***Day 1 (Saturday, July 1, 2017)***

**7/1 (Sat) 9:00 am - 5:30 pm: Registration**

Room: **Seminar Room A, BSRB**

**7/1 (Sat) 9:30 am - 9:50 am: Opening Session**

Chair: **Dr. Pei-Cheng Ku** (古培正), Associate Professor, Department of Electrical Engineering & Computer Science, The University of Michigan, Ann Arbor

Room: **Seminar Room A, BSRB**

**Welcome Remarks:**

**Mr. Calvin Chen-huan Ho**

Director General

Taipei Economic and Cultural Office in Chicago

(駐芝加哥台北經濟文化辦事處何震寰處長)

**Plenary Sessions:**

**7/1 (Sat) 9:50 am - 10:40 am: Plenary Session (I):**

Chair: **Dr. Pei-Cheng Ku** (古培正), Associate Professor, Department of Electrical Engineering & Computer Science, The University of Michigan, Ann Arbor

Room: **Seminar Room A, BSRB**

**Plenary Speaker:**

“Noninvasive Dermatological Micro-Imaging of Melanin for Histopathological Diagnosis and Treatment Assessment”

**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

**7/1 (Sat) 10:40 am - 10:50 am: Break**

**7/1 (Sat) 10:50 am – 11:40 am: Plenary Session (II):**

Chair: **Dr. Chun-Chi (Richard) Liang** (梁駿騏), Research Assistant Professor, Department of Neurology, The University of Michigan, Ann Arbor  
Room: **Seminar Room A, BSRB**

**Plenary Speaker:**

“Connected and Automated Vehicles”

**Dr. Hwei Peng** (彭暉)

Professor, Mechanical Engineering  
US Director, US-China Clean Energy Research Center-Clean Vehicle Consortium  
Roger L. McCarthy Professor  
The University of Michigan, Ann Arbor

**7/1 (Sat) 11:40 pm - 1:00 pm: Lunch**

**Parallel Sessions:**

**7/1 (Sat) 1:00 pm – 2:20 pm: Technical Session D1-W1-T1: Emerging Technologies and Applications in Materials for Health & Medicine: Bio-Materials, Bio-SoC, Bio-Nanotech, Bio-NEMS/Bio-MEMS, Mobile Health, Biomedical Optics and Imaging, Biomedical Engineering and Systems**

Chair: **Dr. Aichi Chien** (簡艾琪), Associate Professor, Division of Interventional Neuroradiology, Department of Radiological Sciences, Biomedical Physics IDP, David Geffen School of Medicine at UCLA, Ronald Reagan UCLA Medical Center  
Room: **Seminar Room A, BSRB**

**Dr. Liqun (Andrew) Gu**

Associate Professor, Department of Bioengineering and Dalton Cardiovascular Research Center  
University of Missouri

“Electroactive Polypyrrole Actuators for Implantable Devices”

**Dr. Liang Guo**

Assistant Professor, Department of Electrical and Computer Engineering, Department of Neuroscience  
The Ohio State University

“Nanowire Nano-Bioelectronics Devices and Systems”

**Dr. Wei Zhou**

Assistant Professor, Department of Electrical & Computer Engineering  
Virginia Tech

“Bio-Inspired Design of Multiscale Structures via Assembly of Nanoscale Building Blocks”

**Dr. Po-Yen Chen** (陳柏彥)

Assistant Professor, Department of Chemical and Biomolecular Engineering  
National University of Singapore (NUS)

**7/1 (Sat) 1:00 pm – 2:20 pm: Technical Session D1-W2-T1: Emerging Technologies and Applications in Electronic, Photonic, and Magnetic Materials, Ceramic Materials, Organic Polymer and Soft Materials**

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

Room: **Seminar Room B, BSRB**

“Engineering light at the nanoscale: structural colors and broadband perfect absorbers”

**Dr. L. Jay Guo**

Professor, Department of Electrical Engineering and Computer Science  
Mechanical Engineering, Macromolecular Science & Engineering, and Applied Physics  
The University of Michigan, Ann Arbor

“Phosphor-Free InGaN/AlGaN Core-Shell Nanowire Light-Emitting Diode Arrays on Si and Flexible Substrates”

**Dr. Hieu P. T. Nguyen**

Assistant Professor, Department of Electrical and Computer Engineering  
New Jersey Institute of Technology

“From Nanolaser to Photonic Integrated Circuits”

**Dr. Qing Gu**

Assistant Professor, Department of Electrical and Computer Engineering  
The University of Texas at Dallas

**Dr. Dong Meng**

Assistant Professor, Swalm School of Chemical Engineering  
Mississippi State University

**7/1 (Sat) 1:00 pm – 2:20 pm: Technical Session D1-W3-T1: Emerging Technologies and Applications in New Energy Materials and Devices, Smart Energy Systems, Energy Storage and Utilization, and Clean Vehicle Technologies**

Chair: **Dr. Pei-Cheng Ku** (古培正), Associate Professor, Department of Electrical Engineering & Computer Science, The University of Michigan, Ann Arbor

Room: **Seminar Room C, BSRB**

“Thermo-electrochemical conversion of low-grade heat into electricity”

**Dr. Shien-Ping Feng** (馮憲平)

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

“Advanced Organic Redox Flow Batteries for Grid Energy Storage”

**Dr. Xiaoliang Wei (魏晓亮)**

Staff Scientist, Energy Processes and Materials Division  
Pacific Northwest National Laboratory

“Revealing Li-Ion Battery Processes Using Neutrons”

**Dr. Anne Co**

Assistant Professor, Department Of Chemistry and Biochemistry  
The Ohio State University

**Dr. Vincent (C.) Tung (童俊智)**

Assistant Professor, Department of Materials Science and Engineering  
University of California, Merced

**7/1 (Sat) 2:20 pm – 2:35 pm: Break**

**Parallel Sessions:**

**7/1 (Sat) 2:35 pm – 3:55 pm: Technical Session D1-W1-T2: Emerging Technologies and Applications in Materials for Health & Medicine: Bio-Materials, Bio-SoC, Bio-Nanotech, Bio-NEMS/Bio-MEMS, Mobile Health, Biomedical Optics and Imaging, Biomedical Engineering and Systems**

Chair: **Dr. Allen Po-Chih Liu**, Assistant Professor, Department of Mechanical Engineering  
Department of Biomedical Engineering, University of Michigan, Ann Arbor

Room: **Seminar Room A, BSRB**

“Implantable, MEMS-based, Multimodal Neural Interfaces for Brain Research”

**Dr. Wen Li**

Associate Professor, Department of Electrical & Computer Engineering  
Michigan State University

“Nanoengineering of Transparent Graphene for Wireless Biosensing”

**Dr. Mark Ming-Cheng Cheng**

Associate Professor, Electrical and Computer Engineering, Biomedical Engineering, and  
Nanoengineering  
Wayne State University

“Fabricating patterned neuroectoderm tissue from human pluripotent stem cells”

**Dr. Yubing Sun**

Assistant Professor, Department of Mechanical and Industrial Engineering  
Adjunct Assistant Professor, Department of Chemical Engineering  
University of Massachusetts, Amherst

**Dr. Chun-Chi (Richard) Liang (梁駿騏)**

Research Assistant Professor, Department of Neurology  
The University of Michigan, Ann Arbor

“3D biomimetic environment for functional angiogenic assays”

**Dr. Yi Zheng**

NSERC Postdoctoral Fellow, Department of Mechanical Engineering  
The University of Michigan, Ann Arbor

**7/1 (Sat) 2:35 pm – 3:55 pm: Technical Session D1-W2-T2: Emerging Technologies and Applications in Electronic, Photonic, and Magnetic Materials, Ceramic Materials, Organic Polymer and Soft Materials**

Chair: **Dr. L. Jay Guo**, Professor, Department of Electrical Engineering and Computer Science  
Mechanical Engineering, Macromolecular Science & Engineering, and Applied Physics, The  
University of Michigan, Ann Arbor

Room: **Seminar Room B, BSRB**

“Emerging Photovoltaic Devices for low-power indoor applications”

**Dr. Fang-Chung Chen** (陳方中)

Professor, Department of Photonics  
National Chiao-Tung University

“Dynamic kirigami structures for solar energy conversion”

**Dr. Max Shtein**

Associate Professor, Department of Materials Science and Engineering  
The University of Michigan, Ann Arbor

“Organic-Inorganic Hybrid Bulk Quantum Materials: Bridging Molecules to Crystals”

**Dr. Biwu Ma**

Associate Professor, Department of Chemical & Biomedical Engineering  
Materials Science Program  
Florida State University

“Self-assembled 2D Materials”

**Dr. Zhengdong Cheng**

Associate Professor, The Artie McFerrin Department of Chemical Engineering  
Texas A&M University

**7/1 (Sat) 2:35 pm – 3:55 pm: Technical Session D1-W3-T2: Emerging Technologies and Applications in New Energy Materials and Devices, Smart Energy Systems, Energy Storage and Utilization, and Clean Vehicle Technologies**

Chair: **Dr. Meng-Ju Renee Sher** (佘孟儒), Assistant Professor of Physics, Wesleyan University

Room: **Seminar Room C, BSRB**

“Optimizing Discharge Capacity of Li-O<sub>2</sub> Batteries by Design of Air-electrode Porous Structure: Multifidelity Modeling and Optimization”

**Dr. Wenxiao Pan**

Assistant Professor, Department of Mechanical Engineering  
University of Wisconsin-Madison

**Dr. Zhiting Tian**

Assistant Professor, Department of Mechanical Engineering  
Virginia Tech

“Nanostructured Inorganic Materials for Thermal Storage and Thermoelectricity Made Via Solution-Phase Synthesis”

**Dr. Robert Wang**

Assistant Professor, Department of Mechanical Engineering  
Arizona State University

“Algae-Based Sustainable Urban-Wastewater Reclamation Ecosystem (aSURE): An Integrated Approach to Sustaining Food-Energy-Water Supply”

**Dr. Yongli Zhang**

Assistant Professor, Department of Civil and Environmental Engineering  
Wayne State University

**7/1 (Sat) 3:55 pm – 4:10 pm: Break**

**Parallel Sessions:**

**7/1 (Sat) 4:10 pm – 5:30 pm: Technical Session D1-W1-T3: Emerging Technologies and Applications in Materials for Health & Medicine: Bio-Materials, Bio-SoC, Bio-Nanotech, Bio-NEMS/Bio-MEMS, Mobile Health, Biomedical Optics and Imaging, Biomedical Engineering and Systems**

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: **Seminar Room A, BSRB**

“Drug-delivery Nanoparticles”

**Dr. Ying Liu**

Associate Professor, Department of Chemical Engineering and  
Department of Biopharmaceutical Sciences  
University of Illinois at Chicago

“Smartphone-Based Imaging and Sensing Devices for Cost-Effective Molecular Diagnostics”

**Dr. Qingshan Wei**

Assistant Professor, Department of Chemical and Biomolecular Engineering  
North Carolina State University

“Synthetic biology approach for building artificial cell”

**Dr. Allen Po-Chih Liu**

Assistant Professor, Department of Mechanical Engineering  
Department of Biomedical Engineering  
The University of Michigan, Ann Arbor

“Self-clearing implantable sensors and actuators for neurological applications”

**Dr. Hyowon (Hugh) Lee**

Assistant Professor, Weldon School of Biomedical Engineering  
Purdue University

**Dr. Aichi Chien** (簡艾琪)

Associate Professor, Division of Interventional Neuroradiology, Department of Radiological Sciences, Biomedical Physics IDP  
David Geffen School of Medicine at UCLA, Ronald Reagan UCLA Medical Center

**7/1 (Sat) 4:10 pm – 5:30 pm: Technical Session D1-W2-T3: Emerging Technologies and Applications in Electronic, Photonic, and Magnetic Materials, Ceramic Materials, Organic Polymer and Soft Materials**

Chair: **Dr. Max Shtein**, Associate Professor, Department of Materials Science and Engineering  
The University of Michigan, Ann Arbor

Room: **Seminar Room B, BSRB**

“Ultrafast and Nanoscale Interfacial Charge Transport”

**Dr. Peng Zhang**

Assistant Professor, Department of Electrical and Computer Engineering  
Michigan State University

“III-V Compound Semiconductor Devices for Future Electronics”

**Dr. Yuping Zeng**

Assistant Professor, Department of Electrical and Computer Engineering  
University of Delaware

“Graphene: A Versatile Material for Mid-infrared and Terahertz Photonic and Optoelectronic Applications”

**Dr. Peter Qiang Liu**

Assistant Professor, Department of Electrical Engineering  
University at Buffalo, the State University of New York

“Local Strain Engineering and its Applications in GaN Optoelectronics”

**Dr. Pei-Cheng Ku** (古培正)

Associate Professor, Department of Electrical Engineering & Computer Science  
The University of Michigan, Ann Arbor

**7/1 (Sat) 4:10 pm – 5:30 pm: Technical Session D1-W3-T3: Emerging Technologies and Applications in New Energy Materials and Devices, Smart Energy Systems, Energy Storage and Utilization, and Clean Vehicle Technologies**

Chair: **Dr. Shien-Ping Feng** (馮憲平), Assistant Professor, Department of Mechanical Engineering, The University of Hong Kong

Room: **Seminar Room C, BSRB**

“Distribution Management and Emerging Automation Technologies”

**Dr. Chee-Wooi Ten**

Associate Professor, Department of Electrical and Computer Engineering  
Michigan Technological University

“Terahertz spectroscopy: tracking charge carrier motions in organic solar cells”

**Dr. Meng-Ju Renee Sher** (余孟儒)

Assistant Professor of Physics  
Wesleyan University

“Energy Internet and Emerging Technologies”

**Dr. Wencong Su**

Assistant Professor, Department of Electrical and Computer Engineering  
The University of Michigan, Dearborn