



# The 9<sup>th</sup> CLEAN ENERGY PRIORITY RESEARCH CENTER WORKSHOP

Date : Wed., Feb. 8, 2023

Venue : Chemical Eng. Bldg., Rm. 214, Yeungnam University

12:45 - 13:00 Registration

## Opening Ceremony

(Moderator: Prof. Taeho Yoon)

- 13:00 Opening address  
*Prof. Jae-Jin Shim (Director, Clean Energy Priority Research Center)*
- 13:10 Overview of the Clean Energy Priority Research Center Project  
*Prof. Jae-Jin Shim (Director)*

## Research Presentations

### Session 1: Energy Storage (Team 1)

Chair: Prof. Jintae Lee

- 13:35 - 13:40 Research Goal and Results of Team 1 (Energy Storage by Supercap and Battery)  
*Prof. Jae-Jin Shim (Team 1 Leader)*
- (Team 1-1) Research in Shim Lab
- 13:40 - 13:50 Introduction to the Research in Shim Lab  
*Prof. Jae-Jin Shim (Team 1 Leader)*
- 13:50 - 14:00 Cu<sub>2</sub>O coated CoO@rGO composite as a green catalyst for dual environmental applications; reduction of *p*-nitrophenol and heterogeneous catalyst for dyes removal  
*Dr. Hussein Amr Hussein Mady (Research Professor)*
- 14:00 - 14:10 Microwave-assisted rapid synthesis of reduced graphene oxide/ZnCo<sub>2</sub>O<sub>4</sub> composite for high-performance asymmetric supercapacitor devices  
*Dr. Sahoo Sumanta (Research Professor)*
- 14:10 - 14:20 Metal oxide nanostructures supported triazine framework-derived nitrogen doped carbon composite for symmetric and asymmetric supercapacitors  
*Dr. Haldorai Yuvaraj (Research Professor)*
- 14:20 - 14:30 [EMIM]BF<sub>4</sub>-PVDF-HFP gel polymer electrolyte membrane with Na<sub>3</sub>V<sub>2</sub>(PO<sub>4</sub>)<sub>3</sub> cathode for high performance zinc-ion battery  
*Dr. Deivasigamani Ranjith Kumar (Research Professor)*
- 14:30 - 14:36 Synthesis of Co and Mn co-substituted KNiF<sub>3</sub> perovskite nanoparticles decorated on the V-based MXene and its prospective application for energy storage  
*Shagar Md Mahmudul Hasan (CEPRC M.S. Student)*
- (Team 1-2) Research in Yoon Lab
- 14:36 - 14:46 Introduction to the Research in Yoon Lab  
*Asst. Prof. Taeho Yoon (Team 1 Member Professor)*
- 14:46 - 14:52 Surface-engineered ZnO and its electrochemical characteristic for energy storage applications  
*Karim Md Rezaul (CEPRC Ph.D. Student)*
- 14:52 - 15:05 COFFEE BREAK

### Session 2: MFC/Hydrogen Production (Team 2)

Chair: Prof. Taeho Yoon

- 15:05 - 15:10 Research Goal and Results of Team 2 (Energy from MFC/Hydrogen Energy)  
*Prof. Jintae Lee (Team 2 Leader)*
- (Team 2-1) Research in JT Lee Lab
- 15:10 - 15:20 Introduction to the Research in JT Lee Lab  
*Prof. Jintae Lee (Team 2 Leader)*

- 15:20 - 15:26 Antibiofilm and antimicrobial activity of chromone derivatives against uropathogenic *Escherichia coli*  
*Bharath Reddy Boya (CEPRC Ph.D. Student)*
- (Team 2-2) Research in MK Kim Lab
- 15:26 - 15:36 Introduction to the Research in MK Kim Lab  
*Asst. Prof. Minkyu Kim (Team 2-3 Member Professor)*
- 15:36 - 15:42 Experimental and computational study for O<sub>3</sub> decomposition on Mn based catalyts  
*Minjae Shin (Undergraduate Student)*

### Poster Session: Energy Production and Storage (Teams 1-3)

<3<sup>rd</sup> Floor Hall>

- 15:42 - 16:15 Chair: Prof. Taeho Yoon

### Session 3: Solar Cells (Team 3)

Chair: Prof. Minkyu Kim

- 16:15 - 16:20 Research Goal and Results of Team 3 (Energy from Solar Cells/Energy Eff.)  
*Prof. Woo Kyoung Kim (Team 3 Leader)*
- (Team 3-1) Research in WK Kim Lab
- 16:20 - 16:30 Introduction to the Research in WK Kim Lab  
*Prof. Woo Kyoung Kim (Team 3 Leader)*
- 16:30 - 16:40 Highly effective direct decomposition of organic pollutants via Ag-Zn co-doped In<sub>2</sub>S<sub>3</sub>/rGO photocatalyst  
*Dr. Salh Alhammad (CEPRC Postdoc)*
- 16:40 - 16:50 Oxygen vacancy-rich facile synthesis of cerium oxide aerogels for electro-reduction of 5-nitroquinoline  
*Dr. Ramya Ramkumar (CEPRC Postdoc)*
- 16:50 - 16:56 Development of Zn-Sn-O transparent conducting oxide: Effect of Zn/Sn ratio on thin-film properties  
*Ignatius Andre Setiawan (CEPRC M.S. Student)*
- (Team 3-2) Research in MY Lee Lab
- 16:56 - 17:06 Introduction to the Research in MY Lee Lab  
*Prof. Moonyong Lee (Team 3 Member Professor)*
- 17:06 - 17:16 Using machine learning approaches to model and optimize a combined solar/natural gas-based power and freshwater cogeneration system  
*Dr. Ehsanolah Assareh (Research Professor)*
- 17:16 - 17:26 Hydrofluoroolefin-based mixed refrigerant for enhanced performance of hydrogen liquefaction process  
*Dr. Riaz, Amjad (CEPRC Postdoc)*

### Closing Ceremony

(Moderator: Prof. Taeho Yoon)

- 17:26 Award Ceremony
- 17:40 Closing Remarks  
*Prof. Jae-Jin Shim (Director)*
- 17:50 Commemorative Photographing