

## [TS01] Poster Session 3

<b>Date &amp; Time</b>	July 5(Fri.), 2024 / 10:30–12:00
<b>Place</b>	Exhibition Hall 4,5

### TS01F\_P\_1

#### **Direct Current-Generating Tribovoltaic Nanogenerators based on Dynamic p-n Junction with Defect Passivation**

Sera Jeon<sup>1</sup>, Dabin Kim<sup>2</sup>, and Sang-Woo Kim<sup>1</sup>

*(<sup>1</sup>Yonsei University, <sup>2</sup>Sungkyunkwan University)*

### TS01F\_P\_2

#### **Development of Triboelectric Nanogenerator Based Electrostatic Discharge Prevention System**

Cheoljae Lee and Ju-Hyuck Lee

*(DGIST)*

### TS01F\_P\_3

#### **Electromagnetic Induction Core of Energy Harvester with Augmented Magnetic Flux Gradient**

Jihoon Park, Jinsoo Yang, and Dahoon Ahn

*(Seoul National University of Science and Technology)*

### TS01F\_P\_4

#### **10% Photoelectrochemical Water Splitting via Organic Light Absorbers with Ni-Heazlewoodite Electrocatalysts**

Jaemin Park and Wooseok Yang

*(Sungkyunkwan University)*

### TS01F\_P\_5

#### **Triboelectric Characteristics of Laser-Fabricate Crumbled MoS<sub>2</sub> and Application as Haptic Sensors**

Junki Lee<sup>1</sup>, HyunSeung Kim<sup>1</sup>, Jiseul Park<sup>1</sup>, Seoung-Ki Lee<sup>2</sup>, and Chang Kyu Jeong<sup>1</sup>

*(<sup>1</sup>Jeonbuk National University, <sup>2</sup>KIST)*

### TS01F\_P\_6

#### **Enhanced Security Systems through Innovative Implementation of Triboelectric Nanogenerator**

Doohyun Han, Jaehee Shin, and Jinhyoung Park

*(KOREATECH)*

**TS01F\_P\_7**

**Delta-Doping Activation of Nanotunneling Junction Layer for Si Tandem Solar Cells Applications**

Inseung Lee and Keunjoo Kim

*(Jeonbuk National University)*

**TS01F\_P\_8**

**Utilization and Generalization of Triboelectric Nanogenerator's Energy Harvesting Ability for Simultaneous Energy Storage and Motion Sensing Applications**

Mandar Vasant Paranjape, Punnarao Manchi, Jun Kyu Lee, Venkata Siva Kavarthapu, Kurakula Anand, Sontyana Adonijah Graham, and Jae Su Yu

*(Kyung Hee University)*

**TS01F\_P\_9**

**Application of VO<sub>2</sub>(B)/V<sub>2</sub>O<sub>5</sub> Thin Film Thermistor for High Temperature Operation of Uncooled Microbolometer**

Jeongeun Mo<sup>1,2</sup>, Haeri Park<sup>1</sup>, Donghee Park<sup>1</sup>, Jeong Min Baik<sup>2</sup>, and Won Jun Choi<sup>1</sup>

*(<sup>1</sup>KIST, <sup>2</sup>Sungkyunkwan University)*

**TS01F\_P\_10**

**Rotational Motion Converter for Wearable Powering Technologies**

Ji-Seok Kim and Il-Kwon Oh

*(KAIST)*

NANO  
KOREA  
2024  
Symposium

## [TS02] Poster Session 3

Date & Time	July 5(Fri.), 2024 / 10:30-12:00
Place	Exhibition Hall 4,5

### TS02F\_P\_1

#### Doping Engineering of Manganese on Cobalt Oxide in Particle Size-Controllable Compound Anode for Lithium-Ion Batteries

Hyunmin Na<sup>1</sup>, Na Yeong Kim<sup>1</sup>, Promoda Kumar Behera<sup>2,3</sup>, Ho-Jin Lee<sup>1</sup>, Jeong-Ho Park<sup>1</sup>, Lawrence Robert Msalilwa<sup>2</sup>, Jae-Woo Seo<sup>4</sup>, Seon-Jin Choi<sup>4</sup>, Jiyoung Lee<sup>5</sup>, Jun Young Cheong<sup>2,6</sup>, and Ji-Won Jung<sup>1</sup>  
 (<sup>1</sup>University of Ulsan, <sup>2</sup>University of Bayreuth, <sup>3</sup>Technical University of Liberec, <sup>4</sup>Hanyang University, <sup>5</sup>Northwestern University, <sup>6</sup>University of Glasgow)

### TS02F\_P\_2

#### Enhancing Durability and Atomization of Pt/C Catalyst for PEMFC MEA through Intense Pulsed Light Method

Hyunmin Na<sup>1</sup>, Hamin Shin<sup>2</sup>, Su-Ho Cho<sup>3</sup>, Ho-Jin Lee<sup>1</sup>, Jeong-Ho Park<sup>1</sup>, Dae-Kwon Boo<sup>1</sup>, and Ji-Won Jung<sup>1</sup>  
 (<sup>1</sup>University of Ulsan, <sup>2</sup>ETH Zurich, <sup>3</sup>NNFC)

### TS02F\_P\_3

#### $\beta$ -Chitin Separator via Centrifugal Spinning for Superior Aqueous Zinclon Batteries

Jeong-Ho Park, Myeong-Oh Song, Jungho Jin, and Ji-Won Jung  
 (University of Ulsan)

### TS02F\_P\_4

#### $\alpha$ -Chitin Separator via Filtration for Superior Aqueous Zinc-Ion Batteries

Jeong-Ho Park, Myeong-Oh Song, Jungho Jin, and Ji-Won Jung  
 (University of Ulsan)

### TS02F\_P\_5

#### Surface Flattening Molecular Dipole as Electrolyte Additive for Longer Lifespan Sodium-Metal Batteries

Seo-Young Jun, Chae Yeong Son, and Won-Hee Ryu  
 (Sookmyung Women's University)

### TS02F\_P\_6

#### A Surface Flattening and Interface Stabilizing Additive with Monovalent Polyanion Functional Groups for Longer Lifespan Lithium Metal Batteries

ChaeYeong Son, Seo-Young Jun, and Won-Hee Ryu  
 (Sookmyung Women's University)

**TS02F\_P\_8**

**Advancements in Aqueous Zinc-Ion Batteries using Electrospun Polyimide Separators with Al<sub>2</sub>O<sub>3</sub> ALD Coating**

HaEun Baeg and Ji-Won Jung  
(*University of Ulsan*)

**TS02F\_P\_9**

**Utilizing Sulfurized Polyacrylonitrile Cathodes with Advanced Triple-Salt Carbonate Electrolytes Enhancing Performance in Li-S Batteries**

Changki Jeon and Jang-Yeon Hwang  
(*Hanyang University*)

**TS02F\_P\_10**

**Machine Learning-Assisted Electron Energy Loss Spectroscopy Mapping for Silicon-Based Anode Materials of Lithium-Ion Batteries**

Yuseong Heo<sup>1</sup>, Young-Hoon Kim<sup>1</sup>, Taewon Min<sup>1,2</sup>, Jae-Hyun Shim<sup>3</sup>, Jaekwang Lee<sup>2</sup>, and Young-Min Kim<sup>1</sup>  
(<sup>1</sup>*Sungkyunkwan University*, <sup>2</sup>*Pusan National University*, <sup>3</sup>*Dongshin University*)

**TS02F\_P\_11**

**Gas Evolution Kinetics in Overlithiated Positive Electrodes and its Impact on Electrode Design**

Munsoo Song<sup>1</sup>, Danwon Lee<sup>1</sup>, Juwon Kim<sup>1</sup>, Subin Choi<sup>1</sup>, Ikcheon Na<sup>1</sup>, Sungjae Seo<sup>1</sup>, Sugeun Jo<sup>2</sup>, Chiho Jo<sup>3</sup>, and Jongwoo Lim<sup>1</sup>  
(<sup>1</sup>*Seoul National University*, <sup>2</sup>*Pohang Accelerator Laboratory*, <sup>3</sup>*LG Energy Solution*)

**TS02F\_P\_12**

**Effect of Iron Oxide Impurities on Activated Carbon Material in Electrochemical Supercapacitor Performances**

Kye-yeol Lee<sup>1</sup>, S. Radhakrishnan<sup>2</sup>, and Byoung-Suhk Kim<sup>2</sup>  
(*Jeonbuk National University*)

**TS02F\_P\_13**

**A Facile Preparation of Nickel Bismuth Oxide as Negative Electrode Material for Enhanced Asymmetric Supercapacitor**

Il-yeong Jeong<sup>1</sup>, Sivaprakasam Radhakrishnan<sup>2</sup>, and Byoung-Suhk Kim<sup>2</sup>  
(*Jeonbuk National University*)

**TS02F\_P\_14**

**Computational Study of Prussian Blue Analogues as a New Type of Sodium Solid Electrolytes for All-Solid-State Batteries**

You-Yeob Song<sup>1</sup>, Taewon Kim<sup>2</sup>, Sang Hyeok Ahn<sup>2</sup>, Sung-Kyun Jung<sup>2</sup>, Hyun-Wook Lee<sup>2</sup>, and Dong-Hwa Seo<sup>1</sup>  
(<sup>1</sup>*KAIST*, <sup>2</sup>*UNIST*)

TS02F\_P\_15

**Impact of Varying Oxygen Levels in Upcycling of Spent NCM Cathode**

Jaehyun Noh<sup>1,2</sup>, Geunmin Jang<sup>1,3</sup>, Jayoung Kim<sup>1,2</sup>, Jeonghwan Song<sup>1,3</sup>, Jiwoo Kim<sup>1,2</sup>, Hayong Song<sup>1</sup>, Jinju Song<sup>1</sup>, Sangryun Kim<sup>2</sup>, Jiyoung Ma<sup>1</sup>, and Jung-Je Woo<sup>1</sup>

*(<sup>1</sup>KIER, <sup>2</sup>GIST, <sup>3</sup>Chonnam National University)*

TS02F\_P\_16

**Dry Electrode Technologies for High Energy Density Battery with Solid Polymer Electrolyte-Based Binders**

Min Jang<sup>1,2</sup>, Seok Ju Kang<sup>1</sup>, and Jinsoo Kim<sup>2</sup>

*(<sup>1</sup>UNIST, <sup>2</sup>KIER)*

TS02F\_P\_17

**Negative Impact of Polyvinylidene Fluoride Binder on NCM Cathode Material in Lithium-Ion Battery Recycling**

Geunmin Jang<sup>1,2</sup>, Jaehyun Noh<sup>1</sup>, Junghwan Song<sup>1</sup>, Jiwoo Kim<sup>1</sup>, Jinju Song<sup>1</sup>, Hayong Song<sup>1</sup>, Jaekook Kim<sup>2</sup>, Jiyoung Ma<sup>1</sup>, and Jung-Je Woo<sup>1</sup>

*(<sup>1</sup>KIER, <sup>2</sup>Chonnam National University)*

TS02F\_P\_18

**Fluorine-Free Binder-Based Dry Thick Electrodes toward Sustainable and Efficient LIBs**

Min Kyung Kim and Jinsoo Kim

*(KIER)*

TS02F\_P\_19

**Unveiling the Structure-Property Relationship in Solid Polymer Electrolyte based on Change of Charge Density by Lithium Salt Formulation for Solidstate Batteries**

Seung Min Lee and Jinsoo Kim

*(KIER)*

TS02F\_P\_20

**Enhanced Battery Electrode Protection via Etched Superhydrophobic Stainless Steel Surfaces**

Chenyao Huang and Dukhyun Choi

*(Sungkyunkwan University)*

**TS02F\_P\_21**

**Highly Active–Material–Concentrated Cathodes of Nickel and Cobalt–Free Cation–Disordered Rock–Salts for Li–Ion Batteries Nanocomposite**

Eunryeol Lee<sup>1</sup>, Dae–Hyung Lee<sup>1,2</sup>, Stéphanie Bessette<sup>3</sup>, Sang–Wook Park<sup>1,2</sup>, Nicolas Brodusch<sup>3</sup>, Gregory Lazaris<sup>3</sup>, Hojoon Kim<sup>1,2</sup>, Rahul Malik<sup>4</sup>, Raynald Gauvin<sup>3</sup>, Dong–Hwa Seo<sup>1,2</sup>, and Jinhyuk Lee<sup>3</sup>

(<sup>1</sup>UNIST, <sup>2</sup>KAIST, <sup>3</sup>McGill University, <sup>4</sup>Natural Resources Canada)

**TS02F\_P\_22**

**Enhancing Structural Stability via Sb<sup>5+</sup> Substitution for High–Performance Potassium Ion Batteries**

Junseong Kim, Myungeun Choi, and Jongsoon Kim

(Sungkyunkwan University)

**TS02F\_P\_23**

**Revamping O3–Type NaCrO<sub>2</sub> Cathodes: Exploring Cationic and Transition Metal Co–Substitution for Enhanced Performance in Sodium–Ion Batteries**

Seonjge Ryu and Jang–Yeon Hwang

(Hanyang University)

**TS02F\_P\_24**

**Strategy for Stabilizing Solid Electrolyte Interphase in Postassium Metal Batteries using Potassium–Polysulfide**

Seungwon Lee and Jang–Yeon Hwang

(Hanyang University)

**TS02F\_P\_25**

**Improving Fast–Charging Performance in Lithium–Ion Batteries with Innovative Dual–Layer Graphite Anode Design**

Hyuntae Lee and Hongkyung Lee

(DGIST)

**TS02F\_P\_26**

**Enhancing Interfacial Kinetics for Extreme Fast Charging in Lithium–Ion Batteries using a LiPF<sub>6</sub>–Concentrated Electrolyte**

Hyuntae Lee and Hongkyung Lee

(DGIST)

**TS02F\_P\_27**

**N–Doped Carbon Synthesis from *Chlorella vulgaris* with Urea and Melamine Doping with NaOH and K<sub>2</sub>CO<sub>3</sub> Activator**

Angela Justina Kumalaputri, Ferdinandus Ivan, and Arenst Andreas

(Parahyangan Catholic University)

## [TS03] Poster Session 3

<b>Date &amp; Time</b>	July 5(Fri.), 2024 / 10:30-12:00
<b>Place</b>	Exhibition Hall 4,5

### TS03F\_P\_1

#### Green Method to Prepare Pure $\delta$ -FAPbI<sub>3</sub> Crystals for Fabrication of Highly Efficient Perovskite Solar Cells

Jin Kyong Park<sup>1</sup>, Jin Hyuck Heo<sup>1</sup>, Woo-Sik Kim<sup>2</sup>, and Sang Hyuk Im<sup>1</sup>

(<sup>1</sup>Korea University, <sup>2</sup>Kyung Hee University)

### TS03F\_P\_2

#### Compositional Design for High-Efficiency All-Inorganic Tin Halide Perovskite Solar Cells

Jin Hyuck Heo<sup>1</sup>, Ki-Ha Hong<sup>2</sup>, and Sang Hyuk Im<sup>1</sup>

(<sup>1</sup>Korea University, <sup>2</sup>Hanbat National University)

### TS03F\_P\_3

#### Low-Temperature Synthesis of Triple-Cation Tin-Lead Perovskite Single Crystals for Narrow Bandgap Solar Cells

Rajendra Kumar Gunasekaran, Jihoon Nam, Jungchul Yun, Myeong-geun Choi, and Sangwook Lee

(Kyungpook National University)

### TS03F\_P\_4

#### A Linear Trinuclear Acetate Bridged Cobalt Complex Containing Pyridine-Based Bicompartamental Ligand: Synthesis, Structural, Magnetic, and Electrocatalytic Oxygen Evolution Studies

Sujoy Bandyopadhyay and Hyosung choi

(Hanyang University)

### TS03F\_P\_5

#### Enhancing Photocatalytic Efficiency with Graphene-Based TiO<sub>2</sub> Nanocomposites

Yujin Nam, June Soo Kim, Maeum Han, Seung Deok Kim, Jae Yong Lee, Noah Jang, Hyunjun Kim, Da Ye Kim, and Seong Ho Kong

(Kyungpook National University)

**TS03F\_P\_9**

**Effects of Cs-Post Deposition Treatment for Low-Temperature Single Grading Cu(In, Ga)Se<sub>2</sub> Thin Film Solar Cells**

JuHee Lee, Seunghwan Ji, Yazi Wang, and Byungha Shin

*(KAIST)*

**TS03F\_P\_10**

**Monolithically Integrated BiVO<sub>4</sub>/Si Tandem Devices for Self-Sustained Photoelectrochemical Water Splitting**

Jihong Min, Gihun Jung, and Byngha Shin

*(KAIST)*

**TS03F\_P\_11**

**Designing Homogeneous Alloy Nanoparticles Catalyst for High Performance Electrochemical Ammonia Synthesis via Rapid Joule Heating**

Jinpil Ha<sup>1</sup>, Chansol Kim<sup>1</sup>, Ji-Yoon Song<sup>1</sup>, Aqil Jamal<sup>2</sup>, Issam Gereige<sup>2</sup>, and Hee-Tae Jung<sup>1</sup>

*(<sup>1</sup>KAIST, <sup>2</sup>Saudi Aramco)*

**TS03F\_P\_12**

**Enhanced Photocatalytic Performance of Zinc Oxide-Graphene Nanocomposites for Environmental and Energy Applications**

Noah Jang, Maeum Han, June Soo Kim, Hyunjun Kim, Da Ye Kim, Yujin Nam, and Seong Ho Kong

*(Kyungpook National University)*

**TS03F\_P\_13**

**3D Nanostructured Iridium-Free Oxide Catalyst for Durable Acidic Water Splitting**

Pierre Yosia Edward Koraag, Gyu Rac Lee, and Yeon Sik Jung

*(KAIST)*

**TS03F\_P\_14**

**Color Filters for Thin-Film Solar Cells utilizing Indium-Tin-Oxide with Vertically Controlled Tin Content**

Dae-Hyung Cho<sup>1,2</sup>, Rina Kim<sup>1</sup>, Woo-Jung Lee<sup>1,2</sup>, Tae-Ha Hwang<sup>1</sup>, Soyoung Lim<sup>1,2</sup>, Mangu Kang<sup>1</sup>, and Yong-Duck Chung<sup>1,2</sup>

*(<sup>1</sup>ETRI, <sup>2</sup>UST)*



TS03F\_P\_15

**Enhanced Conductivity in Transparent Electrodes using Metal Microfiber Networks for Flexible Thin-Film Solar Cells**

Dae-Hyung Cho<sup>1,2</sup>, Woo-Jung Lee<sup>1,2</sup>, Tae-Ha Hwang<sup>1</sup>, Jungwoo Huh<sup>3</sup>, Sam S. Yoon<sup>3</sup>, and Yong-Duck Chung<sup>1,2</sup>

(<sup>1</sup>ETRI, <sup>2</sup>UST, <sup>3</sup>Korea University)

TS03F\_P\_16

**Colorful Cu(In,Ga)Se<sub>2</sub> Thin-Film Solar Cells using Composition Controlled Zn(O<sub>1-x</sub>S<sub>x</sub>) Stacked Optical Filters**

Dae-Hyung Cho<sup>1,2</sup>, Woo-Jung Lee<sup>1,2</sup>, Tae-Ha Hwang<sup>1</sup>, and Yong-Duck Chung<sup>1,2</sup>

(<sup>1</sup>ETRI, <sup>2</sup>UST)

TS03F\_P\_17

**Harnessing Solar-Electrochemical Catalysis for Microplastic Degradation and Hydrogen Generation in Seawater**

Hosub Bae<sup>1</sup> and Wonyong Choi<sup>2</sup>

(<sup>1</sup>POSTECH, <sup>2</sup>KENTECH)

TS03F\_P\_19

**Ionic Hydrogel-Based Moisture Electric Power Generator for Next Generations Autonomous IOTs**

Swapnil Shital Nardekar, Vijayakumar Elumalai, Monunith Anithkumar, Jyoti Prakash Das, B. S. Madhuri, Vishwanathan Ravichandran, and Sang-Jae Kim

(Jeju National University)

## [TS05] Poster Session 3

Date & Time	July 5(Fri.), 2024 / 10:30-12:00
Place	Exhibition Hall 4,5

### TS05F\_P\_1

#### Comparison of High-Temperature Properties of Additive Manufactured and Cast Al-Zn-Mg-Cu-Si Alloys

Jiwon Park<sup>1</sup>, Seoyeon Jeon<sup>1</sup>, Boram Lee<sup>1</sup>, Jonguk Hwang<sup>2</sup>, Suwon Park<sup>1</sup>, and Hyunjoo Choi<sup>1</sup>

(<sup>1</sup>Kookmin University, <sup>2</sup>Eloi Materials Lab Co., Ltd.)

### TS05F\_P\_2

#### Strong yet Strain-Hardenable Equiatomic CoCrFeMnNi High-Entropy Alloys by Dynamic Heterostructuring

Jungwan Lee<sup>1</sup>, Hyojin Park<sup>1</sup>, Sujung Son<sup>1</sup>, and Hyoung-Seop Kim<sup>1,2,3</sup>

(<sup>1</sup>POSTECH, <sup>2</sup>Yonsei University, <sup>3</sup>Tohoku University)

### TS05F\_P\_3

#### Degradation Behavior of Ti-Based High-Entropy Alloys Prepared by Direct Energy Deposition

Juho Kim, Taeyoel Kim, Hwajin Park, Kyeongjin Kim, Seoyeon Jeon, Hyokyung Sung, and Hyunjoo Choi

(Kookmin University)

### TS05F\_P\_4

#### The Influence of Cobalt and Copper on the Austenite Grain Growth Behavior in 9-12Cr Heat Resistant Steel

Bong Cheon Park<sup>1,3</sup>, Sung-Dae Kim<sup>2</sup>, Gun-Young Yoon<sup>1</sup>, Iho Park<sup>1</sup>, Jae Hoon Jang<sup>1</sup>, and Namhyun Kang<sup>3</sup>

(<sup>1</sup>KIMS, <sup>2</sup>Pukyong National University, <sup>3</sup>Pusan National University)

### TS05F\_P\_5

#### Microstructural Evolution of Mg-xY-Cu-Ni Alloys under Electropulsing Treatment

Seung Yeop Lee<sup>1</sup>, Jinyeong Yu<sup>1</sup>, Seho Cheon<sup>1</sup>, Seong Ho Lee<sup>1</sup>, Dong June Park<sup>1</sup>, Jong Han Song<sup>1</sup>, Jeonghoon Lee<sup>1</sup>, Jonghyun Kim<sup>2</sup>, and Taekyung Lee<sup>1</sup>

(<sup>1</sup>Pusan National University, <sup>2</sup>Chongqing University)

### TS05F\_P\_6

#### High-Temperature Formability Analysis of S355NL for Large Offshore Wind Turbines

Dong June Park<sup>1</sup>, Jinyeong Yu<sup>1</sup>, Seho Cheon<sup>1</sup>, Seong Ho Lee<sup>1</sup>, Jong Han Song<sup>1</sup>, Chae Hun Lee<sup>2</sup>, Jinmo Lee<sup>2</sup>, and Taekyung Lee<sup>1</sup>

(<sup>1</sup>Pusan National University, <sup>2</sup>TAEWOONG Co., Ltd.)

**TS05F\_P\_7**

**Plastic Anisotropy Prediction of Rolled AZ31 using GAN-Aided Machine Learning**

Jeonghoon Lee, Jinyeong Yu, Seho Cheon, Seong Ho Lee, Jong Han Song, Dong June Park, Seung Yeop Lee, and Taekyung Lee

*(Pusan National University)*

**TS05F\_P\_8**

**Understanding the Synergistic Co-Mo Effect in Maraing Steels: Redistribution of Solute Atoms**

Jong-Kwan Lee and Byeong-Joo Lee

*(POSTECH)*

**TS05F\_P\_9**

**Effect of Trap Densities to Bias Stress Stability in Amorphous Indium Gallium Zinc Oxide Thin Film Transistors**

Sungsoo Park and Byoungdeog Choi

*(Sungkyunkwan University)*

**TS05F\_P\_10**

**Ultrastrong and Ductile High-Entropy Alloy with Minimal Serration at Extremely Low Temperature via Coherent Nanoprecipitate**

Tae Jin Jang<sup>1</sup>, Gunjick Lee<sup>1</sup>, Sang Yoon Song<sup>1</sup>, Min Young Sung<sup>1</sup>, Jun Ho Lee<sup>2</sup>, Young-Kyun Kim<sup>2</sup>, Hyokyung Sung<sup>3</sup>, Aparna Saksena<sup>4</sup>, Baptiste Gault<sup>4,5</sup>, Se-Ho Kim<sup>1,4</sup>, Alireza Zargaran<sup>6</sup>, Young-Sang Na<sup>2</sup>, and Seok Su Sohn<sup>1</sup>

*(<sup>1</sup>Korea University, <sup>2</sup>KIMS, <sup>3</sup>Koomin University, <sup>4</sup>Max-Planck-Institut für Eisenforschung GmbH, <sup>5</sup>Imperial College London, <sup>6</sup>POSTECH)*

**TS05F\_P\_12**

**Comparison of Flowability and Characteristics of Inconel 625, Ti-6Al-4V, and SUS316L Powders Used in the DED Process**

HyunJoong Kim, Sungjae Jo, Geonwoo Baek, Marzieh Ebrahimian, and Soon-Jik Hong

*(Kongju National University)*

**TS05F\_P\_13**

**Bamboo Activated Carbon Pore Modification for CO<sub>2</sub> and C<sub>7</sub>H<sub>8</sub> Adsorption**

Sujeong Heo, Wooram Kim, and Young Min Jo

*(Kyung Hee University)*

**TS05F\_P\_14**

**Effects of Alloying Elements in (Ti<sub>47.5</sub>X<sub>2.5</sub>)Cu<sub>50</sub> Precursor Alloys on the Microstructure of Mg-Ti Composites Synthesized by Liquid Metal Dealloying**

Jihye Seong<sup>1</sup>, Jee Eun Jang<sup>2</sup>, Hidemi Kato<sup>3</sup>, Sung Hyuk Park<sup>2</sup>, and Soo-Hyun Joo<sup>1</sup>

*(<sup>1</sup>Dankook University, <sup>2</sup>Kyungpook National University, <sup>3</sup>Tohoku University)*

**TS05F\_P\_15**

**Effects of Initial Microstructures on Reverse Transformation in 10Cr Ferrite/Martensite Heat-Resistant Steel**

Young-Uk Wi<sup>1</sup>, Seok-Hwan Ju<sup>1</sup>, Seong Hoon Kim<sup>2</sup>, Jong Ho Shin<sup>3</sup>, and Dong-Woo Suh<sup>1</sup>

(<sup>1</sup>POSTECH, <sup>2</sup>KIMS, <sup>3</sup>Doosan Enerbility)

**TS05F\_P\_16**

**Effect of Al on Formability and Tensile Properties of High Al-Containing Ni-Base Alloys as Structural Materials for Molten Salt Reactors**

Chaewon Kim, Hyeon-Geun Lee, Ji-Hyun Yoon, Byung-Hyuk Jun, and Daejong Kim

(KAERI)

**TS05F\_P\_17**

**Effect of Microstructure on Molten Chloride Salt Resistance and High Temperature Mechanical Properties of Ni-Cr-Mo Alloys**

Hyeon-Geun Lee, Chaewon Kim, Jung-Min Kim, and Daejong Kim

(KAERI)

**TS05F\_P\_18**

**Influence of Si Contents on the Microstructure and Tensile Properties of Quenching and Partitioning (Q&P) Processed Low-Alloyed Steels**

Chang Jae Yu<sup>1</sup>, Chang-Hyo Seo<sup>2</sup>, Young-Roc Im<sup>2</sup>, and Dong-Woo Suh<sup>1</sup>

(<sup>1</sup>POSETCH, <sup>2</sup>POSCO)

**TS05F\_P\_19**

**Effect of Post-Heat Treatment on Microstructure and Mechanical behavior of 5% Cr Cold Work Tool Steel Manufactured by Direct Energy Deposition**

Jung-Hyun Park<sup>1</sup>, Jin-Young Kim<sup>2</sup>, Hyo-Yun Jung<sup>3</sup>, and Kee-Ahn Lee<sup>1</sup>

(<sup>1</sup>Inha University, <sup>2</sup>Hanwha Aerospace, <sup>3</sup>KITECH)

**TS05F\_P\_20**

**Enhancing Critical Heat Flux with Nano Porous Channel Structures Fabricated via Anodization Technique**

Jung-Woo Kim<sup>1</sup>, Sung Oh Cho<sup>2</sup>, and Young-Bum Chun<sup>1</sup>

(<sup>1</sup>KAERI, <sup>2</sup>KAIST)

**TS05F\_P\_21**

**Mechanical and Thermal Characteristics of Micro-Nano Al/SiC/CNT Hybrid Composites Developed by Nitride Induced Self-Forming Process for Aerospace Applications**

Jiwon Lee, Kanhu Nayak, Juyeon Han, Konbae Lee, and Hyunjoo Choi

(Kookmin University)

**TS05F\_P\_22**

**Development of Sustainable Aluminum Alloys by Incorporating Interstitial Oxygen**

Soomin Kim, Somin Lee, Soomin Lee, Juyeon Han, and Hyunjoo Choi

*(Kookmin University)*

**TS05F\_P\_23**

**Enhancing Energy Absorption and Thermal Battery Protection in Extreme Collision Environments with Honeycomb-Structured Aluminum Buffering Devices**

Yeon Taek Choi<sup>1</sup>, Jihye Kwon<sup>1</sup>, Hyungu Kang<sup>2</sup>, Minu Kim<sup>2</sup>, Ki Jong Kim<sup>3</sup>, Jae Min Lee<sup>4</sup>, Hae-Won Cheong<sup>2</sup>, Sunghak Lee<sup>1</sup>, and Hyoung Seop Kim<sup>1</sup>

*(<sup>1</sup>POSTECH, <sup>2</sup>ADD, <sup>3</sup>The One Metal Inc., <sup>4</sup>Hanwha Aerospace)*

**TS05F\_P\_24**

**Effect of Zr and Fe on Tensile Properties of Ti Alloys for Neutron Absorber**

Seungmun Jung and Young-Bum Chun

*(KAERI)*

NANO  
KOREA  
2024  
Symposium

## [TS06] Poster Session 3

<b>Date &amp; Time</b>	July 5(Fri.), 2024 / 10:30-12:00
<b>Place</b>	Exhibition Hall 4,5

### TS06F\_P\_1

#### **Flexo-Phototronics: Boosting the Photoresponse of ZnAl:LDH Ns-Based UV Sensor**

Alphi Maria Thomas and Soon-Gil Yoon

*(Chungnam National University)*

### TS06F\_P\_2

#### **Near Infrared-Interactive Display for Neuromorphic Photothermal Applications**

Jihye Jang and Cheolmin Park

*(Yonsei University)*

### TS06F\_P\_3

#### **Dual-Responsive Colorimetric Gas Sensor using Metalloporphyrin Embedded Elastomer**

Seung-Ho Choi, Jae-Woo Seo, Yeon-Joo Kim, Ga-Yeon Baek, and Seon-Jin Choi

*(Hanyang University)*

### TS06F\_P\_4

#### **Chemically and Electronically Active Metal Ions on InAs Quantum Dots for Infrared Detectors**

Jaeyoung Seo, Seongchan Kim, Namyoung Gwak, Seungki Shin, Dongjun Yeo, Hyein Kong, Yunseo Lee, Jina Na, and Nuri Oh

*(Hanyang University)*

### TS06F\_P\_5

#### **Fe-MST using van der Waals Heterostructure based on the Characteristics of Ferroelectric-Phase Transition Materials**

Dokyoeng Yun and WooJong Yu

*(Sungkyunkwan University)*

### TS06F\_P\_6

#### **Metal Oxides Treated by Flash-Thermal Shock towards VSC Gas Sensors**

Jun-Hwe Cha

*(FTRI)*

**TS06F\_P\_7**

**Electrical Generation of Eco-Friendly Piezoelectric Silk Nanofibers Related to Molecular Binding**

Sangil Yoon, Hyunseung Kim, Ki-Tae Lee, and Chang Kyu Jeong

*(Jeonbuk National University)*

**TS06F\_P\_8**

**Colloidal Synthesis of P-Type Zn<sub>3</sub>As<sub>2</sub> Nanocrystals for Infrared Photodetector**

Seongchan Kim, Jaeyoung Seo, Dongjoon Yeo, Sungwon Kim, Jina Na, and Nuri Oh

*(Hanyang University)*

**TS06F\_P\_9**

**NO<sub>2</sub> Gas Sensing Characteristics of Resistor-Type Tin-Oxide-Based Gas Sensors with Different Post-Deposition Annealing Conditions**

Donghee Kim, Woo Young Choi, and Jong-Ho Lee

*(Seoul National University)*

**TS06F\_P\_10**

**Enhancing CMOS Inverter Stability with Low-Temperature Zn-ON and Tellurium Integration**

Junho Lee, Muhammad Naqi, Yongin Cho, Joo On Oh, Hyun Yeol Rho, and Sunkook Kim

*(Sungkyunkwan University)*

**TS06F\_P\_11**

**Enhanced Hydrogen Sensing using Pd with Silicon/Graphene Heterostructure**

Jihun Sim and Woojong Yu

*(Sungkyunkwan University)*

**TS06F\_P\_12**

**Stable and Selective Surface Activation: Breathable MOFs Layer on Atomically Grown 2D SnS<sub>2</sub>**

Gwang Su Kim and Ji-Soo Jang

*(KIST)*

**TS06F\_P\_13**

**2D Sr<sub>2</sub>Nb<sub>3</sub>O<sub>10</sub> Overlayered SnO<sub>2</sub> Nanorods for Early Diagnosis of Skin Cancer through Skin Gas**

Jung-Won An<sup>1,2</sup>, Gwang Su Kim<sup>1</sup>, Ji-Won Choi<sup>1,3</sup>, Ho won Jang<sup>2</sup>, and Ji-Soo Jang<sup>1</sup>

*(<sup>1</sup>KIST, <sup>2</sup>Seoul National University, <sup>3</sup>UST-KIST)*

TS06F\_P\_14

**Asymmetric and Skin-Mimicking Hydrogels with Wide Temperature Tolerance and Superior Elasticity for High-Performance Strain Sensors**

Yunchao Xiao<sup>1</sup>, Zemeng Yang<sup>1</sup>, Man Xi<sup>1</sup>, Jianxun Fu<sup>2</sup>, Yang Jiang<sup>1</sup>, and Yi Li<sup>1</sup>

(<sup>1</sup>Jiaying University, <sup>2</sup>Shanghai University)

TS06F\_P\_15

**Ultrasonic Spray Chemistry: Atomized Chemical Reaction for Heteroatom Bond (C-X) Formation**

Hyun-Tak Kim

(KRICT)

TS06F\_P\_16

**Selective Sulfuric Gas Detection via Photocatalytic Mixed Matrix Membrane**

Dong Hyuk Kwak, Minhyun Kim, and Il-Doo Kim

(KAIST)

TS06F\_P\_17

**One-Step Laser Synthesis Method of Porous Carbon Support for Microfluidic Electrochemical Sensing Applications**

Hee Ra Lee, Hong Gun Kim, and Seoung-Ki Lee

(Pusan National University)

TS06F\_P\_18

**Tuning the Electronic Band-Gaps of Graphene Quantum Dots for Controlling the Active Wavelength of Light-Activated Gas Sensor**

Jinho Lee, Minhyun Kim, Seyeon Park, and Il-Doo Kim

(KAIST)

TS06F\_P\_19

**Graphene-Based Humidity Sensor Enhanced by Addition of Noble Montmorillonite**

Ju Hyoeng Yu<sup>1</sup>, Min Cheol Cheon<sup>1</sup>, Jeong Ki Lee<sup>2</sup>, and Seoung-Ki Lee<sup>1</sup>

(<sup>1</sup>Pusan National University, <sup>2</sup>Pukyong National University)

TS06F\_P\_20

**Surface Functionalization of MXene via Sulfonic Acid Diazonium Salt for Highly Selective NH<sub>3</sub> Gas Sensing**

Seongeun Lee<sup>1,2</sup> and Seon Joon Kim<sup>1,3</sup>

(<sup>1</sup>KIST, <sup>2</sup>Korea University, <sup>3</sup>UST)



**TS06F\_P\_21**

**Electrospinning and Carbonization of Nanofibers with Metal–Organic Frameworks**

Sang Ho Shin, TaeGyeong Lim, and Ji Won Suk

*(Sungkyunkwan University)*

**TS06F\_P\_22**

**Stretchable Strain Sensors using 3D Graphene/Carbon Nanofiber Structures for Human Motion Detection**

Hyeon–Jong Lee, Bong Hyun Seo, TaeGyeong Lim, and Ji Won Suk

*(Sungkyunkwan University)*

**TS06F\_P\_23**

**Molecular Design for Tunable Ionic Thermopower with High Stretchability**

Minju Park<sup>1</sup> and Heesuk Kim<sup>2</sup>

*(<sup>1</sup>KRICT, <sup>2</sup>KIST)*

**TS06F\_P\_24**

**Understanding Enhanced Ammonia Gas Sensing Properties of La–Doped WO<sub>3</sub> in the Presence of Water**

Haleem Ud Din and Jung–Hoon Lee

*(KIST)*

**TS06F\_P\_25**

**Decorate a–C on TeO<sub>2</sub> Nanowires to Enhance Detecting NO<sub>2</sub> Performance at Room Temperature**

Sungjoon Moon, Ka Yoon Shin, Wansik Oum, Eun Bi Kim, and Hyoun Woo Kim

*(Hanyang University)*

## [TS07] Poster Session 3

<b>Date &amp; Time</b>	July 5(Fri.), 2024 / 10:30-12:00
<b>Place</b>	Exhibition Hall 4,5

### TS07F\_P\_1

#### **Development of a Diagnostic Variable Number Tandem Repeat Marker and Dual TaqMan Genotyping Assay to Distinguish Lophophora Species**

Eun-Mi Hwang, Kyu-Sik Jeong, Seong Yeon Yoo, and Joo-Young Kim  
(*National Forensic Service*)

### TS07F\_P\_2

#### **Engineering a Biomimetic Blood-Brain-Barrier Model for Studying Drug Delivery using Injection-Molded Microfluidics**

Jiyoung Song<sup>1</sup>, Noo Li Jeon<sup>2</sup>, and Hong Nam Kim<sup>1</sup>  
(<sup>1</sup>KIST, <sup>2</sup>Seoul National University)

### TS07F\_P\_3

#### **Classification of Various Complex Gases using Genetically Engineered Functional Biosensor**

Yujin Lee, Ye-Ji Kim, Tae-Young Jeong, and Jin-Woo Oh  
(*Pusan National University*)

### TS07F\_P\_4

#### **Development of Pre-Treatment-Free Transition Metal-Based Colorimetric Sensor Array for Nitrate Nitrogen Detection**

Jung-Geun Lee, Yujin Lee, Tae-Young Jeong, and Jin-Woo Oh  
(*Pusan National University*)

### TS07F\_P\_5

#### **Sensitive Chiral Detection of Monosaccharides based on Surface-Enhanced Raman Spectroscopy**

Daedu Lee and Yoonsoo Pang  
(*GIST*)

### TS07F\_P\_6

#### **Multifunctional Nanoparticles based on Protoporphyrin and Iron Oxide Nanoparticles for Sonodynamic Therapy and Imaging**

Seongpyo Hong, Hyunkyung Choi, Young Rang Uhm, and Gwang-Min Sun  
(*KAERI*)

**TS07F\_P\_7**

**Simple and Fast Wearable Stress Hormone Real-Time Monitoring**

Jai Eun An<sup>1,2</sup> and Oh Seok Kwon<sup>1</sup>

(<sup>1</sup>*Sungkyunkwan University*, <sup>2</sup>*KRIBB*)

**TS07F\_P\_8**

**Colorimetric Sensor based on Nanofiber Against Detection of  $\gamma$  Hydroxybutyrate**

Gyeong-Ji Kim and Oh Seok Kwon

(*Sungkyunkwan University*)

**TS07F\_P\_9**

**Development of Nanopillar Based Gold Electrode Sensor Capable of Measuring Tear Osmolarity**

Aram Bae<sup>1</sup>, Seong Han Pyo<sup>1</sup>, Jueun Kim<sup>2</sup>, Nam Ho Bae<sup>1</sup>, Bong Gill Choi<sup>2</sup>, and Kyoung G. Lee<sup>1</sup>

(<sup>1</sup>*NNFC*, <sup>2</sup>*Kangwon National University*)

**TS07F\_P\_10**

**Application of ddPCR Reader System for the Quantitative Analysis of RNA within IDH Tumors**

Ji Yun Han, Seong Han Pyo, Sung Hee Jo, and Kyoung G. Lee

(*NNFC*)

**TS07F\_P\_11**

**Hg Ion-Responsive Coalescence of Ag Nanoparticles on a Silica Structure for Surface-Enhanced Raman Scattering Sensing**

Bong-Hyun Jun

(*Konkuk University*)

**TS07F\_P\_12**

**Self-Assembly of Proteins into Size-Controllable Proteinosomes in an Emulsion Soft-Confined State**

Yanqiu Du<sup>1</sup>, Xuejie Liu<sup>1</sup>, Haidong Li<sup>1</sup>, Hongxu Chen<sup>1</sup>, and Soon Hyung Hong<sup>1,2</sup>

(<sup>1</sup>*Jiaying University*, <sup>2</sup>*KAIST*)

**TS07F\_P\_13**

**Investigating Fast and Highly Sensitive Diagnostic Techniques for Biofilms using CRISPR-Based Raman Spectroscopy**

Joo Hoon Lee, Jea Sung Ryu, Hyowon Jang, and Taejoon Kang

(*KRIBB*)

**TS07F\_P\_14**

**Investigating GR-HDAC Interactions through Cell-Based Sensor**

Neethu Ramakrishnan, Yeji Yu, and Youngeun Kwon

(*Dongguk University*)

**TS07F\_P\_15**

**Live cell-Based Secretion Biosensor for the Detection of Glucocorticoids using Secretory Signal Peptide Reconstitution**

Keshab Lal Shrestha, Euiyeon Lee, Seonhye Kang, and Youngeun Kwon  
(*Dongguk University*)

**TS07F\_P\_16**

**Antioxidative and Anti-inflammatory Carbon Nanomedicine for the Therapy of Rheumatoid Arthritis**

Chanhee Choi, Hongwon Kim, Sin Lee, Yoonhee So, Yujin Choi, So-Hyun Moon, and Jong Ho Kim  
(*Hanyang University*)

**TS07F\_P\_17**

**Development of ddPCR System for POCT Diagnostics for miRNA Diagnosis**

SeongHan Pyo, JiYun Han, SungHee Jo, and Kyoung G. Lee  
(*NNFC*)

**TS07F\_P\_18**

**Removal of Unreacted Acrylate Double Bonds in the Hydrogel Microparticles Synthesized via Flow Lithography**

Hyun June Moon<sup>1</sup>, Minhee Ku<sup>2</sup>, Yoon Ho Roh<sup>1</sup>, Hyun Jee Lee<sup>1</sup>, Jaemoon Yang<sup>2</sup>, Hye Won Kim<sup>1</sup>, and Ki Wan Bong<sup>1</sup>  
(<sup>1</sup>*Korea University*, <sup>2</sup>*Yonsei University*)

**TS07F\_P\_19**

**Detection of Multidrug-Resistant Bacteria based on CRISPR/Cas9n Mediated Hairpin Exponential Amplification**

Yeonkyung Park and Taejoon Kang  
(*KRIBB*)

**TS07F\_P\_20**

**Development of Magnetic Plasmonic Aptasensor for the Capture and Analysis of Extracellular Vesicles (EVs) in Early Cancer Diagnosis**

Jea Sung Ryu, Joo Hoon Lee, Hyowon Jang, Hyunju Kang, and Tae Joon Kang  
(*KRIBB*)

**TS07F\_P\_21**

**One-pot CRISPR/Cas13a and TtCsm6 Boosted Cascade Reaction of Hairpin Probe Enhanced Amplification-free Detection (HEAD) of SARS-CoV-2**

Pei Li, Hyowon Jang, Hansol Kim, and Taejoon Kang  
(*KRIBB*)

TS07F\_P\_22

**Development of CRISPLAS Sensor Array for Ultra-Sensitive ctDNA Detection in Liquid Biopsy**

Hyunju Kang<sup>1,2</sup>, Yongwon Jung<sup>1</sup>, and Taejoon Kang<sup>2</sup>

(<sup>1</sup>KAIST, <sup>2</sup>KRIBB)

TS07F\_P\_23

**Multiplex Monitoring of Food Spoilage/Freshness by Wireless Portable Bioelectronic Nose**

Hafsa Huma and Oh Seok Kwon

(*Sungkyunkwan University*)

NANO  
KOREA  
2024  
Symposium

## [TS08] Poster Session 3

<b>Date &amp; Time</b>	July 5(Fri.), 2024 / 10:30–12:00
<b>Place</b>	Exhibition Hall 4,5

### TS08F\_P\_1

#### **Fully Implantable Iontophoresis System for Enhancement of Drug Efficacy**

Sung-Geun Choi<sup>1</sup>, Seongchan Kim<sup>2</sup>, Hyojin Lee<sup>1</sup>, and Seung-Kyun Kang<sup>3</sup>

*(<sup>1</sup>KIST, <sup>2</sup>Gyeongsang National University, <sup>3</sup>Seoul National University)*

### TS08F\_P\_2

#### **Aptamer Conjugated Brain-Mimetic Liposome Containing Doxorubicin for Glioblastoma Therapy**

Myeongsun Kim<sup>1</sup> and Hyojin Lee<sup>2</sup>

*(<sup>1</sup>UST, <sup>2</sup>KIST)*

### TS08F\_P\_3

#### **Computer-Aided Design and Embroidery-Enabled Textile-Based Wearable Wireless Communication System for Body Sensors**

Junyeong Lee and Jaehong Lee

*(DGIST)*

### TS08F\_P\_4

#### **EMG Sensing System Integrated with Textiles for Enhanced Electromyographic Interaction**

Hwajoong Kim and Jaehong Lee

*(DGIST)*

### TS08F\_P\_5

#### **Biodegradable and Stretchable Metallic Glass for Biomedical Applications**

Jae-Young Bae and Seung-Kyun Ka

*(Seoul National University)*

### TS08F\_P\_6

#### **Biodegradable Conductive Polymer Composites with Enhanced Stretchability for Sustainable Soft Electronics**

Kyung-Sub Kim and Seung-Kyun Kang

*(Seoul National University)*

**TS08F\_P\_7**

**Dual-Stimuli-Responsive and Anti-freezing Conductive Ionic Hydrogels for Smart Wearable Devices and Optical Display Device**

Yi Li, Dongmei Lei, Yunchao Xiao, and Yang Jiang  
(*Jiaying University*)

**TS08F\_P\_8**

**Development of an Amperometric Acetylcholine Biosensor**

Jieun Son and Kyung-In Jang  
(*DGIST*)

**TS08F\_P\_9**

**Double-Sided Structure of Flexible Neural Probe for Enhanced Dopamine Monitoring in Neurological Disorders**

Jeongdae Ha<sup>1</sup>, Han Hee Jung<sup>2</sup>, and Kyung-In Jang<sup>1</sup>  
(<sup>1</sup>*DGIST*, <sup>2</sup>*Hannam University*)

**TS08F\_P\_10**

**M13 Bacteriophage-Based Scaffold Providing Piezoelectric Signal**

Sang Min Lee and Ju Hun Lee  
(*Hanyang University*)

**TS08F\_P\_11**

**Development of Thermo-Pneumatic Peristaltic Drug Delivery Device for Pharmaceutical Deep Brain Stimulation**

Hyeokjun Lee and Kyung-In Jan  
(*DGIST*)

**TS08F\_P\_12**

**Patterning of Cesium Lead Halide Perovskite via Photolithography Compatible All-Solution Method for Optoelectronic Applications**

Woosik Kim<sup>1</sup>, Su-Kyung Kim<sup>1</sup>, Sanghyun Jeon<sup>1</sup>, Junhyuk Ahn<sup>1</sup>, Byung Ku Jung<sup>1</sup>, Sang Yeop Lee<sup>1</sup>, Tae-Yeon Seong<sup>1</sup>, Sohee Jeong<sup>2</sup>, Ho Seong Jang<sup>2</sup>, and Soong Ju Oh<sup>1</sup>  
(<sup>1</sup>*Korea University*, <sup>2</sup>*KAIST*)

**TS08F\_P\_13**

**Manipulating Solvent Ratio of the Precursors to Achieve Enhanced Photocurrent of 2D-Perovskite Photoconductor**

Hanseok Seo, Junhyeok Park, Byung Ku Jung, Young Kyun Choi, Taesung Park, Woosik Kim, and Soong Ju Oh  
(*Korea University*)

**TS08F\_P\_14**

**Neuroprotective Drug-Loaded pH Sensitive Porous Silica Nanoparticles (PSNs) for Therapy**

Sian Lee<sup>1,2</sup>, Ga-Been Kim<sup>1,2</sup>, and Hyojin Lee<sup>1</sup>

*(<sup>1</sup>KIST, <sup>2</sup>Korea University)*

**TS08F\_P\_15**

**Sub-1V Ultra-Low Power Neuromorphic Thin Film Transistors by Behaviors of Ion**

Yoonseok Song, Jun-Gyu Choi, and Sungjun Park

*(Ajou University)*

**TS08F\_P\_16**

**High Density Array Integration Laser-cut Vertical-via Hole OECTs**

Hyeongbeom Lee, Inho Lee, Jonghyun Won, and Sungjun Park

*(Ajou University)*

**TS08F\_P\_17**

**Ultra-Stretchable Organic-Inorganic Hybrid Dry Electrodes for Skin Friendly Electrocardiogram Sensors**

Taeyeon Oh, Hansu Kim, and Sungjun Park

*(Ajou University)*

**TS08F\_P\_18**

**High-Stretchable and Biocompatible Elastomers for Soft, Transient Electronics**

So Jeong Choi<sup>1</sup>, Won Bae Han<sup>1,2</sup>, Gwan-Jin Ko<sup>1</sup>, and Suk-Won Hwang<sup>1,3</sup>

*(<sup>1</sup>Korea University, <sup>2</sup>Georgia Institute of Technology, <sup>3</sup>KIST)*

**TS08F\_P\_19**

**Biodegradable Transparent Conductive Electrode for Transient Display**

Sehun Kang, Juyong Lee, Joohyeon Park, Sunggeun Choi, Sangho Oh, Youngchang Joo, and Seungkyun Kang

*(Seoul National University)*

**TS08F\_P\_20**

**Bioelectric Face Masks for Wearable Cortisol Sensor using Permeable Nanomesh**

Sungjoon Cho and Taeyoon Lee

*(Yonsei University)*

**TS08F\_P\_21**

**Inorganic Nanosheets Based Colorimetric Biosensor via Enhancement of Sensitivity for Healthcare Monitoring**

Yunkyeong Cho<sup>1,2</sup>, Jahyun Koo<sup>2</sup>, and Hyojin Lee<sup>1</sup>

*(<sup>1</sup>KIST, <sup>2</sup>Korea University)*



## [TS09] Poster Session 3

<b>Date &amp; Time</b>	July 5(Fri.), 2024 / 10:30–12:00
<b>Place</b>	Exhibition Hall 4,5

### TS09F\_P\_1

#### **Development of Long-Circulating Hemoglobin-Based Nano-Oxygen Carrier**

Hyemin Cho, Kidong Kim, Jaeun Oh, and Sejin Son

*(Inha University)*

### TS09F\_P\_2

#### **Cosmetic Transdermal Optimization: Paving the Way for Future Nanomedical Applications**

Yoonho Hwang, Jaehoon Ko, Seonmin Choi, Hyeyoun Cho, and Jaehong Key

*(Yonsei University)*

### TS09F\_P\_3

#### **Discoidal Polymeric Particles for Lung Metastasis Treatment: Enhancing the Efficacy and Minimizing the Side Effects of Doxorubicin**

Hyeyoun Cho, Yoonho Hwang, Jaehoon Ko, Seonmin Choi, Sanghyo Park, and Jaehong Key

*(Yonsei University)*

### TS09F\_P\_4

#### **Preparation of Uniform Silica Coated Iron Oxide Nanoparticles for Magnetic Hyperthermia Applications**

Tianyu Chen and Yuanzhe Piao

*(Seoul National University)*

### TS09F\_P\_5

#### **Barley $\beta$ -glucan/CpG/Ag Nanocomplexes for Macrophage Targeting and M1 Polarization**

Seoyeon Park, Migyeom Lee, Seoyoung Kim, and Tae-il Kim

*(Seoul National University)*

### TS09F\_P\_6

#### **Proteomic Analysis of Cellular Responses in A549 Cells Treated with Bovine Serum Albumin Coated Multi-Walled Carbon Nanotubes**

Sun Young Lee, Jae-Won Choi, Min Beom Heo, Tae Geol Lee, and Jin Gyeong Son

*(KRISS)*

**TS09F\_P\_7**

**Size Controllable Bioimaging Agent for Lymph Node Detect**

Jaeseong Lee, Hyeseon Park, and Gayong Shim

*(Soongsil University)*

**TS09F\_P\_8**

**Development of Salivary Gland Disease Treatment using Functional Exosomes from Stem Cells for Ductal Delivery**

Eun ji Yeom and Won-Gun Koh

*(Yonsei University)*

**TS09F\_P\_9**

**Hypoxia-Responsive Nanoparticle for Targeting Tumor-Associated Macrophage in Tumor Microenvironment for Advanced Immunotherapy**

Mihyeon Park<sup>1</sup>, Yeoul Kang<sup>1</sup>, and Won Jong Kim<sup>1,2</sup>

*(<sup>1</sup>POSTECH, <sup>2</sup>OmniaMed Co., Ltd.)*

**TS09F\_P\_10**

**Preparation of Antioxidant Drug Coating on Biodegradable Vascular Scaffolds via Electrospraying**

Byeongseok Ryu, Yu Jin Chi, and Won-Gun Koh

*(Yonsei University)*

**TS09F\_P\_11**

**Targeted Self-Immolative Nitric Oxide Prodrug for Lymph-Directed Inhibition of Intractable Metastatic Cancer**

Hong Lyun Kim<sup>1</sup> and Won Jong Kim<sup>1,2</sup>

*(<sup>1</sup>POSTECH, <sup>2</sup>OmniaMed Co., Ltd.)*

**TS09F\_P\_12**

**Polymerized Phenylboronic Acid and Mannan-Based Injectable Gel for Enhancing Cancer Immunotherapy**

Hong Lyun Kim<sup>1</sup> and Won Jong Kim<sup>1,2</sup>

*(<sup>1</sup>POSTECH, <sup>2</sup>OmniaMed Co., Ltd.)*

**TS09F\_P\_13**

**Development of Polyaniline-Gold Hybrid Nanostructures for NIR II Window Photoacoustic Imaging and Photothermal Therapy**

Eun Sook Lee<sup>1</sup>, Jinhyung Lee<sup>1</sup>, Jung-Sub Wi<sup>2</sup>, and Hee-Kyung Na<sup>1</sup>

*(<sup>1</sup>KRISS, <sup>2</sup>Hanbat National University)*

**TS09F\_P\_14**

**Preparation and Analysis of Cerium Oxide Nano Composite Containing GelMA Hydrogel Ophthalmic Material**

Chae Young Kim and A-Young Sung  
*(Daegu Catholic University)*

**TS09F\_P\_15**

**Manufacturing of Lipid Nanoparticles for Microfluidic-Based Nucleic Acid Therapy**

Hyeseon Park, Jaeseong Lee, and Gayong Shim  
*(Soongsil University)*

**TS09F\_P\_16**

**Biomimetic Scaffold for Dual-Drug Releasing Systems to Promote Angiogenesis-Coupled Osteogenesis via Hydrogel-Entrapped Nanofibers**

YoungBin Kim and Won-Gun Koh  
*(Yonsei University)*

NANO  
KOREA  
2024  
Symposium

## [TS10] Poster Session 3

<b>Date &amp; Time</b>	July 5(Fri.), 2024 / 10:30-12:00
<b>Place</b>	Exhibition Hall 4,5

### TS10F\_P\_1

#### Enhancing MoS<sub>2</sub> Field-Effect Transistors Performance via Mild Plasma Treatment

Seojoo Lee and Jin-Hong Park  
(Sungkyunkwan University)

### TS10F\_P\_2

#### Photoinduced Doping Effect and its Application to the Logic Device

Hojin Choi and Jin-Hong Park  
(Sungkyunkwan University)

### TS10F\_P\_3

#### Analyzing Electrical Behavior in Field-Effect Transistors (FETs) Utilizing 2D Transition Metal Dichalcogenides (TMDs) Channels with NbSe<sub>2</sub> Contacts

Yena Kim and Jinhong Park  
(Sungkyunkwan University)

### TS10F\_P\_4

#### Vertical Synapse based on Van der Waals(VdW) Heterostructures

Jiwon Moon<sup>1</sup> and Jin-Hong Park  
(Sungkyunkwan University)

### TS10F\_P\_5

#### Effect of MoS<sub>2</sub> Switching Layer Properties on Synaptic Device Performance

Hee Yoon Jang, Do Young Kim, Seo Hyeon Moon, and Seoung-Ki Lee  
(Pusan National University)

### TS10F\_P\_6

#### Twist Angle-Dependent Transport Properties of Twisted Bilayer Graphene

Jin Hong Kim, Jin Sik Choi, and Bae Ho Park  
(Konkuk University)

**TS10F\_P\_7**

**Effect of Semiconductor Composition on Channel Shortening in Oxide Thin-Film Transistor**

Jong Beom Ko<sup>1</sup>, Seong-Jae Kim<sup>2</sup>, and Sang Hee Park<sup>2</sup>

*(<sup>1</sup>Hanbat National University, <sup>2</sup>KAIST)*

**TS10F\_P\_8**

**Nonlinear Electrostrictive Surface Acoustic Wave in SrTiO<sub>3</sub>**

Kiryang Park and Junho Suh

*(POSTECH)*

**TS10F\_P\_9**

**Work Function Modulation in MoS<sub>2</sub>-Based Transistor with Graphene Source/Drain Contact**

Se Hee Lee and Jin-Hong Park

*(Sungkyunkwan University)*

**TS10F\_P\_10**

**Fabrication and Optimization of Memristor with Interfacial Oxidation for Suitable and Improved Performance**

Seongwoo Jung and Byoungdeog Choi

*(Sungkyunkwan University)*

**TS10F\_P\_11**

**Modulation Oxygen Vacancies in Bilayer-Structured Amorphous InGaSnO/TiO<sub>2</sub> Thin Film Transistors via TiO<sub>2</sub> Oxygen-Capturing layer and UV/Ozone Treatment**

Hwan-gyu Lee and Byoung-Deog Choi

*(Sungkyunkwan University)*

**TS10F\_P\_12**

**Self-Limiting Oxidation by UV-O<sub>3</sub> Treatment and WSe<sub>2</sub> p-Doping**

Taehyuk Jang and Jin-Hong Park

*(Sungkyunkwan University)*

**TS10F\_P\_13**

**Investigating Rare-Metal-Free Oxide Semiconductor for Enhanced Electrical and Thermal Performance**

Jiyong Kim, Kyusun Han, Jaegoo Lee, and Hongseok Oh

*(Soongsil University)*

TS10F\_P\_14

**Threshold Voltage Modulation in 2D MoS<sub>2</sub> Semiconductors**

Hyeong Seok Lee and Jin-Hong Park

*(Sungkyunkwan University)*

TS10F\_P\_15

**Negative Differential Resistance Device with Partial Potential Modulation**

Junseo Lee and Jin-Hong Park

*(Sungkyunkwan University)*

TS10F\_P\_16

**Field-Effect Transistor Memory Employing a Halide Perovskite and its Switching Mechanism**

Donghyeok Kim, Chanhyeok Kim, Hanul Min, and Gunuk Wang

*(Korea University)*

TS10F\_P\_17

**Radiation Hardness of High-Performance Te PFET via Al<sub>2</sub>O<sub>3</sub> Passivation**

Minjae Kim, Kyuheon Kim, Hae-Won Lee, Jae Hyeon Jun, Chan Bin Lee, and Byoung Hun Lee

*(POSTECH)*

TS10F\_P\_18

**Thermal-Dependent Chromatic Modulative Luminescence in Sm<sup>3+</sup>/Er<sup>3+</sup>-Doped Calcium Gallo-Germanate Crystals**

Sangwon Wi, Yunho Jin, and Yunsang Lee

*(Soongsil University)*

TS10F\_P\_19

**Infrared (IR) Regulation Properties of a CVD-grown VO<sub>2</sub> Thin Film for Dynamic Radiative Cooling (DRC)**

Nayoung Wi<sup>1,2</sup>, Hyojin Bang<sup>1,2</sup>, Hongseung Kim<sup>2</sup>, Yonghun Kim<sup>1</sup>, and Jongwon Yoon<sup>1</sup>

*(<sup>1</sup>KISM, <sup>2</sup>National Korea Maritime and Ocean University)*

TS10F\_P\_20

**High-Accuracy Analog Neuromorphic Computing by a Solid Electrolyte-Gated 2D-MoS<sub>2</sub> Synaptic Transistor with Lithium Silicate (LiSiO<sub>x</sub>)**

Byeongjin Park<sup>1,2</sup>, Soon-Yong Kwon<sup>2</sup>, and Yonghun Kim<sup>1</sup>

*(<sup>1</sup>KISM, <sup>2</sup>UNIST)*

**TS10F\_P\_21**

**Hydrophilic  $\text{Si}_3\text{N}_4$  Substrate-Assisted Wet-Transfer Method for Facile Wrinkle Control in 2D- $\text{MoS}_2$  Thin Films for Enhancing FET Device Performance**

Seungkwon Hwang<sup>1,2</sup> and Yonghun Kim<sup>1</sup>

*(<sup>1</sup>KIMS, <sup>2</sup>POSTECH)*

**TS10F\_P\_22**

**Multiferroic effect in HZO/ $\text{Fe}_3\text{GeTe}_2$  Heterostructures**

Yong Ha Shin and Woo Jong Yu

*(Sungkyunkwan University)*

**TS10F\_P\_23**

**Effective Hydrogen Sulfide Gas Detection Utilizing Functionalized Carbon Nanotubes**

RyangHa Kim, KyungEun Kim, and YoungLae Kim

*(Gangneung-Wonju National University)*

**TS10F\_P\_24**

**Exploring Quantum Bulk Acoustic Wave Resonator with Millimeter Waves**

Changjoo Lee and Junho Suh

*(POSTECH)*

## [TS11] Poster Session 3

<b>Date &amp; Time</b>	July 5(Fri.), 2024 / 10:30-12:00
<b>Place</b>	Exhibition Hall 4,5

### TS11F\_P\_1

#### Locally Strain-Isolated Substrates for Island-Bridge Stretchable Electronics

Dae Hwan Lee<sup>1</sup> and Taiho Park<sup>2</sup>

(<sup>1</sup>KAERI, <sup>2</sup>POSTECH)

### TS11F\_P\_2

#### Scalable Full-Color Transparent Screen with Plasmonic Molecule Superlattice

HyeokJung Kang<sup>1</sup>, Soon Hyoung Hwang<sup>2</sup>, Sohee Jeon<sup>2</sup>, Jun-Ho Jeong<sup>2</sup>, and Namkyoo Park<sup>1</sup>

(<sup>1</sup>Seoul National University, <sup>2</sup>KIMM)

### TS11F\_P\_3

#### Enhanced Photoelectrochemical Performance of BVO Photoanode through Particle Size Control of BVO Film via Utilizing Thermalcompression Process

Hanyi Lim<sup>1</sup>, Jongbaeg Kim<sup>2</sup>, and Jihye Lee<sup>1</sup>

(<sup>1</sup>KIMM, <sup>2</sup>Yonsei University)

### TS11F\_P\_4

#### Stretchable Green OLEDs on Wavy-Patterned PDMS Substrate via Oxygen Plasma Treatment: Fabrication and Characterization

Jian Cheng Bi, Kyo-Cheol Kang, Jun-Young Park, Seonghyeon Park, Junbeom Song, and Byeong-Kwon Ju

(Korea University)

### TS11F\_P\_5

#### Robust Nanotransfer Printing by Imidization-Induced Interlocking

Gujin Kang<sup>1</sup>, Yongrok Jeong<sup>1</sup>, Inkyu Park<sup>2</sup>, and Jun-Ho Jeong<sup>3</sup>

(<sup>1</sup>KAERI, <sup>2</sup>KAIST, <sup>3</sup>KIMM)

### TS11F\_P\_6

#### Multicolor Holography Generated by Single Metaatom

JinYoung Jeong and Sunae So

(Korea University)



**TS11F\_P\_7**

**Coupling of Color and Solar Heating in Nanophotonic System**

Suwan Jeon

*(KIMM)*

**TS11F\_P\_8**

**Dual-Band Camouflage System for Visual and Thermal Adaptation in Different Terrestrial Environments based on Electrochromism**

Jun Seok Choe, Jang Hun Ko, and Bong Hoon Kim

*(DGIST)*

**TS11F\_P\_9**

**Functional Asymmetrical Films Derived from Binary Polymer Phase Separation for Soft Bioelectronics**

Moonjeong Bok<sup>1,2</sup>, Zhi-Jun Zhao<sup>3</sup>, Soonhyoung Hwang<sup>1</sup>, Sohee Jeon<sup>1</sup>, and Jun-Ho Jeong<sup>1</sup>

*(<sup>1</sup>KIMM, <sup>2</sup>Future Tech Laboratory, <sup>3</sup>Southwest Jiaotong University)*

**TS11F\_P\_10**

**Application of Chemical-Free Nanotransfer Printing with Wafer-Scale Uniformity and Controllability**

Hyejung Lim<sup>1</sup>, Kisu Kim<sup>1</sup>, Soonhyoung Hwang<sup>2</sup>, Sohee Jeon<sup>2</sup>, Jun-Ho Jeong<sup>2</sup>, Byeong-Kwon Ju<sup>1</sup>, and Sang-Ho Shin<sup>1</sup>

*(<sup>1</sup>Korea University, <sup>2</sup>KIMM)*

**TS11F\_P\_11**

**Phase Measurement for Computer Generated Holograms based on Reflection-Type Digital Holographic Microscopy**

Yongjun Lim, Kwan-Jung Oh, and Hyon-Gon Choo

*(ETRI)*

**TS11F\_P\_12**

**Development of Hologram Printing Downsizing Technology based on Holographic Optical Elements (HOEs)**

Youngmin Kim, Jisoo Hong, Jinsoo Jeong, Byounghyo Lee, YongHwa Kim, Hyeonchan Oh, and Sunghee Hong

*(KETI)*

**TS11F\_P\_13**

**Wide-Field Synthetic Aperture Reflective Digital Holographic Microscopy**

Minwoo Jung<sup>1</sup>, Gunhee Lee<sup>1</sup>, Hyeonbin Im<sup>1</sup>, Yongjun Lim<sup>2</sup>, and Joonku Hahn<sup>1</sup>

*(<sup>1</sup>Kyungpook National University, <sup>2</sup>Electronics and Telecommunications Research Institute)*

TS11F\_P\_14

**Oxide Semiconductor-Based Heterojunction Transistors Exhibiting Negative Differential Transconductance in Multivalued Logic Circuits**

Jaeho Lee and Jeong-Hwan Lee

*(Inha University)*

TS11F\_P\_15

**Optimizing the Floating Nanostructure on the Water and its Application: Food Quality Monitoring**

Byung-Ho Kang<sup>1,2</sup>, Junseong Ahn<sup>3</sup>, Ji-Hwan Ha<sup>1,2</sup>, Byungmin Kang<sup>1,2</sup>, Sohee Jeon<sup>2</sup>, Soon Hyoung Hwang<sup>2</sup>, Dae-Geun Choi<sup>2</sup>, Inkyu Park<sup>1</sup>, and Jun-Ho Jeong<sup>2</sup>

*(<sup>1</sup>KAIST, <sup>2</sup>KIMM, <sup>3</sup>Korea University)*

TS11F\_P\_16

**3D-Printed Microdevices using Two-Photon Polymerization**

Junhyuk Choi, Yunwoo Lee, Soon-Hyoung Hwang, Sohee Jeon, Dae-Geun Choi, Joo Yeon Jeong, Hyun Min Cho, Jihye Lee, Won-Seok Jang, and Jun-Ho Jeong

*(KIMM)*

TS11F\_P\_17

**Numerical Analysis of Rear Ga Gradient Effect for High-Efficiency Thin Cu(In,Ga)Se<sub>2</sub> Solar Cells**

Eun Jeong Jang, Jun Yong Kim, and Yun Seon Do

*(Kyungpook National University)*

TS11F\_P\_18

**Holographic AR HUD with Reduced Twin Noise**

Gunhee Lee, Minwoo Jung, Hyeonbin Im, and Joonku Hahn

*(Kyungpook National University)*

TS11F\_P\_19

**Fabrication of Large Area Photoanode with BiVO<sub>4</sub>/WO<sub>3</sub> Patterned Nanorod Arrays through Localized Gold Nanoparticle for Efficient Photoelectrochemical Performance**

Hoyoung Lee<sup>1,2</sup>, Hanyi Im<sup>1</sup>, Jun-Hyuk Choi<sup>1</sup>, Jong Hyeok Park<sup>2</sup>, and Jihye Lee<sup>1</sup>

*(<sup>1</sup>KIMM, <sup>2</sup>Yonsei University)*

TS11F\_P\_20

**Enhancing Efficiency of Blue Phosphorescent Organic Light Emitting Device using a High Refractive Index Material-Based Light Extraction Layer**

Ji-Sung Lee, Jun-Young Park, Seonghyeon Park, Kyo-Cheol Kang, and Byeong-Kwon Ju

*(Korea University)*

**TS11F\_P\_21**

**Efficient Blue Light Emitting Diodes with Pseudo Halide-passivated CsPb(BrCl)<sub>3</sub>**

Jinu Park and Byungha Shin

*(KAIST)*

**TS11F\_P\_22**

**Electrically Tunable Intersubband Polaritonic Metasurfaces with Non-Hermitian Degeneracy**

Beomjoon Kim<sup>1</sup>, Hyeongju Chung<sup>1</sup>, Gerhard Boehm<sup>2</sup>, Mikhail A. Belkin<sup>2</sup>, and Jongwon Lee<sup>1</sup>

*(<sup>1</sup>UNIST, <sup>2</sup>Technical University of Munich)*

**TS11F\_P\_23**

**Strong Coupling Effect on Intersubband Polaritonic Metasurfaces using InAs/AlSb Multiple Quantum Well in Short-Wavelength Infrared**

Mingyun Kim and Jongwon Lee

*(UNIST)*

**TS11F\_P\_24**

**Exquisite ZnSeTe Blue Quantum Dot LEDs: Extremely Low Tellurium Content and Superb Bandwidth**

Seongwoo Cho and Ju Young Woo

*(KITECH)*

**TS11F\_P\_25**

**Ideal WSe<sub>2</sub>/MoS<sub>2</sub> Vertical Heterostructure for High-Performance PN Photodetector**

Sung Hyun Kim and Woo Jong Yu

*(Sungkyunkwan University)*

**TS11F\_P\_26**

**Fabrication of Transparent Electret Filter by using Laser Perforation**

Hyeonjin Eom<sup>1</sup> and Jong-Eun Park<sup>2</sup>

*(<sup>1</sup>KITECH, <sup>2</sup>The State University of New York Korea)*

## [TS12] Poster Session 3

<b>Date &amp; Time</b>	July 5(Fri.), 2024 / 10:30–12:00
<b>Place</b>	Exhibition Hall 4,5

### TS12F\_P\_1

#### **Production of Nanocellulose for Eco-Friendly Industry**

Aldricho Alpha Pollardo<sup>1</sup>, Yeungchan Kim<sup>1</sup>, Soyeong Yun<sup>2</sup>, Yongwon Seo<sup>2</sup>, Jeong Won Kang<sup>1</sup>, and Ki-Sub Kim<sup>1</sup>

(<sup>1</sup>Korea National University of Transportation, <sup>2</sup>UNIST)

### TS12F\_P\_2

#### **A Study on The Manufacture and Analysis of Hydrogel Lenses Containing Ti<sub>3</sub>C<sub>2</sub> MXene with Controlled Particle Size**

Seon-Young Park and A-Young Sung

(Daegu Catholic University)

### TS12F\_P\_3

#### **Development of Mg(OH)<sub>2</sub> and 5Mg(OH)<sub>2</sub>·MgSO<sub>4</sub>·3H<sub>2</sub>O Synthetic Tuning Method**

YeongJo Yun<sup>1</sup>, NuRi Oh<sup>2</sup>, and YooJin Kim<sup>1</sup>

(<sup>1</sup>KICET, <sup>2</sup>Hanyang University)

### TS12F\_P\_4

#### **Eco-Friendly Recycling Process of Perovskite Solar Cells by Gelatin-Conjugated Hematite Nanoparticles**

Woo Sounq Shin, Hee Jung Kim, Oh Yeong Gong, Young Ju Kim, Geon Woo Yoon, and Hyun Suk Jung

(Sungkyunkwan University)

### TS12F\_P\_5

#### **Exploring the Fabrication of High-Quality CsPbI<sub>3</sub> Perovskite Thin Films via Solvent Replacement in Vacuum-Assisted Engineering**

Si Eun Park, Geon Woo Yoon, and Hyun Suk Jung

(Sungkyunkwan University)

### TS12F\_P\_6

#### **Optimizing Top Electrode Design for High Efficiency Perovskite-Silicon Tandem Solar Cell**

Seok Beom Kang, Min Ju Jung, Jae Ryoung Lee, Joo Woong Yoon, Jung Jun Kim, Hyemin Lee, Chang Yong Kim, Sangheon Lee, Ayoung Lee, Sang Jun Park, Jun Hong Noh, and Dong Hoe Kim

(Korea University)

TS12F\_P\_7

**PbI<sub>2</sub> Modulation by Antisolvent Engineering for Fabrication of High Efficiency Indoor Perovskite Devices**

Jongin Huh, Geon Woo Yoon, and Hyun Suk Jung  
(*Sungkyunkwan University*)

TS12F\_P\_8

**Enhancing the Hydrogen Evolution Reaction by Modulating Electronic Structure via Iridium Doping on Ruthenium Phosphide Catalyst**

Kyounghoon Jung and Dong-wan Kim  
(*Korea University*)

TS12F\_P\_9

**Improving Stability and Efficiency of Perovskite Solar Cells via Creatine-Based Passivation Strategies**

Jihyun Min and Taiho Park  
(*POSTECH*)

TS12F\_P\_10

**Regulating Crystal Growth of  $\alpha$ -FAPbI<sub>3</sub> with a New Dopant**

Ju-Hye Choi, Yu-Na Kim, and Hui-Seon Kim  
(*Inha University*)

TS12F\_P\_11

**Life Cycle Assessment of Green Solvent Process for Perovskite Photovoltaic Device**

Jae Myeong Lee, Hee Jung Kim, and Hyun Suk Jung  
(*Sungkyunkwan University*)

TS12F\_P\_12

**Revisiting Compositional Engineering of Wide Bandgap Perovskite Solar Cells**

Wenting Zheng and Jin-Wook Lee  
(*Sungkyunkwan University*)

TS12F\_P\_13

**Moth-Inspired Compound Eyes Substrate using Shape Memory Polymer for Improving Efficiency of Perovskite Solar Cells**

Sunwoo Kim, Gain Lee, Moon Kyu Kwak, and Sangwook Lee  
(*Kyungpook National University*)

**TS12F\_P\_14**

**Investigation of Microstructure and Mechanical Properties of Pure Copper and Cu-Nanosized Al<sub>2</sub>O<sub>3</sub> Composite Fabricated by Spark Plasma Sintering**

Dinh Van Cong, Dong-Wan Lee, Su-Gwan Lee, and Jin-Chun Kim

*(University of Ulsan)*

**TS12F\_P\_15**

**Roles of Cesium Cation in Inverted Perovskite Solar Cells Investigated via In-Situ Measurements**

Dongbo Zhang and Jin-Wook Lee

*(Sungkyunkwan University)*

**TS12F\_P\_16**

**Toxicity Assessment of Irregular Shaped PET Microplastic on Marine Branchiopoda**

Lia Kim, Haemi Kim, Yubeen Song, and Youn-Joo An

*(Konkuk University)*

**TS12F\_P\_17**

**Controlled Phase Distribution of Quasi-2D Perovskite Enables Improved Electroluminescence**

Ga-Yeong Kim and Jin-Wook Lee

*(Sungkyunkwan University)*

**TS12F\_P\_18**

**Study of Combining First-Principles Simulations and Combinatorial Synthesis for Facile Estimated Exciton Binding Energy in Halide Perovskite-Based Optoelectronic Devices**

SangMyeong Lee and Hyun Suk Jung

*(Sungkyunkwan University)*

**TS12F\_P\_19**

**Sn-Pb Perovskite Fabricated via Purification of Tin Iodide for Efficient All-Perovskite Tandem Solar Cells**

Mun Young Woo<sup>1</sup>, Jeong Min Im<sup>1</sup>, Sunwoo Kim<sup>2</sup>, Sangwook Lee<sup>2</sup>, and Jun Hong Noh<sup>1</sup>

*(<sup>1</sup>Korea University, <sup>2</sup>Kyungpook National University)*

## [TS13] Poster Session 3

<b>Date &amp; Time</b>	July 5(Fri.), 2024 / 10:30–12:00
<b>Place</b>	Exhibition Hall 4,5

### TS13F\_P\_1

#### **TiO<sub>2</sub>/MoS<sub>x</sub>/Ag Nanocomposites for Photocatalytic Self-Cleaning Membranes**

Yoonkyung Lee<sup>1</sup>, Teayeop Kim<sup>1</sup>, Sun Choi<sup>2</sup>, and Kyunghoon Kim<sup>1</sup>

(<sup>1</sup>Sungkyunkwan University, <sup>2</sup>KIST)

### TS13F\_P\_2

#### **An Effective Fabrication Process for the Preparation of Cellulose Nanofibers from Non-Wood Materials**

Jeong Woo Kim, Sivaprakasam Radhakrishnan, and Byoung-Suhk Kim

(Jeonbuk National University)

### TS13F\_P\_3

#### **Characterization of Ophthalmic Contact Lens Materials containing All-Trans-Retinoic-Acid and Protein Nanoparticles**

Hye-In Park and A-Young Sung

(Daegu Catholic University)

### TS13F\_P\_4

#### **Functional 3D Ionic Semiconductor**

Kyung June Kim, Jaehyun Kim, Joa Jeon, and Jungyul Park

(Sogang University)

### TS13F\_P\_5

#### **Synthesis of Metallic Nanoparticles using Eco-Friendly Solvents**

Yeungchan Kim, Jeong Won Kang, and Ki-Sub Kim

(Korea National University of Transportation)

### TS13F\_P\_6

#### **Nano-Platform Technology on Micro-Power System: Design of All-Solid State Micro-Batteries and Developing Manufacturing Equipment in NNFC**

Su-Ho Cho, Yong-Hee Lee, Hee Han, Jae Hong Park, and Chi Won Ahn

(NNFC)

TS13F\_P\_7

**Investigating the Impact of Sidewall Micro-Cavity Structures on Mixing Efficiency in Spiral Micro-Channel Mixers**

Yeun-Jung Jung<sup>1,2</sup>, Kwanoh Kim<sup>1</sup>, Jae-sung Yoon<sup>1,2</sup>, Do-Hyun Kang<sup>1</sup>, and Yeong-Eun Yoo<sup>1,2</sup>  
(<sup>1</sup>UST, <sup>2</sup>KIMM)

TS13F\_P\_8

**Residual-Layer-Free Nanoimprint Lithography for Reflectance Biosensor Platform**

Junhyoung Ahn<sup>1,2</sup>, Sua Park<sup>1,2</sup>, Hakjong Choi<sup>2</sup>, Soongeun Kwon<sup>2</sup>, Geehong Kim<sup>2</sup>, Hyungjun Lim<sup>2</sup>, Kee-Bong Choi<sup>1,2</sup>, and JaeJong Lee<sup>1,2</sup>  
(<sup>1</sup>KRIBB, <sup>2</sup>KIMM)

TS13F\_P\_9

**Narrowing Nanogaps between Plasmonic Nanoparticles using Plasma Treatment**

Jeongmin Han and Sangwoon Yoon  
(*Chung-Ang University*)

TS13F\_P\_10

**Nanotechnology Based Biomedical Device for COVID-19 POCT**

SeokJin Hwang<sup>1,2</sup>, Zahra Razaei<sup>2,4</sup>, Dong Gee Rho<sup>3</sup>, Nam Ho Bae<sup>3</sup>, Seok Jae Lee<sup>3</sup>, WonChan Seo<sup>1,5</sup>, Su Ryon Shin<sup>4</sup>, Yoo Min Park<sup>3</sup>, and HeaYeon Lee<sup>1,2</sup>  
(<sup>1</sup>Mara Nanotech Korea, Inc., <sup>2</sup>Mara Nanotech New York, Inc., <sup>3</sup>NNFC, <sup>4</sup>Harvard Medical School, <sup>5</sup>Pukyong National University)

TS13F\_P\_11

**Large-Area (Up to 12 Inches) Nano/Micro Structure Fabrication Utilizing UV-Based Roll-To-Plate Nanoimprint Lithography Process**

Yeon-Wha Oh, Sanghee Jung, Huijae Cho, Suhyeon Kwon, and Il-Suk Kang  
(*NNFC*)

TS13F\_P\_12

**Nanoimprint Process based on Shape-Adaptive Stamp for Fabrication of Functional Bio Devices**

Hyungjun Lim<sup>1</sup>, Seokyoung Ji<sup>2</sup>, Hak-Jong Choi<sup>1</sup>, Junhyoung Ahn<sup>1</sup>, Soongeun Kwon<sup>1</sup>, Geehong Kim<sup>1</sup>, Kee-Bong Choi<sup>1</sup>, and Jaejong Lee<sup>1</sup>  
(<sup>1</sup>KIMM, <sup>2</sup>Samsung Electronics Co., Ltd.)

TS13F\_P\_13

**Numerical Simulation for Optimizing Wafer Level Lens Forming Process**

Doyun Jeon and Seungmo Kim  
(*KOREATECH*)



**TS13F\_P\_14**

**Self-Assembled Monolayer (SAM) for Cu Diffusion Barrier Depending on Functional Group of SAMs**

Minkyu Lee and Taeyoon Lee

*(Yonsei University)*

**TS13F\_P\_15**

**Demonstration of Reflective Photoplethysmography Sensors using Quarter Annulus Si Photodiode with Equal Inner and Outer Radii**

Chaehwan Kim<sup>1</sup>, Yeeun Na<sup>1</sup>, Tae Hyun Kim<sup>1</sup>, Soo Hyun Kwon<sup>1</sup>, Il-Suk Kang<sup>1</sup>, Eui-Je Jo<sup>1</sup>, Jong-Bum You<sup>1</sup>, Su-Hyun Kim<sup>1</sup>, Jong Hyun Song<sup>1</sup>, Seung-In Lee<sup>1</sup>, Byung Il Lee<sup>1</sup>, Young Woo Jung<sup>2</sup>, Tae Won Kim<sup>2</sup>, Deok-Ho Cho<sup>3</sup>, and Jongcheol Park<sup>1</sup>

*(<sup>1</sup>NNFC, <sup>2</sup>Partron Co., Ltd., <sup>3</sup>Sigetronics, Inc.)*

**TS13F\_P\_16**

**Development of Flexible Electrodes with Highly Enhanced Uniformity Utilizing Metal Nanofibers and Conductive Films**

Min Seo Jeong and Hwan-Jin Jeon

*(Tech University of Korea)*

**TS13F\_P\_17**

**Stretchable and Flexible Electrode based on Semi-Embedded Metal Nanofiber and Wrinkled Film**

Sung Hyeok Lee and Hwan-Jin Jeon

*(Tech University of Korea)*

**TS13F\_P\_18**

**A Novel Electric Field-Assisted Membrane Process for Nanoparticle Preconcentration and Separation**

Ji Hyo Park<sup>1,2</sup>, Jae Sung Yoon<sup>1</sup>, Do Hyun Kang<sup>1</sup>, Yeong-Eun Yoo<sup>1</sup>, Heung Nam Han<sup>2</sup>, and Kwanoh Kim<sup>1</sup>

*(<sup>1</sup>KIMM, <sup>2</sup>Seoul National University)*

**TS13F\_P\_19**

**Self-Assembly Behavior of Liquid Crystalline Nanostructures from Surfactant and Tri-Block Copolymer in Aqueous**

Young-Jin Yoon, Sang-Woo Jeon, Dong-Chul Yang, and Tae-Hwan Kim

*(Jeonbuk National University)*

**TS13F\_P\_20**

**Sensorized Soft Gripper based on Bioinspired Adhesive Fingertips and Pneumatic Control**

Hyeonseok Song, Seongjin Park, and Hoon Eui Jeong

*(UNIST)*

TS13F\_P\_22

**Superhydrophobic and Self-Attachable Conductive Patch based on Microstructure**

Dong Kwan Kang, Seongjin Park, Jaeil Kim, Jinseo Kim, Somi Kim, and Hoon Eui Jeong

*(UNIST)*

TS13F\_P\_24

**Large-Area Molybdenum Disulfide Grown on Flexible Substrate, Compatible with Back-End-of-Line Processes: Enabling High Performance, Low-Power Memristor Applications**

Yu Seong Lee, Arindam Bala, Anamika Sen, and Sun Kook Kim

*(Sungkyunkwan University)*

NANO  
KOREA  
2024  
Symposium

## [TS14] Poster Session 3

<b>Date &amp; Time</b>	July 5(Fri.), 2024 / 10:30-12:00
<b>Place</b>	Exhibition Hall 4,5

### TS14F\_P\_1

#### Crystal Orientation-Dependent Oxygen Evolution Activity in IrO<sub>2</sub>

Gahee Noh<sup>1</sup>, Tae Gyu Yun<sup>2</sup>, Sung-Yoon Chung<sup>2</sup>, Chang-Beom Eom<sup>3</sup>, and Si-Young Choi<sup>1,4</sup>

(<sup>1</sup>POSTECH, <sup>2</sup>KAIST, <sup>3</sup>University of Wisconsin-Madison, <sup>4</sup>IBS)

### TS14F\_P\_2

#### Three-Dimensional Pore Structure Analysis in Cu-Cu Bonding

Eun-Byeol Park<sup>1</sup>, Min-Hyoung Jung<sup>1</sup>, Young-Hoon Kim<sup>1</sup>, Su Jae Kim<sup>2</sup>, Se-Young Jeong<sup>2,3</sup>, and Young-Min Kim<sup>1</sup>

(<sup>1</sup>Sungkyunkwan University, <sup>2</sup>Pusan National University, <sup>3</sup>Massachusetts General Hospital and Harvard Medical School)

### TS14F\_P\_3

#### Extremely Low Thermal Conductivity of Disordered, Layered Graphite Fluoride (CxF)

Wonsik Lee, Donghoon Moon, Seungbin Han, Gwan-Hyoung Lee, and Hyejin Jang

(Seoul National University)

### TS14F\_P\_4

#### Enhancing the Ionic Conductivity of a Layered Type Sodium Ion Solid Electrolyte by Substituting Trivalent Cation

Junki Lee, Jacob Choe, and Jong Min Yuk

(KAIST)

### TS14F\_P\_5

#### Direct Imaging of Co-CUK-1 Framework with H<sub>2</sub>O Guests

Kyo-Won Lee<sup>1,2</sup>, Dong-Hwan Yang<sup>1,2</sup>, and Si-Young Choi<sup>1,2</sup>

(<sup>1</sup>POSTECH, <sup>2</sup>IBS)

### TS14F\_P\_6

#### Domain Orientated Nanoparticle Exsolution in Defect Engineered Stannate Perovskite

Yeon-Seo Nam<sup>1</sup>, Hyeji Sim<sup>1</sup>, Yujeong Lee<sup>2</sup>, Daseob Yoon<sup>2</sup>, Junwoo Son<sup>2</sup>, and Si-Young Choi<sup>1,3</sup>

(<sup>1</sup>POSTECH, <sup>2</sup>Seoul National University, <sup>3</sup>IBS)

**TS14F\_P\_7**

**Application of Ion Milling for Quantitative Mesoscale Microstructure**

Kyung-Won Lim<sup>1</sup>, Joo-Hee Kang<sup>1</sup>, Kyung-Seok Han<sup>2</sup>, Eun-Young Kim<sup>1</sup>, and Kyung Song<sup>1</sup>

(<sup>1</sup>KIMS, <sup>2</sup>JEOL Korea)

**TS14F\_P\_8**

**Microstructure Characterization and Cracking Behavior of 625 Alloys**

Gun young Yoon and Ihho Park

(KIMS)

**TS14F\_P\_9**

**Direct Mapping of Ionomer Distribution on Porous Carbon Supports by Machine Learning EELS Clustering**

Daehee Yang, Young-Hoon Kim, and Young-Min Kim

(Sungkyunkwan University)

**TS14F\_P\_10**

**Enhanced Resolution of AFM Images using Deep Learning**

Jintae Moon, Panithan Sriboriboon, and Yunseok Kim

(Sungkyunkwan University)

**TS14F\_P\_12**

**Observing the 3D Atomic Arrangement of Twinned Metallic Nanoparticles and their Catalytic Properties**

Yongsoo Yang, Juhyeok Lee, Chaehwa Jeong, Taegu Lee, and Seunghwa Ryu

(KAIST)

**TS14F\_P\_13**

**Influence of Wall Thickness on the Piezoelectric Effect of Hexagonal Pb(Zr,Ti)O<sub>3</sub> Nanotube**

Eun Young Kim, Sam Yeon Cho, and Sang Don Bu

(Jeonbuk National University)

**TS14F\_P\_14**

**Micro Probe System for In-Situ X-Ray Scattering**

Hyoungjeen Jeon<sup>1</sup>, Yunhyeong Jang<sup>2</sup>, Hakbeom Moon<sup>2</sup>, Joon Hyuk Lee<sup>1</sup>, Sangkyun Ryu<sup>1</sup>, Yeongdeuk Mun<sup>1</sup>, HyunJung Kim<sup>1</sup>, and Jin Hyung Cho<sup>1</sup>

(<sup>1</sup>Pusan National University, <sup>2</sup>NEXTRON)

## [TS15] Poster Session 3

<b>Date &amp; Time</b>	July 5(Fri.), 2024 / 10:30–12:00
<b>Place</b>	Exhibition Hall 4,5

### TS15F\_P\_1

#### Advancing Nanotoxicology Research through Standardized Lung Organoid Models

Hak-Sung Jung<sup>1</sup>, Min Beom Heo<sup>1</sup>, Ahruem Baek<sup>1</sup>, Hee-Kyung Na<sup>1</sup>, Tae Geol Lee<sup>1</sup>, and Hee Min Yoo<sup>1,2</sup>  
(<sup>1</sup>KRISS, <sup>2</sup>UST)

### TS15F\_P\_2

#### Improvement of Nanoparticle Research and Safety through Automated Size Measurement with Transmission Electron Microscopy: Addressing Uncertainties

Jongchul Jeon<sup>1</sup>, Sang Jung Ahn<sup>1</sup>, Jong Hyeok Seo<sup>1,2</sup>, Joohyun Lee<sup>1</sup>, Soohyeong Lee<sup>1,2</sup>, and Ji-Hwan Kwon<sup>1,2</sup>  
(<sup>1</sup>KRISS, <sup>2</sup>UST)

### TS15F\_P\_3

#### Assessing Antioxidative Responses in Egeria Densa Exposed to Titanium (IV) Dioxide Anatase Nanoparticles and Diclofenac

Youngsam Kim<sup>1,2</sup> and Young Jun Kim<sup>1,2</sup>  
(<sup>1</sup>KIST-Europe, <sup>2</sup>UST)

### TS15F\_P\_4

#### Nitric Acid and Nano-Bubbling CO<sub>2</sub> Surface Modifications of Activated Carbon Fibers for Platinum Separation

Joon Hyuk Lee, Jung-kun Song, Eunkyung Jeon, and Jaeho Choi  
(Agency for Defense Development)

### TS15F\_P\_5

#### Oxidation of Strain-Relaxed Monolayer Transition Metal Dichalcogenides on Zinc Oxide Nanorods

Jieun Jo, Ga Hyun Cho, Hyun Jeong, Hyeon Jung Park, and Mun Seok Jeong  
(Hanyang University)

### TS15F\_P\_6

#### Advanced Oxidation Processes(AOPs) using Photo-Piezoelectric Catalysts: Decomposition of Organic Pollutants using Y(IO<sub>3</sub>)<sub>3</sub>

Seung-Hyun Kang, Gunn-Park, and Jae-Woo Park  
(Hanyang University)

**TS15F\_P\_7**

**Quantitation of Gold Nanoparticle Uptake in Mammalian Cells via Scattering Intensity Changes Measured by Flow Cytometry**

Hye Ji Shin<sup>1,2</sup>, Minjeong Kwak<sup>1</sup>, Sook Heun Kim<sup>1</sup>, and Ji Youn Lee<sup>1,2</sup>

(<sup>1</sup>KRISS, <sup>2</sup>Chungnam National University)

**TS15F\_P\_8**

**Defect-Selective Chemical Reaction in WSe<sub>2</sub> through Phosphine Ligand with Large Steric Hindrance**

Taehoon Kim<sup>1</sup>, Dae Young Park<sup>1</sup>, Jungeun Song<sup>2</sup>, Hayoung Ko<sup>3</sup>, Ki Kang Kim<sup>3</sup>, Nohyoon Park<sup>4</sup>, Jooyoung Sung<sup>4</sup>, Dong-Wook Kim<sup>2</sup>, and Mun Seok Jeong<sup>1</sup>

(<sup>1</sup>Hanyang University, <sup>2</sup>Ewha Womans University, <sup>3</sup>Sungkyunkwan University, <sup>4</sup>DGIST)

**TS15F\_P\_9**

**Development of Evaluation Method for Ligand Conjugation and Free Ligands of Nanoparticles using Mass Images and Statistical Analysis**

Hyun Kyong Shon, Tae Geol Lee, and Jin Gyeong Son

(KRISS)

**TS15F\_P\_10**

**The Comparative Inflammation Potential of Polypropylene and Polyethylene Microplastics in Mice**

Eunsol Bae and Wan-Seob Cho

(Dong-A University)

**TS15F\_P\_11**

**Quantification of Nanoparticles using Electrospray SMPS Technique**

Jaeseok Kim, Minjeong Kwak, and Tae Geol Lee

(KRISS)

**TS15F\_P\_12**

**Copper Iodide Thin Film as a Transparent Conductors**

Sungsan Kang and Sangyeon Pak

(Hongik University)

**TS15F\_P\_13**

**2D MoS<sub>2</sub> Field Effect Transistor with Asymmetric Contact**

Jinhyeok Pyo and Sangyeon Pak

(Hongik University)

**TS15F\_P\_14**

**Development of Bronchoalveolar Lavage Fluid Analysis Method for the Inhalation Toxicity Studies of Nanoparticles**

Soyeon Jeon<sup>1</sup>, Kyung Seuk Song<sup>2</sup>, Jae Hyuck Sung<sup>2</sup>, and Wan-Seob Cho<sup>1</sup>

*(<sup>1</sup>Dong-A University, <sup>2</sup>Korea Conformity Laboratories)*

**TS15F\_P\_15**

**Evaluating Cell Growth and Hypoxic Regions of 3D Spheroids via a Machine Learning Approach**

Jaekak Yooa<sup>1,2</sup>, Jae-Won Choi<sup>1,3</sup>, Eunha Kim<sup>1,4</sup>, Eun-Jung Park<sup>3</sup>, Ahruem Baek<sup>1</sup>, Jaeseok Kim<sup>1</sup>, Nagyoung Kim<sup>1,4</sup>, Jeongbin Kim<sup>1,4</sup>, Tae Geol Lee<sup>1</sup>, and Min Beom Heo<sup>1</sup>

*(<sup>1</sup>KRISS, <sup>2</sup>Sungkyunkwan University, <sup>3</sup>Kyung Hee University, <sup>4</sup>Chungnam National Univerisity)*

## [TS16] Poster Session 3

<b>Date &amp; Time</b>	July 5(Fri.), 2024 / 10:30–12:00
<b>Place</b>	Exhibition Hall 4,5

### TS16F\_P\_1

#### Understanding Ambivalent Role of the Mn Content in Mn-Based Cationdisordered Rock-Salts for Next-Generation Lithium-Ion Batteries

Dae-Hyung Lee<sup>1,2</sup>, Eunryeol Lee<sup>1</sup>, Stéphanie Bessette<sup>3</sup>, Sang-Wook Park<sup>1,2</sup>, Nicolas Brodusch<sup>3</sup>, Gregory Lazaris<sup>3</sup>, Hojoon Kim<sup>1,2</sup>, Rahul Malik<sup>4</sup>, Raynald Gauvin<sup>3</sup>, Jinhyuk Lee<sup>3</sup>, and Dong-Hwa Seo<sup>1,2</sup>

(<sup>1</sup>UNIST, <sup>2</sup>KAIST, <sup>3</sup>McGill University, <sup>4</sup>Natural Resources Canada)

### TS16F\_P\_2

#### Synergistic Interactions in Metal-Oxide Electrocatalysts for Water Electrolysis: Computational Insights

Byung-Hyun Kim

(Hanyang University)

### TS16F\_P\_3

#### First-Principles Computational Study on Li<sub>2</sub>C<sub>60</sub> Nanoparticle: Highperformance Anode Material for Li-Ion Batteries

Dong-Hwa Seo<sup>1</sup>, Dae-Hyung Lee<sup>1</sup>, Linghong Yin<sup>2</sup>, Jiung Cho<sup>3</sup>, Su Jae Kim<sup>2</sup>, Il Jeon<sup>2</sup>, Mihee Park<sup>2</sup>, Minjoon Park<sup>2</sup>, and Chae-Ryong Cho<sup>2</sup>

(<sup>1</sup>KAIST, <sup>2</sup>Pusan National University, <sup>3</sup>KBSI)

### TS16F\_P\_4

#### Screening of Fluorinated Electrolytes for High-Voltage Lithium-Ion Batteries

Jaekyeong Han and Dong-Hwa Seo

(KAIST)

### TS16F\_P\_5

#### Modeling of Series of Switching Operation in Resistive Memory using Fully-Coupled Phase-Field and Thermo-Electric Equations

Dongmyung Jung and Yongwoo Kwon

(Hongik University)



## TS16F\_P\_6

**Nanocomposite Engineering of Heterogeneous Mn-Based Cation-Disordered Cathodes for Low-Cost Lithium-Ion Batteries**

Eunryeol Lee<sup>1</sup>, Tae-Ung Wi<sup>1</sup>, Jaehyun Park<sup>1</sup>, Sang-Wook Park<sup>1</sup>, Dae Hyung Lee<sup>1</sup>, Min-Ho Kim<sup>1</sup>, Byung-Chun Park<sup>2</sup>, Chiho Jo<sup>2</sup>, Rahul Malik<sup>3</sup>, Tae Joo Shin<sup>1</sup>, Seok Ju Kang<sup>1</sup>, Hyun-Wook Lee<sup>1</sup>, Jinhyuk Lee<sup>4</sup>, and Dong-Hwa Seo<sup>1,5</sup>

(<sup>1</sup>UNIST, <sup>2</sup>LG Energy Solution, <sup>3</sup>Natural Resources Canada, <sup>4</sup>McGill University, <sup>5</sup>KAIST)

## TS16F\_P\_7

**Accelerated Design of Lead-Free Halide Perovskites with Multiple Machine Learning**

Sang Woo Park and Ki-Ha Hong

(Hanbat National University)

## TS16F\_P\_8

**Simulation of General Shape Precipitate using Phase-Field Model Incorporating Interfacial Energy Anisotropy**

Hwijae Cho, Hyung-Uk Jang, Dong-Uk Kim, and Pil-Ryung Cha

(Kookmin University)

## TS16F\_P\_9

**Molecular Dynamics Simulation Approach to the Material Utilization of Gquadruplex as a Nanobiosensor**

Juhwa Lee, Hyebin Yoo, Seung Soo Oh, and Chang Yun Son

(POSTECH)

## TS16F\_P\_10

**The Importance of Metal-Oxyl Character on Oxygen Evolution Reaction Catalyzed by Mn<sub>3</sub>O<sub>4</sub>**

Jaewoo Jeong<sup>1</sup>, Hyeyoung Shin<sup>2</sup>, and Hyungjun Kim<sup>1</sup>

(<sup>1</sup>KAIST, <sup>2</sup>Chungnam National University)

## TS16F\_P\_11

**Elucidating Diffusion Properties of Amorphous LPS Solid Electrolytes**

Chihun Kim<sup>1,2</sup>, Yong-Mook Kang<sup>2</sup>, and Byungju Lee<sup>1</sup>

(<sup>1</sup>KIST, <sup>2</sup>Korea University)

## TS16F\_P\_12

**Optimizing CO<sub>2</sub> Diffusion in Diamine-Functionalized Metal-Organic Frameworks: Accurate and Efficient Molecular Dynamics Simulations with Machine-Learning Potentials**

Joharimanitra Randrianandraina and Jung-Hoon Lee

(KIST)

## TS16F\_P\_13

**Computational Investigation of the Hydrogen Storage Performance of Ni-Based Metal-Organic Frameworks**

Dong Yun Shin and Jung-Hoon Lee

(KIST)

**TS16F\_P\_14**

**Predicting the Structure of Copper Oxides under Reducing Conditions using Moment Tensor Potentials**

Chanjin Kim, Hafiz Ghulam Abbas, and Stefan Ringe

*(Korea University)*

**TS16F\_P\_15**

**Elucidating Interface Reaction of Argyrodite/Li Metal as Solid-State Electrolyte/Anode Composition using Moment Tensor Potentials**

Ji Seon Kim and Sang Uck Lee

*(Sungkyunkwan University)*

**TS16F\_P\_16**

**Bioinspired Fe and Ni Bimetallic Active Species Coordinated to Carbon Nitride Networks and their Electrocatalytic Properties for O<sub>2</sub> Evolution**

Seong Chan Cho, Jae Hun Seol, and Sang Uck Lee

*(Sungkyunkwan University)*

NANO  
KOREA  
2024  
Symposium