

# The 16<sup>th</sup> International Conference on Multi-functional Materials and Applications



24-25 November 2022

Korea Institute of Ceramic Engineering and Technology,  
Jinju, KOREA, With on-line

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< 주요생산품목 >

- SiC CVD Furnace
- Spark Plasma Sintering Furnace (S.P.S)
- Gas Pressure Sintering Furnace (G.P.S)
- Vacuum Hot Press
- Vacuum Tube Furnace
- Vacuum Sintering Furnace
- Rapid Melting / Spinning Furnace
- Lamp / Bottle Vacuum Exhaust System
- Vacuum Coater
- Vacuum Brazing System
- R.F Etching & Plasma System



S.P.S



Vacuum Furnace



Hot Press



Tube Furnace



Sintering Furnace



G.P.S



Vacuum Coater



Brazing



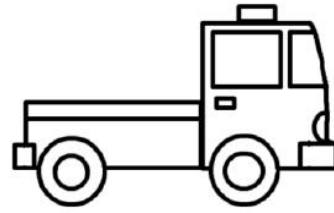


11th anniversary

Manufacture custom furnace and vacuum equipment



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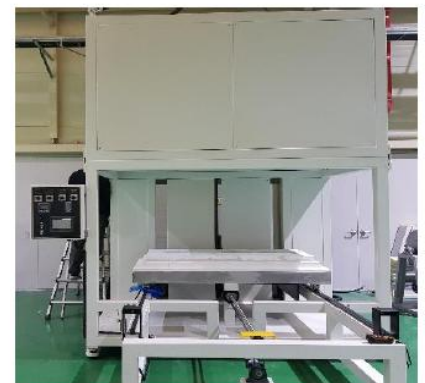
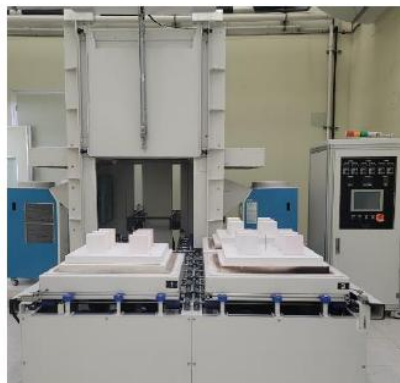


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제품디자인, 역설계, 3D프린팅 복합소재, 정밀가공, ICT융합 통해 해양레저분야에서부터 항공우주분야까지 혁신제품을 보다 빠르고 효율적으로 제작하는 엔지니어링 업무를 수행할 수 있습니다. 이와 같은 역량을 바탕으로 주식회사엔젤럭스는 융합의 가치 창출을 통해 조선해양분야에서 항공우주분야까지 비즈니스 아이디어를 발전시키고 성장시켜갈 든든한 파트너가 되겠습니다.

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## 라파 300M(Rapha 300M) 25% 축소형 스케일기 모형

라파 300M은 2인용의 수륙양용 군용 에어택시 컨셉의 디자인이다. 탑승공간 상부에 로터시스템을 위치시켜 탑승과 비행시 군인을 더욱 안전하게 보호하며 지상과 수상에서 이착륙이 가능한 수륙양륙형 기체다. 통체 양쪽에는 항력을 최소화한 스테빌라이저(Stabilizer)를 장착하여 수상에서 수평안정성을 높였다. 통체 내부구조는 유선형의 링 구조(Ring Structure)로 추락시 충격 흡수와 내부구조를 단단히 잡아주는 형태이다. 후미쪽에 추력모터 2개를 장착해 비행 중이나 수상에서 후류를 이용해 비행과 운항에 도움이 된다.



## 라파 300H(Rapha 300H) 25% 축소형 스케일기 모형

라파 300H는 2인용의 수륙양용 의료용 에어택시 컨셉의 디자인이다. 탑승공간 상부에 로터시스템을 위치시켜 탑승과 비행시 환자를 더욱 안전하게 보호하며 지상과 수상에서 이착륙이 가능한 수륙양륙형 기체다. 통체 양쪽에는 항력을 최소화한 스테빌라이저(Stabilizer)를 장착하여 수상에서 수평안정성을 높였다. 통체 내부구조는 유선형의 링 구조(Ring Structure)로 추락시 충격 흡수와 내부구조를 단단히 잡아주는 형태이다. 후미쪽에 추력모터 2개를 장착해 비행 중이나 수상에서 후류를 이용해 비행과 운항에 도움이 된다.







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Next Generation Heating Solution

'GRONIQ' is a 'high efficiency and eco-friendly' heating element that is more energy efficient than conventional heating elements and does not emit



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Eco-friendly



High efficiency

## PRODUCT



### GRONIQ (Microwave Type)

- Quick heating to ultra-high temperature in response to the electromagnetic waves in the air
- For stability, it is provided in a form that SiC fiber, the raw material, is stored in Quartz ware.

Product type Circle and bar types



### GRONIQ (Electric Type)

- Quick heating to ultra-high temperature in response to the current in the air
- For stability, it is provided in a form that SiC textile, the raw material, is stored in Quartz ware.

Product type Bar type



· Dental furnace ·

· Combustion-type exhaust abatement system ·

· Dryer ·

· Hot air blower ·

## Applied Products

- Various applied products which use GRONIQ as the heater
- Low power consumption, compared to other ordinary metal and non-metal heater. Installed in a cartridge box,

Product type Dental furnace, dryer, hot air blower, electric stove, and other heating system

Make-to-order support Customized production service to meet customers' specific requirements



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# The 16<sup>th</sup> International Conference on Multi-functional Materials and Applications (ICMMA 2022)

November 24-25, 2022

Korea Institute of Ceramic Engineering and Technology, Korea

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#### **Theme field of the conference:**

- Materials: preparation, basic principle and characterization
- Catalytic materials and mechanism;
- Environmental friendly materials and applications;
- Advanced composites and applications;
- Advanced building functional materials;
- Nanomaterials, sensors and applications;
- Materials related to biology, medical and human health;
- Photo-induced materials and applications; Others



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# Schedule

## 24-25 November 2022

11/25	Room1	Room2	Room3	Room4
09:00 – 10:00	<b>Opening Ceremony</b>			
10:00 – 11:50	<b>Session I</b> (Zoom A 477 967 3888, PW: ICMMA2022)			
11:50 – 13:00	<b>Lunch Time</b>			
13:00 – 14:25	<b>Session II</b> Zoom A No 477 967 3888 PW: ICMMA2022	<b>Session III</b> Zoom B No 710 662 5033 PW: ICMMA2022	<b>Session IV</b> Zoom C No 947 539 6783 PW: ICMMA2022	<b>Session V</b> Zoom D No 857 926 6363 PW: ICMMA2022
14:25 - 14:35	<b>Coffee Break</b>			
14:35 - 15:40	<b>Session II</b> Zoom A No 477 967 3888 PW: ICMMA2022	<b>Session III</b> Zoom B No 710 662 5033 PW: ICMMA2022	<b>Session IV</b> Zoom C No 947 539 6783 PW: ICMMA2022	<b>Session V</b> Zoom D No 857 926 6363 PW: ICMMA2022
15:40 – 17:40	<b>PO1-PO39</b> Zoom A No 477 967 3888 PW: ICMMA2022	<b>PO40-PO78</b> Zoom B No 710 662 5033 PW: ICMMA2022	<b>PO79-PO117</b> Zoom C No 947 539 6783 PW: ICMMA2022	<b>PO118-PO157</b> Zoom D No 857 926 6363 PW: ICMMA2022
17:40 – 18:00	<b>Ending Ceremony</b> (Zoom A, No 477 967 3888 PW: ICMMA2022)			



# Plenary Lecture

25, November 10:00 – 10:25

Zoom A : 477 967 3888, PW : ICMMA2022

## Masahiro Toyoda

Department of Applied Chemistry, Graduate School of Engineering, Oita University

### Preparation of few-layered graphene by exfoliation of ternary interlayer compounds

I have been researching carbon materials for over 30 years. So far, I have continued research on basic and applications of nanocarbon materials and porous carbon materials etc. As for porous carbon materials, I have succeeded in preparing porous carbon materials using MgO as a template, and one company is putting them on the market. Exfoliation of graphite and porosity via intercalation compounds have been attempted to be used as a sorption material for heavy oil. Nano carbon materials were produced by exfoliating and miniaturizing carbon fibers by electrochemical treatment. I would like to introduce many topics from my research results so far, but this time I will introduce the preparation of graphene, which is one of the nanocarbon materials. Our latest topic is the preparation of graphene via ternary graphite intercalation compounds using a solution method. I have attempted to prepare graphene by many methods, but I would like to introduce one of the interesting preparations, which is the preparation of graphene by exfoliation of graphite via an intercalation compound. It is necessary to prepare graphene with a large area, few layers, and without oxidation. I have been investigated the addition of aldehydes (with different alkyl chain lengths containing electron-withdrawing groups, which allowed the use of an electrophilic addition reaction on carbon hexagonal layers) to GICs to prepare few-layer graphene with a large area and without oxidation [1, 2, 3].

In this presentation, stage 1 ternary graphite intercalation compounds such as K-THF-GICs or Li-THF-GICs) were synthesized using the solution method. Aldehyde solvents of different alkyl chain lengths were then added to those GICs. Attempts have been made to prepare few-layers of graphene with little oxidation. Results indicated that the addition of aldehyde containing an electron-withdrawing group to GICs promoted exfoliation with the electrophilic addition reaction in the carbon hexagonal layer, formation of few-layer graphene.

# Plenary Lecture

25, November 10:25 – 10:50

Zoom A : 477 967 3888, PW : ICMMA2022

## Shin R. Mukai

Division of Applied Chemistry, Faculty of Engineering, Hokkaido University

### **Synthesis of Porous Monolithic Micro honeycombs with Various Functions Using Ice Crystals as the Template**

Porous materials can provide various functions such as catalysis and adsorption/ion-exchange capabilities. Generally, the functions of such materials originate from their nanostructure, so endless efforts have been made to enhance their performances by controlling their structure at the nm level. However, whether such materials can effectively exert their abilities also depends on their macrostructure. Porous materials are generally synthesized in the form of particles, packed in columns, and used by passing the fluids to be treated through the obtained columns. The performance of the material can be maximized by enhancing the inner accessibility of the particles through the reduction of its size, but this will also lead to the increase in the resistance the particles cause against the fluid flow to be treated. This trade-off relationship between inner-accessibility and fluid resistance can be avoided by changing the morphology of the material. A monolithic honeycomb is a powerful candidate for a suitable morphology for porous materials, if the thickness of its walls and the size of its channels can be properly reduced. However, it was quite difficult to obtain such honeycombs through conventional synthesis methods. The author's group has developed a simple method which allows the synthesis of honeycombs of sol-gel derived porous materials having channel sizes and channel wall thicknesses both in the micrometer range. Such honeycombs, which we named "microhoneycombs," can be obtained through the unidirectional freezing of the parent hydrogel of the material. During freezing, water is withdrawn from the hydrogel and straight and aligned needle shaped ice crystals are formed and elongate in the freezing direction. As such ice crystals practically act as the template, we named this method the "Ice Templating Method." This presentation will first describe the outline of the developed Ice Templating Method. Next, examples of microhoneycombs with various functions which can be obtained through this method will be shown.



# Plenary Lecture

25, November 10:50 – 11:15

Zoom A : 477 967 3888, PW : ICMMA2022

## Leonard, Estelle

Université de technologie de Compiègne, ESCOM, TIMR (Integrated Transformations of Renewable Matter), Centre de recherche Royallieu - CS 60 319 - 60 203 Compiègne Cedex

### **Antimicrobial Aminoacid-Schiff base copper(II) complexes**

Copper-based compounds, nanomaterials or materials are now well-known for their ability to exhibit antimicrobial activity. Amongst them, some copper-based Schiff bases can exhibit SuperOxide Dismutase (SOD) mimetic activities, which catalyzes the dismutation of the superoxide anion into hydrogen peroxide and molecular oxygen, and is one of the most important antioxidative enzymes (Joseph et al., 2013). Moreover, bacterial proteins using a cysteine-rich four helix bundle is able to store large quantities of copper (Dennison et al., 2018). And finally, all the copper taken up by a typical GRAM(+) or GRAM(-) bacterial cell is now known to be actively exported into the periplasmic/extracellular space and accordingly, bacterial cuproenzymes are generally extracellular, and not cytoplasmic, including SOD (Besold et al., 2016).

As a result, 20 L-amino acid derivative Schiff base copper(II) complexes were successfully synthesized (Otani et al., 2022) using eco-friendly methods. Indeed, the One Health concept implies that there is a strong dependence between Human, Animals and Environment (Marais et al., 2012). For example, by polluting environment, we promote diseases and microbial resistance.

That is why, as resource-, time-saving and environmentally friendly synthetic methods, two alternative techniques were employed for the synthesis of these L-amino acid derivative Schiff base copper(II) complexes. The first method employed was microwave, having merits as faster reaction speed by controlled heat transfer, safety, improved reactivity, high yield, selectivity of heating, and reproducibility. The other one was mechanochemistry, which can be carried out under solvent-free or small amounts of solvent. In our case, these two methods were found to promote faster reactions and smaller amounts of solvents needed, especially for mechanochemistry, and compared to conventional heating.

These 20 compounds were successfully tested against model bacteria such as *Escherichia coli* (rod-shaped GRAM(-) bacteria), *Staphylococcus saprophyticus* (coccus GRAM(+) bacteria), *Bacillus subtilis* (rod-shaped GRAM(+) bacteria) and *Micrococcus luteus* (coccus GRAM(+) bacteria) thanks to a fast optical density measurement method and leading to MIC95 values (Minimal Inhibitory Concentration for at least 95% inhibition rate) down to 6.25 µg/mL. Some structure-activity relationship were also determined.

# Oral presentation





# Oral presentation

## Session I

Zoom A, 11/25 10:00-11:50  
No 477 967 3888, PW: ICMMA2022

**Session Chairman : Prof. Dr. Won-Chun Oh (Hanseon University)**

### I-1 | 10:00 – 10:25 [Plenary]

#### **Preparation of few-layered graphene by exfoliation of ternary interlayer compounds**

Prof. Toyoda, Department of Applied Chemistry, Graduate School of Engineering, Oita University, 700 Dannoharu, Oita 870-1192, Japan

### I-2 | 10:25 – 10:50 [Plenary]

#### **Synthesis of Porous Monolithic Micro honeycombs with Various Functions Using Ice Crystals as the Template**

Prof. Shin R. Mukai, Division of Applied Chemistry, Faculty of Engineering, Hokkaido University, N13N8 Kita-ku, Sapporo 060-8628, Japan

### I-3 | 10:50 – 11:15 [Plenary]

#### **Antimicrobial Aminoacid-Schiff base copper(II) complexes**

Prof. Leonard, Estelle<sup>a</sup>, Otani, Naob ; Fayeulle, Antoina ; Nakane, Daisuke<sup>b</sup> ; Akitsu, Takashiro<sup>b</sup>, <sup>a</sup>Université de technologie de Compiègne, ESCOM, TIMR (Integrated Transformations of Renewable Matter), Centre de recherche Royallieu - CS 60 319 - 60 203 Compiègne Cedex, France. <sup>b</sup>Department of Chemistry, Faculty of Science, Tokyo University of Science, 1-3 Kagurazaka, Shinjuku-ku, Tokyo 162-8601, Japan

### I-4 | 11:10 – 11:30 [Invited]

#### **Porous Carbon with Iron Active Site Group for Oxygen Reduction Reaction in Anion Exchange Membrane Fuel Cell (AEMFC)**

Prof. Wen-Hui Wei, Afandi Yusuf, Hsin-Chih Huang, Chen-Hao Wang\*, Department of Materials Science and Engineering, National Taiwan University of Science and Technology, Taipei 106335, Taiwan

### I-5 | 11:30 – 11:50 [Invited]

#### **Electrospinning preparation of nylon-6@UiO-66-NH<sub>2</sub> fiber membrane for selective adsorption enhanced photocatalysis reduction of Cr(VI) in Water**

Prof. Wen Jia, Xianbiao Wanga\*, Tianqi Dinga, Soufian Chakira, Yongfei Xua, Xianhuai Huangb, Huanting Wangc, <sup>1</sup>Anhui Province International Research Center on Advanced Building Materials, School of Materials Science and Chemical Engineering, Anhui Jianzhu University, Hefei Anhui, PR China 230601; <sup>2</sup>Anhui Provincial Key Laboratory of Environmental Pollution Control and Resource Reuse, Anhui Jianzhu University, Hefei, PR China 230601; <sup>3</sup>Department of Chemical and Biological Engineering, Monash University, Clayton, VIC, Australia 3800

## Session II

Zoom A, 11/25 13:00-14:25  
No 477 967 3888, PW: ICMMA2022

**Session Chairman : Prof. Is Fatimah (Islam University of Indonesia), Dr. Rajesh Kumar Jyothi (Korea Institute of Geosciences and Mineral Resources)**

### II-1 | 13:00 – 13:20 [Invited]

#### **Graphitic Carbon Nitride/Metal Oxides Nanocomposites for the photocatalysis of degradation of organic pollutants**

Suresh Sagadevan, Nanotechnology & Catalysis Research Centre, University of Malaya, Kuala Lumpur 50603, Malay

### II-2 | 13:20 – 13:40 [Invited]

#### **Development of Processing Technology for Recovery of Strategic Metals from Spent Catalyst: Integrated Hydrometallurgical Approach**

Rajesh Kumar Jyothi, Korea Institute of Geosciences and Mineral Resources (KIGAM), Daejeon 34132, Korea

### II-3 | 13:40 – 13:55

#### **New Insight into the Photocatalytic Degradation of Persistent Organic Pollutants (POPs) over Highly Integrated Reduced Graphene Oxide(rGO)/Bismuth Ferrite (BiFeO<sub>3</sub>)**

Noor Haida Mohd Kaus\* and Ahmad Fadhil Rithwan, School of Chemical Sciences, Universiti Sains Malaysia, 11800, Penang MALAYSIA

### II-4 | 13:55 – 14:10

#### **Evaluation of physicochemical characteristic of rifampicin extemporaneous suspension in specific time and conditions**

Chiv Sinly<sup>1</sup>, Rutchyaporn Anurach<sup>1</sup>, Kiettipum Phontree<sup>1</sup>, Thanavit Thongsodsang<sup>1</sup>, Thatsanand Xayavong<sup>2</sup>, Theera Rittirod<sup>1,\*</sup>, <sup>1</sup>Faculty of Pharmaceutical Sciences, Khon Kaen University, Khon Kaen, Thailand, <sup>2</sup>Faculty of pharmacy, University of Health sciences, Vientiane, Lao PDR

### II-5 | 14:10 – 14:25

#### **Introduction of Eco-friendly and Facile Synthesis Route of Various Carbon-based Supercapacitor Device**

Chang-Min Yoon\*, Department of Chemical and Biological Engineering, Hanbat National University, 125 Dongseo-daero, Yuseong-gu, Daejeon 34158, Korea

14:25 – 14:35

Coffee break

## Session II

Zoom A, 11/25 14:35-15:25  
No 477 967 3888, PW: ICMMA2022

**Session Chairman : Prof. Jing Wang (Ahui University of Science and Yechonology), Prof. Swat Nanan (Khon Kaen University)**

### II-6 | 14:35 – 15:55 [Invited]

#### **Green Chemical Process of Carbon-based Nanocomposites**

Jing Wang<sup>1\*</sup>, Binqun Cao<sup>1</sup>, Xiao Chen<sup>1</sup>, Yu Tian<sup>1</sup>, Lei Zhang<sup>1</sup>, Chenwei Shang<sup>1</sup>, Zhou Zhou<sup>2</sup>, Chul Gyu Jhun<sup>2\*</sup>, <sup>1</sup>College of Materials Science and Engineering, Anhui University of Science And Technology, Huainan, Anhui 232001, <sup>2</sup>School of Electronic Display Engineering, Hoseo University 20, Hoseo-ro 79beon-gil, Baebang-eup, Asan City 31499, Korea

### II-7 | 14:55 – 15:10

#### **Stability of Rifampicin Extemporaneous Suspension in Thailand Climate Zone and Conditions**

Chiv Sinly<sup>1</sup>, Rutchyaporn Anurach<sup>1</sup>, Kiettipum Phontree<sup>1</sup>, Thanavit Thongsodsang<sup>1</sup>, Thatsanand Xayavong<sup>2</sup>, Rachadaporn Benchawattananon<sup>3</sup>, Theera Rittirod<sup>1,\*</sup>, <sup>1</sup>Faculty of Pharmaceutical Sciences, Khon Kaen University, Khon Kaen, Thailand, <sup>2</sup>Faculty of pharmacy, University of Health sciences, Vientiane, Lao PDR, <sup>3</sup>Faculty of Science, Khon Kaen University, Khon Kaen, Thailand

### II-8 | 15:10 – 15:25

#### **Development of staining Wright-Giemsa stain by Dip quick method**

Wimol Pararach<sup>1</sup>, Aphinya Thinthasit<sup>2</sup> and Rachadaporn Benchawattananon<sup>2\*</sup>, <sup>1</sup>Medical Technician Loei hospital Muang Loei Province 42000 Thailand, <sup>2</sup>Integrated Science Forensic Science Faculty of Science Khon Kaen University, Khon Kaen, 40002, Thailand



## Session III

Zoom B, 11/25 13:00-14:25  
No 710 662 5033, PW: ICMMA2022

**Session Chairman : Dr. Suresh Sagadevan (Malaya University), Prof. Zhishan Su (Sichuan University)**

### III-1 | 13:00 – 13:20 [Invited]

#### ZnO-based heterojunction photocatalyst for sustainable removal of organic dyes and antibiotics in wastewater

Suwat Nanan, Materials Chemistry Research Center, Department of Chemistry and Center of Excellence for Innovation in Chemistry (PERCH-CIC), Faculty of Science, Khon Kaen University, Khon Kaen 40002, Thailand

### III-2 | 13:20 – 13:40 [Invited]

#### Effects of Li<sup>+</sup> Substitution for Na<sup>+</sup> in Li<sub>x</sub>Na<sub>1-x</sub>CaGd<sub>0.5</sub>Ho<sub>0.05</sub>Yb<sub>0.45</sub>(MoO<sub>4</sub>)<sub>3</sub> Scheelite-Type Microcrystalline Structure and Their Upconversion Photoluminescence Properties

Chang Sung Lim<sup>1\*</sup>, Won-Chun Oh<sup>1</sup>, Aleksandr S. Aleksandrovsky<sup>2,3</sup>, Victor V. Atuchin<sup>4,5</sup>, Maxim S. Molochev<sup>6,7,8</sup>, Aleksandr S. Oreshonkov<sup>7,9</sup>, <sup>1</sup>Department of Aerospace Advanced Materials Engineering, Hanseo University, Seosan 31962, Korea <sup>2</sup>Laboratory of Coherent Optics, Kirensky Institute of Physics Federal Research Center KSC SB RAS, Krasnoyarsk 660036, Russia, <sup>3</sup>Institute of Nanotechnology, Spectroscopy and Quantum Chemistry, Siberian Federal University, Krasnoyarsk 660041, Russia, <sup>4</sup>Laboratory of Optical Materials and Structures, Institute of Semiconductor Physics, SB RAS, Novosibirsk, 630090, Russia, <sup>5</sup>Research and Development Department, Kemerovo State University, Kemerovo 650000, Russia, <sup>6</sup>Laboratory of Crystal Physics, Kirensky Institute of Physics, Federal Research Center KSC SB RAS, Krasnoyarsk 660036, Russia, <sup>7</sup>Siberian Federal University, Krasnoyarsk 660041, Russia, <sup>8</sup>Department of Physics, Far Eastern State Transport University, Khabarovsk 680021, Russia, <sup>9</sup>Laboratory of Molecular Spectroscopy, Kirensky Institute of Physics Federal Research Center KSC SB RAS, Krasnoyarsk 660036, Russia

### III-3 | 13:40 – 13:55

#### THE PLANT EXTRACTS TO CONTROL GOLDEN APPLE SNAILS (*Pomacea canaliculata*)

Trai Wongsiri<sup>1</sup>, Apinya Chotiyano<sup>2</sup> and Rachadaporn Benchawattananon<sup>3</sup>, <sup>1</sup>Department of Pathology, Faculty of Medicine, Khon Kaen University, THAILAND, <sup>2</sup>Unit of Pathology, Khon Kaen Hospital, Muang, Khon Kaen, THAILAND, <sup>3</sup>Department of Forensic Science, Faculty of Science, Khon Kaen University, Thailand

### III-4 | 13:55 – 14:10

**3D ternary LaCdSe-GO-TiO<sub>2</sub> nanocomposite synthesized with high power sonication method and sonophotocatalytic efficiency for hydrogen evolution with different scavengers**  
Md Nazmodduha Rafat and Won-Chun Oh\*, <sup>1</sup>Department of Advanced Materials Science & Engineering, Hanseo University, Seosan-si, Chungnam, Korea, 356-706

### III-5 | 14:10 – 14:25

#### Selective Photocatalytic and electrochemical CO<sub>2</sub> reduction to Methanol on Graphene-based Ternary and Quaternary nanocomposite

Zambaga Otgonbayar<sup>1</sup>, Won-Chun Oh<sup>1,2</sup>, <sup>1</sup>Department of Advanced Materials Science & Engineering, Hanseo University, Seosan-si, Chungnam, Korea, 356-706, <sup>2</sup>Anhui International Joint Research Center for Nano Carbon-based Materials and Environmental Health, College of Materials Science and Engineering, Anhui University of Science & Technology, Huainan 232001, PR China

### 14:25 – 14:35

### Coffee break

## Session III

Zoom B, 11/25 14:35-15:25  
No 710 662 5033, PW: ICMMA2022

**Session Chairman : Prof. Chan-Kyung Kim (Inha University), Prof. Daming Gao (Hefei University)**

### III-6 | 14:35 – 14:55 [Invited]

#### Magnetic Nanocomposites for Water Treatment Applications,

Is Fatimah, Chemistry Department, Universitas Islam Indonesia, Kampus Terpadu UII, Jl. Kaliurang Km 14, Sleman, Yogyakarta, Indonesia, 55584

### III-7 | 14:55 – 15:10

#### Optical Design of Energy Conversion Layer for high Photoelectric Conversion Efficiency of an Organic Solar Cell,

Liang Zhang, Chul Gyu Jhun, School of Electronics and Display Engineering, Hoseo University, Asan 31499, Korea

### III-8 | 15:10 – 15:25

#### Reconstruction of an interferogram in a static modulated Fourier transform spectrometer

JU YONG CHO<sup>1</sup>, HANSEUL MA<sup>1</sup>, HYEONG JIN KIM<sup>1</sup>, AND WON KWEON JANG<sup>1\*</sup>, <sup>1</sup>Department of Aeronautic Electricity, Hanseo University, 46, Hanseo 1-ro, Seosan-si 31962, South Korea

## Session IV

Zoom C, 11/25 13:00-14:25  
No 947 539 6783, PW: ICMMA2022

**Session Chairman : Prof. K. L. Ameta (Mody University of Science and Technology), Prof. Theera Rittirod (Khon Kaen University)**

### V-1 | 13:00 – 13:20 [Invited]

#### CaZnOS-based Wide Band Gap Semiconducting Mechanoluminescence Materials and Their Potential Applications

Prof. Y.-L. Yang<sup>a</sup>, J.-Y. Yuan<sup>a</sup>, Z.-J. Zhang<sup>a</sup>, J.-T. Zhao<sup>a,b\*</sup>,  
<sup>a</sup>School of Materials Science and Technology, Shanghai University, China, <sup>b</sup>School of Materials Science and Technology, Guilin University of Electronic Technology, China

### IV-2 | 13:20 – 13:40 [Invited]

#### Silver-doped TiO<sub>2</sub>-coated cylindrical cordierite honeycomb monolith for organic degradation and *E. coli* disinfection applications

Prof. Ngoc\_Diep Pham<sup>1,2</sup>, Ngoc-Quoc-Duy Vo<sup>1,2</sup>, Ngoc Diem Trinh Huynh<sup>1,2</sup>, Ho Thi Ngoc Suong<sup>1,2</sup> and Minh-Vien Le<sup>1,2, 1</sup>  
Faculty of Chemical Engineering, Ho Chi Minh city University of Technology, Ho Chi Minh City, 700000, Vietnam <sup>2</sup>Vietnam National University Ho Chi Minh City, Ho Chi Minh City, 700000

### IV-3 | 13:40 – 13:55

#### A novel and high-quality inorganic grouting material for full-length anchorage system

Prof. Xiwen Zeng<sup>a</sup>, Yanfen Wang<sup>a,b\*</sup>, Guangming Zhao<sup>c</sup>, Xiang Cheng<sup>c</sup>, Shunjie Huang<sup>c</sup>, <sup>a</sup>School of Materials Science and Engineering, Anhui University of Science and Technology, Huainan, Anhui 232001, PR China, <sup>b</sup>Anhui International Joint Research Center for Nano Carbon-based Materials and Environmental Health, Huainan, Anhui, 232001, China, <sup>c</sup>Key Laboratory Sponsored Jointly by Ministry of Education and Anhui Province for Efficient and Safe Coal Mining, Anhui University of Science and Technology, Huainan, Anhui 232001, China

### IV-4 | 13:55 – 14:10

#### Mullite Ceramics Based on Waste High Alumina Sphere: Preparation, Characterization and Analysis

Prof. Zhenfei Lv<sup>a,b</sup>, Yukun Cao<sup>a</sup>, Yuhang Yang<sup>a</sup>, Chong Lan<sup>a</sup>, Yixian Yang<sup>a</sup>, Xiulin Shen<sup>a,b,\*</sup>, <sup>a</sup>School of Materials Science and Engineering, Anhui University of Science and Technology, Huainan, Anhui, 232001, PR China, <sup>b</sup>Anhui International Joint Research Center for Nano Carbon-based Materials and Environmental Health, Huainan, Anhui, 232001, PR China

### IV-5 | 14:10 – 14:25

#### The influence of release medium on SA hydrogel release behavior

Prof. Jiali Shi, Xiuling Lin, Department of Materials Science and Engineering, Anhui University of Science and Technology, Huainan 232001, China

### 14:25 – 14:35

#### Coffee break

## Session IV

Zoom C, 11/25 14:35-15:40  
No 947 539 6783, PW: ICMMA2022

**Session Chairman : Prof. Minhvien Le (Ho Chi Minh city University of Technology), Prof. Chang-Min Yoon (Hanbat National University)**

### IV-6 | 14:35 – 14:55

#### Strategies for Achieving high performance in Solid Oxide Electrochemical Devices using LSGM at KICET

Tae Ho Shin\*, Hydrogen Energy Materials Centre, Korea Institute of Ceramic Engineering and Technology, Jinju-si, Gyeongsangnam-do 52851, Republic of Korea

### IV-7 | 14:55 – 15:10

#### Highly Sensitive Two-Dimensional Vanadium Carbide MXene-Based Surface-Enhanced Raman Scattering Platforms with Ultra-Rapid Molecular Enrichment Ability

Prof. Leilei Lan\*, Juan Gao, School of Mechanics and Optoelectronic Physics, Anhui University of Science and Technology, Huainan 232001, China

### IV-8 | 15:10 – 15:25

#### Study on the preparation and photoelectrochemical performance of Cu<sub>2</sub>O-ZnO blended heterojunction granular films

Prof. Lingcheng Zheng, School of Mechanics and Photoelectric Physics, Anhui University of Science and Technology, Huainan 232001, PR China

### IV-9 | 15:25 – 15:40

#### Preparation and modification of carbon quantum dots

Prof. Xiao Chen<sup>1</sup>, Lei Zhang<sup>1</sup>, Chenwei Shang<sup>1</sup>, Yu Tian<sup>1</sup>, Binqun Cao<sup>1</sup>, Yufei Li<sup>2</sup>, Lixin Xu<sup>2</sup>, Jing Wang<sup>1\*</sup>, <sup>1</sup>School of Materials Science and Engineering, Anhui University of Technology, Huainan, Anhui 232001, China, <sup>2</sup>Pinghu Institute of Advanced Materials, Zhejiang University of Technology, Pinghu Zhejiang 314204, China

## Session V

Zoom D, 11/25 13:00-14:25  
No 857 926 6363, PW: ICMMA2022

**Session Chairman : Prof. Chen-Hao Wang (National Taiwan University of Science and Technology), Prof. Teguh Ariyanto (Universitas Gadjah Mada)**

**V-1 | 13:00 – 13:20 [Invited]**

### Pyrimidine: A Privileged Bioactive Scaffold

K. L. Ameta, Department of Chemistry, Sardar Patel University, Vallabh Vidyanagar-388120, Gujarat, India

**V-2 | 13:20 – 13:40 [Invited]**

### A Surface Open Mouth TiO<sub>2</sub> Hollow Sphere Nanoshell Layer with High-Dense Imprinting Sites for Selective Recognition and Photocatalytic Degradation of Chlorpyrifos

Jiadong Zhao, Caiyu Ni, Zhihui Wang, Xiaoxiao Zhao, and Daming Gao\*, Department of Chemical Engineering, School of Energy Materials and Chemical Engineering, Hefei University, Hefei 230601, Anhui, China

**II-3 | 13:40 – 13:55**

### Sulfur-Modified Porous Carbon for Ethyl Levulinate Synthesis

Prof. Dimas Agung Pramudikto, Rochim Bakti Cahyono, Teguh Ariyanto\*, Department of Chemical Engineering, Universitas Gadjah Mada, Jl Grafika No 2 Kampus UGM 55281, Yogyakarta, Indonesia

**II-4 | 13:55 – 14:10**

### Electrochemical Performance of PANI/Porous Carbon in LiPF<sub>6</sub> Solution

Prof. Muhammad Dzikiy Dzikiy Robbi, Teguh Ariyanto, Imam Prasetyo\*, Department of Chemical Engineering, Gadjah Mada University, 55281, Yogyakarta Indonesia

**II-5 | 14:10 – 14:25**

### Composite of Porous Carbon/Phenolic Resin for Dye Adsorption

Farah Khilma Yustica, Rochim Bakti Cahyono, Teguh Ariyanto\*, Department of Chemical Engineering, Universitas Gadjah Mada, Jl Grafika No 2 Kampus UGM 55281, Yogyakarta, Indonesia

**14:25 – 14:35**

**Coffee break**

## Session V

Zoom D, 11/25 14:35-15:40  
No 857 926 6363, PW: ICMMA2022

**Session Chairman : Prof. Prawit Nuengmatcha (Nakhon Si Thammarat Rajabhat University), Prof. Feng-Jun Zhang (Anhui Jianzhu University)**

**II-6 | 14:35 – 14:50**

### Synthesis of Novel MoWO<sub>4</sub> with ZnO Nanoflowers on Multi-Walled Carbon Nanotubes for Counter Electrode Application in Dye-sensitized Solar Cells

Yonraphach Areerob<sup>a)</sup>\*, and Won-Chun Oh<sup>b),c)</sup>\*\*, <sup>a)</sup>Department of Industrial Engineering, School of Engineering, King Mongkut's Institute of Technology Ladkrabang, Bangkok 10520, Thailand, <sup>b)</sup>College of Materials Science and Engineering, Anhui University of Science & Technology, Huainan, 232001, PR China, <sup>c)</sup>Department of Advanced Materials Science & Engineering, Hanseo University, Seosan-si, Chungcheongnam-do, 31962, South Korea

**II-7 | 14:50 – 15:05**

### Application of New Carbon Materials in Supercapacitors

Yu Tian<sup>1</sup>, Chenwei Shang<sup>1</sup>, Lei Zhang<sup>1</sup>, Xiao Chen<sup>1</sup>, Binqian Cao<sup>1</sup>, Yufei Li<sup>2</sup>, Lixin Xu<sup>2</sup>, Jing Wang<sup>1\*</sup>, <sup>1</sup>School of Materials Science and Engineering, Anhui University of Technology, Huainan, Anhui 232001, China, <sup>2</sup>Pinghu Institute of Advanced Materials, Zhejiang University of Technology, Pinghu, Zhejiang 314204, China), Yuseong-gu, Daejeon 34158, Korea

**II-8 | 15:05 – 15:10**

### Study on key materials for high specific energy system of lithium-sulfur battery

Xin Liang\*, Lei Hu, and Sheng Liang, School of Energy, Materials and Chemical Engineering, Hefei University, Hefei 230601, China

**II-9 | 15:10– 15:25**

### Alkaline metal Uranyl Borophosphate with Novel Microporous Structure and Exceptional Ionic Exchange Properties

Yucheng Hao<sup>1\*</sup>, Yongjian Chen<sup>1</sup>, Xin Cao<sup>1</sup>, Kunhong Hu<sup>1</sup>, Evgeny V. Alekseev<sup>2</sup>, <sup>1</sup>School of Energy Materials and Chemical Engineering, Hefei University, Hefei 230000, China, <sup>2</sup>Institute of Energy and Climate Research (IEK-9), Forschungszentrum Jülich GmbH, 52428 Jülich, Germany

**II-10 | 15:25 – 15:40**

### Improved tribo-mechanical behavior of bismuth-tin alloy nanoparticle deposited basalt fiber and its epoxy composite – A case study

Vivek Dhand<sup>1</sup>, Mantae Kim<sup>2</sup>, Jaehyeok Doh<sup>3</sup>, Kyongyop Rhee<sup>4</sup>, Sanghoon Kim<sup>1\*</sup>, <sup>1</sup>Department of Mechanical Design Engineering, Chonnam National University, 50 Daehak-ro, Yeosu, Jeonnam 59626, Republic of Korea, <sup>2</sup>Ceramic Fiber and Composite Center, Korea Institute of Ceramic Engineering and Technology, Jinju, Gyeongsangnam, 52851, Republic of Korea, <sup>3</sup>School of Mechanical and Material Convergence Engineering, Gyeongsang National University, Jinju-si, Gyeongsangnam-do 52725, Republic of Korea, <sup>4</sup>Department of Mechanical Engineering, College of Engineering, Kyung Hee University, Yongin, 446-701, Republic of Korea.



# Poster presentation



# Poster presentation

## Poster Session-1

Zoom A, 11/25 15:40-17:40  
No 477 967 3888, PW: ICMMA2022

**Session Chairman: Prof. Paweena Porrawatkul (Nakhon Si Thammarat Rajabhat University) and Prof. Rachadaporn Benchawattananon (Khon Kaen University)**

### PO-1

#### The semi-synthesis of olibergin A from *Dalbergia stipulacea* and their anti-cancer activity

KhonSupakorn Arthan<sup>a</sup>, Chavi Yenjai<sup>b</sup>, Priyapan Posri<sup>b</sup>, Sookkawath Walunchapruk<sup>c</sup> and Thanaset Senawong<sup>c</sup>, <sup>a</sup>Program of Chemistry, Faculty of Science and Technology, Sakon Nakhon Rajabhat University, Mueang District, Sakon Nakhon, 47000, Thailand, <sup>b</sup>Natural Products Research Unit, Department of Chemistry and Center of Excellence for Innovation in Chemistry, Faculty of Science, Khon Kaen University, Khon Kaen 40002, Thailand, <sup>c</sup>Natural Products Research Unit, Department of Biochemistry, Faculty of Science, Kaen University, Khon Kaen 40002, Thailand.

### PO-2

#### The Kinetics Fermentation of Mao Wine Fermented by 3 Commercial yeasts of *Saccharomyces Cerevisiae* and Their Alpha-Amylase Inhibitions

Nattawee Poomsuk<sup>1</sup>\*, Krittika Manochai<sup>1</sup>, Phummisak Singkhan<sup>1</sup>, <sup>1</sup>Department of Chemistry, Faculty of Science and Technology, Sakon Nakhon Rajabhat University, Sakon Nakhon 47000, Thailand

### PO-3

#### Investigating of Fingerprint Pattern of Ethnic Groups in Northeast Using Artificial Intelligence

Nuttanan Boonkong, Rachadaporn Benchawattananon<sup>1</sup>\*, Pathapong Pongpatrakant<sup>2</sup>\*, Wibhu Kutanan<sup>3</sup>\*, <sup>1</sup>Integrated Science Forensic Science Faculty of Science Khon Kaen University, Khon Kaen, 40002, Thailand, <sup>2</sup>Bachelor of Education (Educational Technology and Communications), Naresuan University, Phitsanulok, 65000, Thailand, <sup>3</sup>Department of Biology, Faculty of Science, Khon Kaen University, Khon Kaen, 40002, Thailand

### PO-4

#### Development of staining Wright-Giemsa stain by Dip quick method

Wimol Pararach<sup>1</sup> and Rachadaporn Benchawattananon<sup>2</sup>, <sup>1</sup>Medical Technician Loei hospital Muang Loei Province 42000 Thailand, <sup>2</sup>Integrated Science Forensic Science Faculty of Science Khon Kaen University, Khon Kaen, 40002, Thailand

### PO-5

#### Effect of ball milling time and calcination temperature on the photocatalytic performance of ZnO/CeO<sub>2</sub> nanocomposites prepared by mechanochemical method

Zhou Zhoua, Jing Wang<sup>b</sup>\*, Chul Gyu Jhuna<sup>a</sup>, <sup>a</sup>Department of Electronic and Display Engineering, Hoseo University, Asan 31499, Korea, <sup>b</sup>Department of Materials Science and Engineering, Anhui University of Science and Technology, Huainan 232001, China

### PO-6

#### Green synthesis and characterization of ZnO using lactic acid from *Nypa fruticans* as a reducing agent

Paweena Porrawatkul<sup>1</sup>\*, Rungnapa Pimsen<sup>1</sup>, Prawit Nuengmatcha<sup>1</sup>, Nichapa Rattanakomon<sup>1</sup>, and Chanaichon Damsri<sup>2</sup>, <sup>1</sup>Nanomaterials Chemistry Research Unit, Faculty of Science and Technology, Nakhon Si Thammarat Rajabhat University, Nakhon Si Thammarat 80280, Thailand, <sup>2</sup>Business English Program, Faculty of Humanities and Social Sciences, Nakhon Si Thammarat Rajabhat University, Nakhon Si Thammarat 80280, Thailand

### PO-7

#### Bio-synthesis of sodium ion doped ZnO nanopowder using *Averrhoa carambola* fruit extract for deactivation of photocatalytic activity,

Paweena Porrawatkul<sup>1</sup>\*, Prawit Nuengmatcha<sup>1</sup>, Amnouy Noypha<sup>1</sup>, Rungnapha Pimsen<sup>1</sup> and Montakan Thongsom<sup>2</sup>, <sup>1</sup>Nanomaterials Chemistry Research Unit, Department of Chemistry, <sup>2</sup>Department of Biology Science, Faculty of Science and Technology, Nakhon Si Thammarat Rajabhat University, 80280, Thailand.

### PO-8

#### Investigating of Fingerprint Pattern of Ethnic Groups in Northeast Using Artificial Intelligence

Nuttanan Boonkong, Rachadaporn Benchawattananon<sup>1</sup>\*, Pathapong Pongpatrakant<sup>2</sup>\*, Wibhu Kutanan<sup>3</sup>\*, <sup>1</sup>Integrated Science Forensic Science Faculty of Science Khon Kaen University, Khon Kaen, 40002, Thailand, <sup>2</sup>Bachelor of Education (Educational Technology and Communications), Naresuan University, Phitsanulok, 65000, Thailand, <sup>3</sup>Department of Biology, Faculty of Science, Khon Kaen University, Khon Kaen, 40002, Thailand.

## PO-9

### Analysis of automobile paint in forensic science

Pongphiphat Boontarawa and Rachadaporn Benchawattananon, Integrated Science forensic Science Faculty of Science Khon Kaen University, Khon kaen , 40002, Thailand

## PO-10

### Synthesis and characterization carboxymethyl cellulose film from mangosteen peel

Arnannit Kuyyogsuy<sup>1\*</sup>, Prawit Nuengmatcha<sup>1</sup>, Rungnapa Pimsen<sup>1</sup>, Paweena Porrawatkul<sup>1</sup>, and Nichapa Rattanakom<sup>1</sup>, <sup>1</sup>Nanomaterials Chemistry Research Unit, Faculty of Science and Technology, Nakhon Si Thammarat Rajabhat University, Nakhon Si Thammarat 80280, Thailand

## PO-11

### Polymer-based external light extraction scattering layers to improve organic light-emitting diode light extraction efficiency

Geun Su Choi<sup>1</sup>, and Young Wook Park<sup>1\*</sup>, <sup>1</sup>Nano and Organic-Electronics Laboratory, Department of Display and Semiconductor Engineering, Sun Moon University, Asan, Chungcheongnam-do 31460, Republic of Korea

## PO-12

### Progress of Novel Magnetic Sensors Based on Ferromagnetic Film

Kehao Shi<sup>1</sup>, Yuqing Li<sup>1</sup>, Yicheng Zhang<sup>1</sup>, Jinxuan Guo<sup>1</sup>, Ling Ding<sup>1</sup>, Ying Liu<sup>1</sup>, Weizhou Xin<sup>1</sup>, Yunxiao Wang<sup>1</sup>, Xiulin Shen<sup>1,2\*</sup>, <sup>1</sup>School of Materials Science and Engineering, Anhui University of Science and Technology, Huainan, Anhui 232001, PR China, <sup>2</sup>Anhui International Joint Research Center for Nano Carbon-based Materials and Environmental Health, Huainan, Anhui, 232001, PR China

## PO-13

### Fabrication of hybrid structure using MLA to improve light extraction efficiency of OLEDs

Eun Jeong Bae<sup>1,2</sup>, Byeong-Kwon Ju<sup>2\*</sup>, and Young Wook Park<sup>1\*</sup>, <sup>1</sup> Nano and Organic-Electronics Laboratory, Department of Display and Semiconductor Engineering, Sun Moon University, Asan, Chungcheongnam-do 31460, South Korea, <sup>2</sup>Display and Nanosystem Laboratory, Department of Electrical Engineering, Korea University, 145, Anam-ro, Seoul 02841, South Korea

## PO-14

### Fabrication of hybrid structure using MLA to improve light extraction efficiency of OLEDs

Eun Jeong Bae<sup>1,2</sup>, Byeong-Kwon Ju<sup>2\*</sup>, and Young Wook Park<sup>1\*</sup>, <sup>1</sup> Nano and Organic-Electronics Laboratory, Department of Display and Semiconductor Engineering, Sun Moon University, Asan, Chungcheongnam-do 31460, South Korea, <sup>2</sup>Display and Nanosystem Laboratory, Department of Electrical Engineering, Korea University, 145, Anam-ro, Seoul 02841, South Korea

## PO-15

### Investigation of Efficiency Roll-off Characteristics of Ultra-Thin Blue PHOLEDs

Eun Bi Jang<sup>1</sup>, Shin Woo Kang<sup>1,2</sup>, Byeong Kwon Ju<sup>2\*</sup>, and Young Wook Park<sup>1\*</sup>, <sup>1</sup>Nano and Organic-Electronics Laboratory, Department of Display and Semiconductor Engineering, Sun Moon University, Asan, Chungcheongnam-do 31460, Republic of Korea, <sup>2</sup>Display and Nanosystem Laboratory, Department of Electrical Engineering, Korea University, 145, Anam-ro, Seongbuk-gu, Seoul 02841, Republic of Korea

## PO-16

### Investigation of Efficiency Roll-off Characteristics of Ultra-Thin Blue PHOLEDs

Eun Bi Jang<sup>1</sup>, Shin Woo Kang<sup>1,2</sup>, Byeong Kwon Ju<sup>2\*</sup>, and Young Wook Park<sup>1\*</sup>, <sup>1</sup>Nano and Organic-Electronics Laboratory, Department of Display and Semiconductor Engineering, Sun Moon University, Asan, Chungcheongnam-do 31460, Republic of Korea, <sup>2</sup>Display and Nanosystem Laboratory, Department of Electrical Engineering, Korea University, 145, Anam-ro, Seongbuk-gu, Seoul 02841, Republic of Korea

## PO-17

### Progress on polyaniline/graphene oxide composites

Binquan Cao<sup>1</sup>, Chenwei Shang<sup>1</sup>, Lei Zhang<sup>1</sup>, Xiao Chen<sup>1</sup>, Yu Tian<sup>1</sup>, Yufei Li<sup>2</sup>, Lixin Xu<sup>2</sup>, Jing Wang<sup>1\*</sup>, <sup>1</sup>School of Materials Science and Engineering, Anhui University of Technology, Huainan, Anhui 232001, China, <sup>2</sup>Pinghu Institute of Advanced Materials, Zhejiang University of Technology, Pinghu, Zhejiang 314204, China

## PO-18

### Preparation of NiMoO<sub>4</sub> nanomaterials and their electrochemical properties

Chenwei Shang<sup>1</sup>, Yu Tian<sup>1</sup>, Lei Zhang<sup>1</sup>, Xiao Chen<sup>1</sup>, Binquan Cao<sup>1</sup>, Yufei Li<sup>2</sup>, Lixin Xu<sup>2</sup>, Jing Wang<sup>1\*</sup>, <sup>1</sup>School of Materials Science and Engineering, Anhui University of Technology, Huainan, Anhui 232001, China, <sup>2</sup>Pinghu Institute of Advanced Materials, Zhejiang University of Technology, Pinghu, Zhejiang 314204, China

## PO-19

### Study on coating agent ratio of high-aluminum waste electroporcelain based high temperature resistant materials

Yanghui Ke<sup>a</sup>, Zhenfei Lv<sup>a,b,\*</sup>, Yang Song<sup>a</sup>, Yixian Yang<sup>a</sup>, Junyi Qi<sup>a</sup>, Qianye Zhang<sup>a</sup>, Yin Hua<sup>a</sup>, Xiulin Shen<sup>a,b,\*</sup>, <sup>a</sup>School of Materials Science and Engineering, Anhui University of Science and Technology, Huainan, Anhui, 232001, PR China, <sup>b</sup>Anhui International Joint Research Center for Nano Carbon-based Materials and Environmental Health, Huainan, Anhui, 232001, PR China

## PO-20

### In-situ generation of hydrogen peroxide by single-atom copper anchored on t-BaTiO<sub>3</sub> for Piezoelectric degradation of tetracycline

Quanzi Pan<sup>1</sup>, Kai Chen<sup>1</sup>, Xin Ni<sup>1</sup>, Zeda Meng<sup>1\*</sup>, Suzhou University Of Science and Technology, Su Zhou, 215009, P.R.China



## PO-21

### Study on the performance of humidity control of the geopolymer composite based on fly ash

Ancheng Weng<sup>a</sup>, Jiao Guo<sup>a</sup>, Jinlang Hu<sup>a</sup>, Xianglong Wan<sup>a,b,\*</sup>, Yin Liu<sup>a,b</sup>, <sup>a</sup>School of Materials Science and Engineering, Anhui University of Science and Technology, Huainan, Anhui 232001, China, <sup>b</sup>Anhui International Joint Research Center for Nanocarbon-based Materials and Environmental health, Huainan 232001, China

## PO-22

### Zinc phosphate-based glass incorporation in PMMA to prevent microbial adhesion

Min-Ji Kim<sup>1</sup>, Myung-Jin Lee<sup>2</sup>, <sup>1</sup>Department of Orthodontics, Institute of Craniofacial Deformity, Yonsei University College of Dentistry, Seoul, Korea, 03722, <sup>2</sup>Department of Dental Hygiene, Division of Health Science, Baekseok University, Cheonan, Korea, 31065

## PO-23

### Photocatalytic performance of graphene-MnO<sub>2</sub> binary composite for degradation of organic dye contaminants under visible light

Prawit Nuengmatcha<sup>1</sup> and Kongsak Pattarith<sup>2\*</sup>, <sup>1</sup>Nanomaterials Chemistry Research Unit, Faculty of Science and Technology, Nakhon Si Thammarat Rajabhat University, Nakhon Si Thammarat 80280, Thailand, <sup>2</sup>Department of Chemistry, Faculty of Science, Buriram Rajabhat University, 31000, Thailand

## PO-24

### Synthesis of hollow chitosan carboxymethyl cellulose composite as a high-performance adsorbent for heavy metal removal from wastewater

Prawit Nuengmatcha<sup>1\*</sup>, Rungnapa Pimsen<sup>1</sup>, Paweena Porrawatkul<sup>1</sup>, Arnannit Kuyyogsuy<sup>1</sup>, Nichapa Rattanakomorn<sup>1</sup>, Amnuay Noypha<sup>1</sup> and Anusorn Banluepuech<sup>2</sup>, <sup>1</sup>Nanomaterials Chemistry Research Unit, Faculty of Science and Technology, Nakhon Si Thammarat Rajabhat University, Nakhon Si Thammarat 80280, Thailand, <sup>2</sup>Science Center, Faculty of Science and Technology, Nakhon Si Thammarat Rajabhat University, Nakhon Si Thammarat, 80280, Thailand

## PO-25

### Removal of methylene blue dye by Fenton and photo Fenton processes using ferrous sulfate coated with graphene quantum dot as catalyst

Nongyao Teppaya<sup>1\*</sup>, Prawit Nuengmatcha<sup>1</sup>, Paweena Porrawatkul<sup>1</sup>, Arnannit Kuyyogsuy<sup>1</sup>, <sup>1</sup>Nanomaterials Chemistry Research Unit, Faculty of Science and Technology, Nakhon Si Thammarat Rajabhat University, Nakhon Si Thammarat 80280, Thailand

## PO-26

### Efficient degradation of dye pollutant from wastewater via photocatalysis using a magnetic zinc oxide/graphene/iron oxide as catalyst

Prawit Nuengmatcha<sup>1\*</sup>, Rungnapa Pimsen<sup>1</sup>, Arnannit Kuyyogsuy<sup>1</sup>, Paweena Porrawatkul<sup>1</sup>, Sumalee Liamthong<sup>1</sup> and Piyawan Nuengmatcha<sup>1,2</sup>, <sup>1</sup>Nanomaterials Chemistry Research Unit, Department of Chemistry, <sup>2</sup>Department of Environmental Science, Faculty of Science and Technology, Nakhon Si Thammarat Rajabhat University, Nakhon Si Thammarat 80280, Thailand.

## PO-27

### Controllable shape and size micro hemisphere array structure for enhancing the light extraction of OLEDs

Eun Jeong Bae<sup>1</sup>, Ho Seob Kim<sup>2,3</sup>, and Young Wook Park<sup>2</sup>, Dong-Hyun Baek<sup>2,3</sup>, <sup>1</sup>Display and Nanosystem Laboratory, Department of Electrical Engineering, Korea University, Seoul 02841, Korea, <sup>2</sup>Department of Display and Semiconductor Engineering, Sun Moon University, Asan, Chungcheongnam-do, South Korea, 31460, <sup>3</sup>Center for Next-Generation Semiconductor Technology, Sun Moon University, Asan Chungcheongnam-do, South Korea,

## PO-28

### Progress of Novel Magnetic Sensors Based on Ferromagnetic Film

Kehao Shi<sup>1</sup>, Yuqing Li<sup>1</sup>, Yicheng Zhang<sup>1</sup>, Jinxuan Guo<sup>1</sup>, Ling Ding<sup>1</sup>, Ying Liu<sup>1</sup>, Weizhou Xin<sup>1</sup>, Yunxiao Wang<sup>1</sup>, Xiulin Shen<sup>1,2,\*</sup>, <sup>1</sup>School of Materials Science and Engineering, Anhui University of Science and Technology, Huainan, Anhui 232001, PR China, <sup>2</sup>Anhui International Joint Research Center for Nano Carbon-based Materials and Environmental Health, Huainan, Anhui, 232001, PR China

## PO-29

### Preparation and characterization of porous ceramics based on high alumina waste porcelain

Yixian Yang<sup>a</sup>, Zhenfei Lv<sup>a,b,\*</sup>, Yuanhao Liu<sup>a</sup>, Yanghui Ke<sup>a</sup>, Xiulin Shen<sup>a,b,\*</sup>, <sup>a</sup>School of Materials Science and Engineering, Anhui University of Science and Technology, Huainan, Anhui, 232001, PR China, <sup>b</sup>Anhui International Joint Research Center for Nano Carbon-based Materials and Environmental Health, Huainan, Anhui, 232001, PR China

## PO-30

### Preparation of Waste Sanitary Ceramics Based High Temperature Resistant Materials by Modified Binder and Performance Optimization

Zhenfei Lv<sup>a,b</sup>, Chong Lan<sup>a</sup>, Chen Yang<sup>a</sup>, Yukun Cao<sup>a</sup>, Yanghui Ke<sup>a</sup>, Xiulin Shen<sup>a,b,\*</sup>, <sup>a</sup>School of Materials Science and Engineering, Anhui University of Science and Technology, Huainan, Anhui, 232001, PR China, <sup>b</sup>Anhui International Joint Research Center for Nano Carbon-based Materials and Environmental Health, Huainan, Anhui, 232001, PR China

### PO-31

#### Novel Synthesis of Ternary Nanocomposite with $\beta$ -SiC Fiber, SnO<sub>2</sub> and In<sub>2</sub>O<sub>3</sub> for Atmospheric Gas Sensing under High Temperature Conditions

Zambaga Otgonbayar<sup>1</sup>, Young Jun Joo<sup>3</sup>, Kwang Youn Cho<sup>3</sup>, Sang Yul Park<sup>4</sup>, Kwang Youl Park<sup>4</sup>, Won-Chun Oh<sup>1</sup>, <sup>1</sup>Department of Advanced Materials Science & Engineering, Hanseo University, Seosan-si, Chungnam, Korea, 356-706, <sup>2</sup>College of Materials Science and Engineering, Anhui University of Science & Technology, Huainan 232001, PR China, <sup>3</sup>Korea Institutes of Ceramic Engineering and Technology, Soho-ro, Jinju-Si, Gyeongsangnam-do, South Korea, <sup>4</sup>Daeho I&T, Changwon-si, Gyeongsangnam-do, 51338, Korea

### PO-32

#### A Comparative and Efficient Ammonia Gas Sensing Study with Self-assembly Synthesized Metal Oxide-SiC Fiber based Mesoporous SiO<sub>2</sub> Composites

Md Nazmodduha Rafat<sup>1</sup>, Young Jun Joo<sup>3</sup>, Kwang Youn Cho<sup>3</sup>, Sang Yul Park<sup>4</sup>, Kwang Youl Park<sup>4</sup>, Won-Chun Oh<sup>1,2</sup>, <sup>1</sup>Department of Advanced Materials Science & Engineering, Hanseo University, Seosan-si, Chungnam, Korea, 356-706, <sup>2</sup>College of Materials Science and Engineering, Anhui University of Science & Technology, Huainan 232001, PR China, <sup>3</sup>Korea Institutes of Ceramic Engineering and Technology, Soho-ro, Jinju-Si, Gyeongsangnam-do, South Korea, <sup>4</sup>Daeho I&T, Changwon-si, Gyeongsangnam-do, 51338, Korea

### PO-33

#### Synthesis of barium hexaferrite magnetic nanoparticle for efficient removal of heavy metal from synthetic wastewater

Parintip Rattanaburi<sup>1\*</sup>, Prawit Nuengmatcha<sup>1,2</sup>, <sup>1</sup>Creative Innovation in Science and Technology, <sup>2</sup>Nanomaterials Chemistry Research Unit, Department of Chemistry, Faculty of Science and Technology, Nakhon Si Thammarat Rajabhat University, 80280, Thailand

### PO-34

#### Synthesis of NiO and TiO<sub>2</sub> Combined SiC Matrix Nanocomposite and Its Photocatalytic MB degradation

Jun Hyeok Choi<sup>1</sup>, Jo Eun Kim<sup>1\*</sup>, Hyun Min Ju<sup>1</sup>, Hee Chul Choi<sup>1</sup>, Byung Jin Park<sup>1</sup>, Geun Chan Kim<sup>1</sup>, Yeonji Shin<sup>1</sup>, Zambaga Otgonbayar<sup>1</sup>, Won-Chun Oh<sup>1,2</sup>, <sup>1</sup>Department of Advanced Materials Science & Engineering, Hanseo University, Seosan-si, Chungnam, Korea, 356-706, <sup>2</sup>Anhui International Joint Research Center for Nano Carbon-based Materials and Environmental Health, College of Materials Science and Engineering, Anhui University of Science & Technology, Huainan 232001, PR China

### PO-35

#### Multi-functional MXene Based Sensors: An Updated Review

Saikat Samadder<sup>1</sup>, Chang Sung Lim<sup>1</sup>, Yonrapach Areerob<sup>2</sup>, Won-Chun Oh<sup>1\*</sup>, <sup>1</sup>Department of Advanced Materials Science and Engineering, Hanseo University, Chungnam, 356-706, South Korea, <sup>2</sup>Faculty of Engineering, King Mongkul's Institute of Technology Ladkrabang, Bangkok 10520, Thailand

### PO-36

#### Remineralization effect of orthodontic adhesive containing zinc-bound phosphate-based glass

Min-Ji Kim<sup>1</sup>, Ji-Young Seo<sup>1</sup>, Myung-Jin Lee<sup>2\*</sup>, <sup>1</sup>Department of Orthodontics, Institute of Craniofacial Deformity, Yonsei University College of Dentistry, Seoul, Korea, 03722, <sup>2</sup>Department of Dental Hygiene, Division of Health Science, Baekseok University, Cheonan, Korea, 31065

### PO-37

#### Enhanced Power Conversion Efficiency of Organic Photovoltaics Using Metal Oxide Nanoparticles

Ye Eun Lee<sup>1</sup>, Jong Hyun Lim<sup>2</sup>, Woo Young Kim<sup>1,3</sup>, Chul Gyu Jhun<sup>1\*</sup>, <sup>1</sup>school of Electronics and Display Engineering, Hoseo University, Asan 31499, Korea, <sup>2</sup>A-Pro.Co. Ltd, Siheung 15809, Korea, <sup>3</sup>Department of Engineering Physics, McMaster University, Hamilton, Canada

### PO-38

#### Thermal analysis to optimize the arrangement of LEDs in a power LED module

JU YONG CHO<sup>1</sup>, HANSEUL MA<sup>1</sup>, HYEONG JIN KIM<sup>1</sup>, AND WON KWEON JANG<sup>1\*</sup>, <sup>1</sup>Department of Aeronautic Electricity, Hanseo University, 46, Hanseo 1-ro, Seosan-si 31962, South Korea

### PO-39

#### Effect of Interlayer Regulation on Electrochemical Properties of Layered Bimetal Hydroxide

Lei Zhang<sup>1</sup>, Xiao Chen<sup>1</sup>, Chenwei Shang<sup>1</sup>, Yu Tian<sup>1</sup>, Binqun Cao<sup>1</sup>, Yufei Li<sup>2</sup>, Lixin Xu<sup>2</sup>, Jing Wang<sup>1\*</sup>, <sup>1</sup>School of Materials Science and Engineering, Anhui University of Technology, Huainan Anhui 232001, China, <sup>2</sup>Pinghu Institute of Advanced Materials, Zhejiang University of Technology, Pinghu, Zhejiang 314204, China

## Poster Session-2

Zoom B, 11/25 15:40-17:40

No 710 662 5033, PW: ICMMA2022

**Session Chairman: Prof. Yonrapach Areerob (King Mongkut's Institute of Technology Ladkrabang) and Prof. Jingtai Zhao (Guilin University of Electronic Technology)**

### PO-40

#### Preparation and electrochemical properties of cobalt selenide electrode material supported by palladium particles

Chen Sun<sup>2,1</sup>, Wei Xie<sup>2,1</sup>, Mingxuan Han<sup>2,1</sup>, Hao Xu<sup>2,1</sup>, Lei Zhu<sup>1</sup> and Qinfang Zhang<sup>2,1\*</sup>, <sup>1</sup>Key Laboratory for Advanced Technology in Environmental Protection of Jiangsu Province, Yancheng Institute of Technology, Yancheng, 224051, P.R. China, <sup>2</sup>School of Materials Science and Engineering, Yancheng Institute of Technology, Yancheng 224051, P.R. China

### PO-41

#### Construction of superhydrophilic/underwater superoleophobic PVDF composite membrane by simple spraying method for oil-water emulsion separation

Jian Xu, Atian Xie\*, Haotian Sun, Yuting Wu, Changguo Xue, Jiuyun Cui, School of Materials Science and Engineering, Anhui University of Science and Technology, Huainan 232001, PR China

#### PO-42

##### Study on the sustainable development of a declining coal city by SD model

Keyu Bao<sup>a</sup>, Gang He<sup>a,b</sup>, Yanna Zhu<sup>a</sup>, <sup>a</sup>College of Economy and Management, Anhui University of Science and Technology, Huainan, Anhui, 232001, China, <sup>b</sup>State Key Laboratory of Mining Response and Disaster Prevention and Control in Deep Coal Mines, Huainan, Anhui, 232001, China

#### PO-43

##### Experimental investigation and thermodynamic modeling of the Cr–Zr–Si system

Benfu Li<sup>a,b</sup>, Yunuo Yang<sup>a,b</sup>, Yuchao Shi<sup>a,b</sup>, Biao Hu<sup>a,b,\*</sup>, <sup>a</sup>School of Materials Science and Engineering, Anhui University of Science and Technology, Huainan, Anhui, 232001, PR China, <sup>b</sup>Anhui International Joint Research Center for Nano Carbon-based Materials and Environmental Health, Huainan, Anhui, 232001, PR China

#### PO-44

##### Thermodynamic database for multicomponent Cu alloys

Biao Hu<sup>a,b</sup>, Yuchao Shi<sup>a,b</sup>, Benfu Li<sup>a,b</sup>, Chenggang Jin<sup>a,b</sup>, Gang Zeng<sup>a,b</sup>, Yong Du<sup>c</sup>, <sup>a</sup>School of Materials Science and Engineering, Anhui University of Science and Technology, Huainan, Anhui 232001, PR China, <sup>b</sup>Anhui International Joint Research Center for Nano Carbon-based Materials and Environmental Health, Huainan, Anhui, 232001, China, <sup>c</sup>State Key Laboratory of Powder Metallurgy, Central South University, Changsha, Hunan 410083, PR China

#### PO-45

##### Effects of hydrostatic pressure and temperature on refractive index changes in tuned quantum dots under magnetic field

Ceng Chang, Xuechao Li\*, Yiming Duan, Zhuang Zhao, Liangcheng Zhang, School of Mechanics and Photoelectric Physics, Anhui University of Science and Technology, Huainan 232001, China

#### PO-46

##### Structure and Microwave Dielectric Properties of the Li<sub>2</sub>O–MgO–TiO<sub>2</sub> Systems

Chang Li, Zhifen Fu, Zhongyi Yang, Qing Cheng, School of Mechanics and Optoelectronic Physics, Anhui University of Science & Technology, Huainan, 232001, China

#### PO-47

##### Microwave dielectric properties of low-loss Mg<sub>2</sub>TiO<sub>4</sub> ceramics doped with LiF–CaF<sub>2</sub>–2B<sub>2</sub>O<sub>3</sub> (LCB)

Chen Chen, Zhifen Fu, Zhongyi Yang, Chang Li, Yubin She, Yu Zhang, School of Mechanics and Photoelectric Physics, Anhui University of Science and Technology, Huainan 232001, China

#### PO-48

##### Experimental investigation of the Ag–Cu–Zr system

Chenggang Jin<sup>a,b</sup>, Jing Xie<sup>a,b</sup>, Gang Zeng<sup>a,b</sup>, Biao Hu<sup>a,b,\*</sup>, Shaoding Sheng<sup>a,b,\*</sup>, <sup>a</sup>School of Materials Science and Engineering, Anhui University of Science and Technology, Huainan, Anhui 232001, PR China, <sup>b</sup>Anhui International Joint Research Center for Nano Carbon-based Materials and Environmental Health, Huainan, Anhui 232001, PR China

#### PO-49

##### Synthesis and characterization of spherical chain Co for broadband electromagnetic wave absorption

Chongmei Wu, Zhenying Liu\*, Yan Wang, Guiyang Xian, Yin Liu\*, School of Materials Science and Engineering, Anhui University of Science and Technology, Huainan 232001, Anhui, China

#### PO-50

##### First principles study on electronic structure and photocatalytic activity in metal (M=Al, In, Ga) doped SrTiO<sub>3</sub>

Fuzhang Chen,<sup>1</sup> Lili Zheng,<sup>1</sup> Yueqin Wang<sup>1</sup>, <sup>1</sup>School of Mechanics and Optoelectronic Physics, Anhui University of Science and Technology, Huainan, 232001, Anhui, China

#### PO-51

##### Experimental determination of the phase equilibria of the Cu–Cr–Zr–Y system

Gang Zeng<sup>a,b</sup>, Xinyue Huang<sup>a,b</sup>, Hui Qiao<sup>a,b</sup>, Chenggang Jin<sup>a,b</sup>, Biao Hu<sup>a,b,\*</sup>, <sup>a</sup>School of Materials Science and Engineering, Anhui University of Science and Technology, Huainan, Anhui 232001, PR China, <sup>b</sup>Anhui International Joint Research Center for Nano Carbon-based Materials and Environmental Health, Huainan, Anhui 232001, PR China

#### PO-52

##### Influence of applied magnetic field on the synthesis of ferrofluid

Gao Ming, Li Jianjun\*, Department of Materials Science and Engineering, Anhui University of Science and Technology, Huainan, Anhui 232001, China

#### PO-53

##### Synthesis of porous hollow Ce–Co/C composites with efficient electromagnetic wave absorption

Guiyang Xian, Zhaolin Zhu, Chongmei Wu, Yan Wang, Yin Liu\*, School of Materials Science and Engineering, Anhui University of Science and Technology, Huainan 232001, Anhui, China

#### PO-54

##### Effect of adding magnesia-aluminum spinel hollow spheres on the properties of periclase-magnesium-aluminate spinel refractories

Hanxin Zhang<sup>1</sup>, Zhenying Liu<sup>1\*</sup>, Nan Xie<sup>1</sup>, Shouwu Huang<sup>1</sup>, Kai cui Zhongde Yang<sup>2</sup>, <sup>1</sup>School of Materials Science and Engineering, Anhui University of Science and Technology, Huainan 232001, Anhui, China, <sup>2</sup>Anhui CONCH- SCG Refractory Co., Ltd., Wuhu, China



## PO-55

### **Synergistic degradation of methylene blue by ZIF-67 and ZIF-8 in TiO<sub>2</sub> nanospheres**

Hanyong Cai, Juan Gao, School of Mechanics and Optoelectronic Physics, Anhui University of Science and Technology, Huainan 232001, China

## PO-56

### **A novel TiO<sub>2</sub> nanorod array film co-decorated by Ag nanoparticles and ZIF-8 with robust photocatalytic and photoelectrochemical properties**

Jiale Deng<sup>†1</sup>, Juan Gao<sup>1†\*</sup>, <sup>1</sup>School of Mechanics and Photoelectric Physics, Anhui University of Science and Technology, Huainan, 232001, P. R. China

## PO-57

### **Controllable synthesis of Metal Cobalt under Magnetic Field**

Jin Mingyan, Wang Lei, Gao Ming, Hu Tianyu, Li Jianjun\*, School of Materials Science and Engineering, Anhui University of Science and Technology, Huainan, Anhui 232001, China

## PO-58

### **The isothermal section of the Cu-Zr-V ternary system at 900°C**

Jing Xie<sup>a,b</sup>, Chenggang Jin<sup>a,b</sup>, Xinyue Huang<sup>a,b</sup> -, Yue Li<sup>a,b</sup>, Biao Hu<sup>a,b\*</sup>, <sup>a</sup>School of Materials Science and Engineering, Anhui University of Science and Technology, Huainan, Anhui 232001, PR China, <sup>b</sup>Anhui International Joint Research Center for Nano Carbon-based Materials and Environmental Health, Huainan, Anhui 232001, PR China

## PO-59

### **Preparation and performance of geopolymer foams based on fly ash**

Jinlang Hu<sup>a</sup>, Guoxin Ding<sup>a,b</sup>, Xiaorui Wang<sup>a</sup>, Ancheng Weng<sup>a</sup>, Xianglong Wan<sup>a,b,\*1</sup>, <sup>a</sup>School of Materials Science and Engineering, Anhui University of Science and Technology, Huainan, Anhui 232001, China, <sup>b</sup>Anhui International Joint Research Center for Nanocarbon-based Materials and Environmental health, Huainan 232001, China

## PO-60

### **Preparation of multifunctional PVDF imprinted composite membranes via surface segregation approach for selective TC and oil/water emulsion separation**

Jian Xu, Jiuyun Cui\*, Haotian Sun, Yuting Wu, Changguo Xue, Atian Xie, School of Materials Science and Engineering, Anhui University of Science and Technology, Huainan 232001, PR China

## PO-61

### **The wettability of sodium dodecyl sulfonate solutions by inorganic salt additives**

Junfeng Zhang, Changguo Xue\*, He Feng, Yiting Xu, Jianjun Li, School of Materials Science and Engineering, Anhui University of Science and Technology, Huainan 232001, PR China

## PO-62

### **Enhanced Degradation of Organic Dye with Peroxymonosulfate Activation by CoFe<sub>2</sub>O<sub>4</sub>@zeolite**

Lei Wang, Tianyu Hu, Zhanqun Zhang, Mingyan Jin, Jianjun Li\*, School of Materials Science and Engineering, Anhui University of Science and Technology, Huainan, Anhui 232001, China

## PO-63

### **Microstructure and properties of geopolymers prepared from uncalcined gangue**

Longtao Zhu<sup>a</sup>, Qingping Wang<sup>a,b,\*</sup>, Chunyang Lu<sup>a</sup>, Yuxin Liu<sup>a</sup>, Shuai Chen<sup>a</sup>, <sup>a</sup>School of Materials Science and Engineering, Anhui University of Science and Technology, Huainan, Anhui 232001, PR China, <sup>b</sup>State Key Laboratory of Mining Response and Disaster Prevention and Control in Deep Coal Mines, Anhui University of Science and Technology, Huainan 232001, Anhui, China

## PO-64

### **Construction of Ag nanoparticle decorated AgBr/BiVO<sub>4</sub> core/shell structure plasmonic photocatalysts towards high photocatalytic elimination of contaminations under visible light**

Mei Liu\*, Lingcheng Zheng, Juan Gao, School of Mechanics and Photoelectric Physics, Anhui University of Science and Technology, Huainan 232001, PR China

## PO-65

### **Study on the extraction of Silicon and aluminum from fly ash and preparation of molecular sieve for adsorption in wastewater**

Mengting Li<sup>\*a</sup>, Longqian Ni<sup>a</sup>, Bohan Zhou<sup>b</sup>, <sup>a</sup>School of Materials Science and Engineering, Anhui University of Science and Technology, Huainan 232001, PR China, <sup>b</sup>Huainan Institute of Standardization, Huainan 232001, PR China

## PO-66

### **Preparation and Properties of Cross-linked Poly(vinyl Alcohol) Composite Film**

Mingyue Zhang<sup>a</sup>, Ruobin Li<sup>a</sup>, Yue Wu<sup>a</sup>, Ya Wang<sup>a</sup>, Xianglong Wan<sup>a,b,\*1</sup>, <sup>a</sup>School of Materials Science and Engineering, Anhui University of Science and Technology, Huainan, Anhui 232001, China, <sup>b</sup>Anhui International Joint Research Center for Nanocarbon-based Materials and Environmental health, Huainan 232001, China

## PO-67

### **Effect of ZrO<sub>2</sub> additives on sintering properties of Mullite-based Composite Ceramics**

Nan Xie, Zhenying Liu\*, Shouwu Huang, Hanxin Zhang, Kai Cui, School of Materials Science and Engineering, Anhui University of Science and Technology, Huainan 232001, Anhui, China

## PO-68

### **2D/2D heterostructure of C, N, S-TiO<sub>2</sub>/g-C<sub>3</sub>N<sub>4</sub> nanosheets for Photocatalytic degradation of organic pollutants**

Pingping Wei\*, Juan Gao, School of Mechanics and Optoelectronic Physics, Anhui University of Science and Technology, Huainan 232001, China

**PO-69**

**Hickory preparation of porous microwave absorbing materials**

Shi Qiong, Li Mengyu, Li Zongru, Zhao Yan\*, School of Material Engineering and Science, Anhui University of Science and Technology, Huainan, Anhui 232000, China

**PO-70**

**PREPARATION AND PROPERTIES OF NANO MONTMORILLONITE MODIFIED POLYETHYLENE**

Rongcheng Huang, Xin Chen, Jianxun Gong, Junshan Gao\*, School of Materials Science and Engineering, Anhui University of Science and Technology, Huainan, 232001, PR China.

**PO-71**

**Conversion of methane to methanol catalyzed by  $\text{Fe}_2\text{O}_3/\text{g-C}_3\text{N}_4$  and  $\text{H}_2\text{O}_2$**

Shuli Deng, Qingbo Yu, School of materials science and technology, Anhui university of science and technology, China, 232001

**PO-72**

**Surface-enhanced Raman spectroscopy based on stretchable and flexible micro-nano substrates for the detection of organic dyes**

Yuanhang Tan, Changguo Xue\*, Ziyu Zhou, Yaxuan Wang, He Wang, Atian Xie, School of Materials Science and Engineering, Anhui University of Science and Technology, Huainan 232001, PR China

**PO-73**

**Preparation of  $\text{Li}_4\text{SiO}_4$ -based adsorbents from diatomite for high-temperature  $\text{CO}_2$  capture, WANG Jinxiang, WANG Yaxuan,**

School of Material Science and Engineering, Anhui university of Science and Technology, Anhui Huainan 232001, China

**PO-74**

**Study on Late Comprehensive Performance Modification of Tailings Blended with Mineral Powder**

Xiang Zhang, Zifang Xu, \*School of Materials Science and Engineering, Anhui University of Science and Technology, Huainan, Anhui 232001, PR China, <sup>b</sup>Anhui International Joint Research Center for Nano Carbon-based Materials and Environmental Health, Huainan, Anhui 232001, PR China

**PO-75**

**Re-doped FeCo zeolite imidazole and derived porous carbon polyhedral catalysts as efficient bifunctional catalysts for zinc-air batteries**

Xiaofei Li<sup>1</sup>, Zijian Zhu, Yanyan Zhang, Kejian Shi, Yang li\*

**PO-76**

**Construction of B-doped  $\text{g-C}_3\text{N}_4/\text{MoO}_3$  Photocatalyst to Promote Light Absorption and Z-scheme Charge Transfer**

Xinxin Chen, Changzhao Chen, School of Mechanics and Optoelectronic Physics, Anhui University of Science and Technology, Huainan 232001, China

**PO-77**

**Influence of alkali activator concentration on microstructure and strength of fly ash based geopolymer grouting materials**

Wei Xu<sup>a</sup>, Qingping Wang<sup>a,b,\*</sup>, Siyu Zhang<sup>a</sup>, Shuai Chen<sup>a</sup>, Longtao Zhu<sup>a</sup>, <sup>a</sup>School of Materials Science and Engineering, Anhui University of Science and Technology, Huainan 232001, Anhui, China, <sup>b</sup>State Key Laboratory of Mining Response and Disaster Prevention and Control in Deep Coal Mines, Anhui University of Science and Technology, Huainan, 232001, Anhui, China

**PO-78**

**Study on Preparation and Electrochromic Properties of  $\text{La}^{+3}$ -Doped  $\text{TiO}_2$  Film**

Xu Zifang, Dai Yan, Fan Yong, School of Materials Science and Engineering, Anhui University of Science and Technology, Huainan 232001, China

**Poster Session-3**

Zoom C, 11/25 15:40-17:40

No 947 539 6783, PW: ICMMA2022

**Session Chairman: Prof. Xianbiao Wang (Anhui Jianzhu University) and Dr. Tae-Ho Shin (Korea Institute of Ceramic Engineering and Technology)**

**PO-79**

**Preparation and Properties of N-Doped  $\text{TiO}_2$  Electrode Supported on Copper Film**

Ya Wang<sup>a</sup>, Guoxin Ding<sup>a</sup>, Zhen Li<sup>a</sup>, Mingyue Zhang<sup>a</sup>, Yue Wu<sup>a</sup>, Xianglong Wan<sup>a,b,\*1</sup>, <sup>a</sup>School of Materials Science and Engineering, Anhui University of Science and Technology, Huainan, Anhui 232001, China, <sup>b</sup>Anhui International Joint Research Center for Nanocarbon-based Materials and Environmental health, Huainan 232001, China

**PO-80**

**Preparation and characterization of functionalized lanthanum oxide composite polyaniline electrochromic films**

Yan DAI\*, Zifang XU, Yuhao FU, Xiang ZHANG, School of Civil Engineering and Architecture, Anhui University of Science and Technology, Huainan 232001, Anhui, China

**PO-81**

**Nitrogen-doped polyaniline-based carbon/ $\text{Ni}_3\text{Fe}$  as high-performance microwave absorbers**

Yan Wang, Chongmei Wu, Guiyang Xian, Zhaolin Zhu, Yin Liu\*, School of Materials Science and Engineering, Anhui University of Science and Technology, Huainan 232001, Anhui, China

**PO-82**

**An ultra-sensitive and recyclable SERS substrate with core-shell Ag/ $\text{ZnO}$  microstructures**

Yanfen Wang<sup>a,b</sup>, Ziwei Liu<sup>a</sup>, Xiwen Zeng<sup>a</sup>, Jie Ai<sup>a</sup>, <sup>a</sup>School of Materials Science and Engineering, Anhui University of Science and Technology, Huainan, Anhui 232001, PR China, <sup>b</sup>Anhui International Joint Research Center for Nano Carbon-based Materials and Environmental Health, Huainan, Anhui, 232001, China

## PO-83

### Study on coating agent ratio of high-aluminum waste electroporcelain based high temperature resistant materials

Yanghai Ke<sup>a</sup>, Zhenfei Lv<sup>a,b,\*</sup>, Yang Song<sup>a</sup>, Yixian Yang<sup>a</sup>, Junyi Qi<sup>a</sup>, Qianye Zhang<sup>a</sup>, Yin Hua<sup>a</sup>, Xiulin Shen<sup>a,b,\*</sup>, <sup>a</sup>School of Materials Science and Engineering, Anhui University of Science and Technology, Huainan, Anhui, 232001, PR China, <sup>b</sup>Anhui International Joint Research Center for Nano Carbon-based Materials and Environmental Health, Huainan, Anhui, 232001, PR China, China

## PO-84

### Preparation and performance study of polyurethane/coal gasification fine slag composites

Yanhua Teng<sup>\*</sup>, Kangli Li, Qiming Wang, Changguo Xue, School of Materials Science and Engineering, Anhui University of Science and Technology, Huainan 232001, PR China

## PO-85

### Humidity sensors based on clay minerals films microcantilevers

Yiting Xu, Changguo Xue<sup>\*</sup>, Ninghong Zhou, Qiming Wang, Jun Chen, School of Materials Science and Engineering, Anhui University of Science and Technology, Huainan 232001, PR China

## PO-86

### Preparation and characterization of porous ceramics based on high alumina waste porcelain

Yixian Yang<sup>a</sup>, Zhenfei Lv<sup>a,b,\*</sup>, Yuanhao Liu<sup>a</sup>, Yanhui Ke<sup>a</sup>, Xiulin Shen<sup>a,b,\*</sup>, <sup>a</sup>School of Materials Science and Engineering, Anhui University of Science and Technology, Huainan, Anhui, 232001, PR China, <sup>b</sup>Anhui International Joint Research Center for Nano Carbon-based Materials and Environmental Health, Huainan, Anhui, 232001, PR China

## PO-87

### Coal-based carbon /NiFe<sub>2</sub>O<sub>4</sub> composites with excellent microwave absorption performance were prepared from anthracite

Yongli Meng, Yin Liu<sup>\*</sup>, School of Materials Science and Engineering, Anhui University of Science and Technology, Huainan 232001, Anhui, China

## PO-88

### Structural analysis and optical performance of Ce<sup>3+</sup>/Ce<sup>4+</sup>-doped SnO<sub>2</sub> nanoparticles

Yu Yang, Changzhao Chen, School of Mechanics and Optoelectronic Physics, Anhui University of Science and Technology, Huainan 232001, China

## PO-89

### Effect of adding LiF and SrTiO<sub>3</sub> on structure and properties of Li<sub>3</sub>Mg<sub>2</sub>NbO<sub>6</sub> ceramics

Yu Zhang, Jianli Ma, Qing Cheng, School of Mechanics and Photoelectric Physics, Anhui University of Science and Technology, Huainan 232001, China

## PO-90

### The mechanical properties of PP/PA6 and PP/PA6/CaCO<sub>3</sub> blends

Yuanyuan Wang<sup>\*</sup>, Zelong Wu, Junshan Gao

## PO-91

### Study on mechanical properties of PP/PA6 blends

Yuanyuan Wang<sup>\*</sup>, Zelong Wu, Junshan Gao

## PO-92

### Novel temperature-stable MgTi<sub>0.95</sub>Sn<sub>0.05</sub>O<sub>3</sub>-based microwave dielectric ceramics

Zhifen Fu, Yubin She, Zhongyi Yang, College of Mechanics and Optoelectronic physics, Anhui University of Science and Technology, Huainan, 232001, China

## PO-93

### Experimental investigation and thermodynamic description of the Ni–Zr–V system

Yuchao Shi<sup>a,b</sup>, Min Luo<sup>a,b</sup>, Benfu Li<sup>a,b</sup>, Biao Hu<sup>a,b,\*</sup>, <sup>a</sup>School of Materials Science and Engineering, Anhui University of Science and Technology, Huainan, Anhui 232001, PR China, <sup>b</sup>Anhui International Joint Research Center for Nano Carbon-based Materials and Environmental Health, Huainan, Anhui 232001, PR China

## PO-94

### Preparation and performance of a flexible electrode based on PANI/N-TiO<sub>2</sub> composite

Yue Wu<sup>a</sup>, Jiale Qiao<sup>a</sup>, Mingyue Zhang<sup>a</sup>, Ya Wang<sup>a</sup>, Xianglong Wan<sup>a,b,\*1</sup>, <sup>a</sup>School of Materials Science and Engineering, Anhui University of Science and Technology, Huainan, Anhui 232001, China, <sup>b</sup>Anhui International Joint Research Center for Nanocarbon-based Materials and Environmental health, Huainan 232001, China

## PO-95

### Adsorption of copper ions on porous ceramsite prepared by diatomite, fly ash and manganese slag

Yuhao Fu, Zifang Xu<sup>\*</sup>, School of Materials Science and Engineering, Anhui University of Science and Technology, Huainan 232001, Anhui, China

## PO-96

### Effect of silane coupling agent content and hollow glass microspheres on epoxy composites

Zhaolin Zhu, Guiyang Xian, Chongmei Wu, Yan Wang, Yin Liu<sup>\*</sup>, School of Materials Science and Engineering, Anhui University of Science and Technology, Huainan 232001, Anhui, China



## PO-97

### Preparation of Waste Sanitary Ceramics Based High Temperature Resistant Materials by Modified Binder and Performance Optimization

Zhenfei Lv<sup>a,b</sup>, Chong Lan<sup>a</sup>, Chen Yang<sup>a</sup>, Yukun Cao<sup>a</sup>, Yanghui Ke<sup>a</sup>, Xiulin Shen<sup>a,b,\*</sup>, <sup>a</sup>School of Materials Science and Engineering, Anhui University of Science and Technology, Huainan, Anhui, 232001, PR China, <sup>b</sup>Anhui International Joint Research Center for Nano Carbon-based Materials and Environmental Health, Huainan, Anhui, 232001, PR China

## PO-98

### Comparison and analysis of the synthesis of bisphenol-type polyarylate by interfacial polymerization with mechanical and magnetic stirring

Zhoufeng Wang<sup>\*</sup>, Bolin Wang, Yingying Liu, Junwei Hu, Xiubo Long, School of Materials Science and Engineering, Anhui University of Science and Technology, Huainan 232001, PR China

## PO-99

### Preparation and properties of Bisphenol A, Bisphenol B and Bisphenol A/B Polyarylates

Zhoufeng Wang<sup>\*</sup>, Yingying Liu, Bolin Wang, Junwei Hu, Xiubo Long, School of Materials Science and Engineering, Anhui University of Science and Technology, Huainan 232001, PR China PR China

## PO-100

### Synthesis of Fe-doped Co, Zn Bilayer Metal-Organic Frameworks for Bifunctional Electrocatalysts for Efficient Oxygen Reduction and Oxygen Evolution Reactions

Zijian Zhu, Xiaofei Li, Li Yang, School of Mechanics and Optoelectronic Physics, Anhui University of Science and Technology, Huainan, 232001, Anhui, China

## PO-101

### Highly toughened and heat-resistant poly(L-lactide)/polyvinylidene fluoride materials through simply interfacial interaction control via epoxy chain extender

Xinliang Chen<sup>1</sup>, Bingyu Fan<sup>1</sup>, Ping Wang<sup>1,2</sup>, Jin Liu<sup>1,2,\*</sup>, <sup>1</sup>Anhui Key Laboratory of Advanced Building Materials, Anhui Jianzhu University, Hefei Anhui, PR China 230601; <sup>2</sup>Key Laboratory of Functional Molecule Design and Interface Process, Anhui Jianzhu University, Hefei Anhui, PR China 230022

## PO-102

### Synthesis of bifunctional composites Ag/BiOCl/diatomite: Degradation of tetracycline and evaluation of antimicrobial activity

Jing Chen<sup>a,c</sup>, Qifang Ren<sup>c</sup>, Yi Ding<sup>a,b,c,\*</sup>, Chunyu Xiong<sup>c</sup>, Wanmi Guo<sup>c</sup>, <sup>a</sup>Anhui Advanced Building Materials Engineering Laboratory, Anhui Jianzhu University, Hefei 230601, Anhui, China, <sup>b</sup>Anhui Provincial Key Laboratory of Environmental Pollution Control and Resource Reuse, Anhui Jianzhu University, China, <sup>c</sup>Key Laboratory of Huizhou Architecture in Anhui Province, Anhui Jianzhu University, Hefei 230022, Anhui, China

## PO-103

### Spirobifluorene with a Magnetic controllable conjugation system mediating the spin-spin coupling of Nitronyl Nitroxide Diradicals

Zheng Yue<sup>1</sup>, Jin Liu<sup>1\*</sup>, Di Wang<sup>1\*</sup>, <sup>1</sup>Anhui Key Laboratory of Advanced Building Materials, Anhui Jianzhu University, Hefei Anhui, PR China 230601

## PO-104

### A bluefluorescent waterborne polyurethane with antibacterial properties based on Schiff base zinc complexes

Xiang Luo<sup>1</sup>, xianhai Hu<sup>1,2,3\*</sup>, Yuqing Yang<sup>1</sup>, Bo Cheng<sup>1</sup>, Hongrui Hu<sup>1</sup>, Zhuqing Li<sup>1</sup>, Kaixuan Shao<sup>1</sup>, Xiaojun She<sup>1</sup>, <sup>1</sup>Anhui Key Laboratory of Advanced Building Materials, Anhui Jianzhu University, Hefei Anhui, PR China 230601 ; <sup>2</sup>Key Laboratory of Functional Molecule Design and Interface Process, Anhui Jianzhu University, Hefei Anhui, PR China 230022; <sup>3</sup>Anhui Province International Research Center on Advanced Building Materials, Hefei Anhui, PR China 230022

## PO-105

### A waterborne polyurethane-based rare earth complex with tunable fluorescence and antibacterial activity

Yuqing Yang<sup>1</sup>, xianhai Hu<sup>1,2,3\*</sup>, Xiang Luo<sup>1</sup>, Bo Cheng<sup>1</sup>, Hongrui Hu<sup>1</sup>, Zhuqing Li<sup>1</sup>, Kaixuan Shao<sup>1</sup>, Xiaojun She<sup>1</sup>, <sup>1</sup>Anhui Key Laboratory of Advanced Building Materials, Anhui Jianzhu University, Hefei Anhui, PR China 230601 ; <sup>2</sup>Key Laboratory of Functional Molecule Design and Interface Process, Anhui Jianzhu University, Hefei Anhui, PR China 230022; <sup>3</sup>Anhui Province International Research Center on Advanced Building Materials, Hefei Anhui, PR China 230022

## PO-106

### Metallization, microstructure and sealing properites of a high purity Al<sub>2</sub>O<sub>3</sub> ceramic

Cangbao He, Dongcai Li<sup>\*</sup>, Wei Su, Fengjun Zhang, Haiyan Xu, Anhui Key Laboratory of Advanced Building Materials, Anhui Jianzhu University, Hefei Anhui, PR China 230601

## PO-107

### Super-tough poly(lactide)/ethylene-methyl acrylate-glycidyl methacrylate random terpolymer blends via efficient catalytic interfacial crosslinking of environmentally friendly carboxyl-functionalized ionic liquids,

Jie Song<sup>a,c</sup>, Ping Wang<sup>a,c\*</sup>, Tao Song<sup>a,c</sup>, Shang Gao<sup>a,c</sup>, Min Shi<sup>d</sup>, Bihua Xiao<sup>a,c</sup>, Yiyang Zhou<sup>b</sup>, Xinliang Chen<sup>a,c</sup>, Jiacheng Ling<sup>a,c</sup>, Li Yang<sup>a,c</sup>, Jin Liu<sup>a,c</sup>, Shaojie Feng<sup>a,c</sup>, Tian Cao<sup>a,c</sup>, Yunsheng Ding<sup>b</sup>, <sup>a</sup>Anhui Province International Research Center on Advanced Building Materials, School of Materials and Chemical Engineering, Anhui Jianzhu University, Hefei 230601, China; <sup>b</sup>Department of Polymer Science and Engineering, School of Chemistry and Chemical Engineering, and Anhui Key Laboratory of Advanced Functional Materials and Devices, Hefei University of Technology, Hefei 230009, China; <sup>c</sup>Anhui Province Key Laboratory of Advanced Building Materials, Anhui Jianzhu University, Hefei 230601, China; <sup>d</sup>School of Mathematics and Physics, Anhui Jianzhu University, Hefei 230601, China

## PO-108

### Micro/nanostructured MgO hollow spheres with selective adsorption performance and their application for fluoride monitoring in water

Renwu Zhu<sup>1</sup>, Xianbiao Wang<sup>1\*</sup>, Jared G. Panther<sup>2</sup>, Qiang Wang<sup>1</sup>, Soufian Chakir<sup>1</sup>, Yan Ding<sup>1</sup>, YuanyuanHuang<sup>1</sup>, HuantingWang<sup>3</sup>

<sup>1</sup>Anhui Province International Research Center on Advanced Building Materials, School of Materials Science and Chemical Engineering, Anhui Jianzhu University, Hefei Anhui, PR China 230601; <sup>2</sup>Centre for Clean Environment and Energy, Gold Coast Campus, Griffith University, Queensland, Australia 4222;

<sup>3</sup>Department of Chemical and Biological Engineering, Monash University, Clayton, VIC, Australia 3800

## PO-109

### Micro/nanostructured ZnFe<sub>2</sub>O<sub>4</sub> Hollow Sphere/GO Composite for Structurally Enhanced Photocatalysis Performance

Yang-Yang Zhao<sup>1</sup>, Xian-Biao Wang<sup>1,2\*</sup>, Qian-Kun Xu<sup>1</sup>, Soufian Chakir<sup>1</sup>, Yong-Fei Xu<sup>3</sup>, Bao Xu<sup>1</sup>, Yong-Hua Hu<sup>4</sup>, <sup>1</sup>School of Materials Science and Chemical Engineering, Anhui Jianzhu University, Hefei, China 230601; <sup>2</sup>Institute of Solid State Physics, Chinese Academy of Sciences, Hefei, China 230031; <sup>3</sup>Anhui Institute of Building Science Research & Design, Hefei, China 230031; <sup>4</sup>Anhui Key Laboratory of Tobacco Chemistry, Hefei, China 230088

## PO-110

### Construct N-Cu-S interface chemical bonds over SnS<sub>2</sub> for efficient solar-driven photoelectrochemical water splitting

Chengming Zhang<sup>1‡</sup>, Meng Wang<sup>1‡</sup>, Zhi Tang<sup>2</sup>, Kaiyue Gao<sup>1</sup>, Haibao Zhu<sup>1</sup>, Jie Ma<sup>1</sup>, Xiaolong Fang<sup>1</sup>, Xiufang Wang<sup>1\*</sup>, Yi Ding<sup>1\*</sup>, Xiaoli Zhao<sup>2\*</sup>, <sup>1</sup>Key Laboratory of Functional Molecule Design and Interface Process, Anhui Jianzhu University, Hefei Anhui, PR China 230601; <sup>2</sup>State Key Laboratory of Environmental Criteria and Risk Assessment Chinese Research Academy of Environmental Sciences Beijing China, Beijing, PR China 100085

## PO-111

### Ca-Doped NaV<sub>6</sub>O<sub>15</sub> Film Electrodes as High-Performance Cathodes for Sodium-ion Batteries

Fang-Lin Liu<sup>1</sup>, Yang He<sup>1</sup>, Han-Xiao Bian<sup>1</sup>, Dong-Cai Li<sup>1, 2</sup>, Hai-Yan Xu<sup>1, 3\*</sup>, <sup>1</sup>School of Materials and Chemical Engineering, Anhui Jianzhu University, Hefei 230601, China; <sup>2</sup>Anhui Key Laboratory of Advanced Building Materials, Anhui Jianzhu University, Hefei, Anhui, 230022, P. R.China; <sup>3</sup>Key Laboratory of Functional Molecule Design and Interface Process, Anhui Jianzhu University, Hefei, Anhui, 230601, P. R.China

## PO-112

### Facile formation of Mo-vacancy defective MoS<sub>2</sub>/CdS nanoparticles enhanced efficient hydrogen production

Jing-Jing Jiang<sup>1</sup>, Feng-Jun Zhang<sup>1,2\*</sup>, Meng-Yuan Zhu<sup>1</sup>, Chao Liu<sup>1</sup>, Yu-Hong Niu<sup>1</sup>, <sup>1</sup>Key Laboratory of Functional Molecule Design and Interface Process, Anhui Jianzhu University, Hefei Anhui, PR China 230022; <sup>2</sup>Anhui Province International Research Center on Advanced Building Materials, Anhui Jianzhu University, Hefei Anhui, PR China 230601

## PO-113

### Defect MoS<sub>2</sub> and Ti<sub>3</sub>C<sub>2</sub> nanosheets co-assisted CdS to enhance visible-light driven photocatalytic hydrogen production

Chao Liu<sup>1</sup>, Feng-Jun Zhang<sup>1,2\*</sup>, Meng-Yuan Zhu<sup>1</sup>, Jing-Jing Jiang<sup>1</sup>, Yu-Hong Niu<sup>1</sup>, <sup>1</sup>Key Laboratory of Functional Molecule Design and Interface Process, Anhui Jianzhu University, Hefei Anhui, PR China 230022; <sup>2</sup>Anhui Province International Research Center on Advanced Building Materials, Anhui Jianzhu University, Hefei Anhui, PR China 230601

## PO-114

### A novel I-type 0D/0D ZnS@Cu<sub>3</sub>P heterojunction for photocatalytic hydrogen evolution

Meng-Yuan Zhu<sup>1</sup>, Feng-Jun Zhang<sup>1,2\*</sup>, Chao Liu<sup>1</sup>, Jing-Jing Jiang<sup>1</sup>, Yu-Hong Niu<sup>1</sup>, <sup>1</sup>Key Laboratory of Functional Molecule Design and Interface Process, Anhui Jianzhu University, Hefei Anhui, PR China 230022, <sup>2</sup>Anhui Province International Research Center on Advanced Building Materials, Anhui Jianzhu University, Hefei Anhui, PR China 230601

## PO-115

### RAFT Synthesis, Characterization and Application of Novel Water- and Oil-Resistant, Flame-Retardant Acrylic Polyethylene Glycol Ester Copolymer Energy Storage Materials

Zhong-Qiong Qin<sup>a,b</sup>, Wen-Zong Xu<sup>b</sup>, Feng-Jun Zhang<sup>b</sup>, Yuan Hua<sup>a</sup>, Lei Song<sup>a\*</sup>, <sup>a</sup>State Key Laboratory of Fire Science, University of Science and Technology of China, 96 Jinzhai Road, Hefei, Anhui 230026, PR China. <sup>b</sup>Anhui Jianzhu University, Hefei, Anhui, 230601 China

## PO-116

### Enhancing the performance of geopolymer-based coral concrete through phosphoric acid micro-corrosion technology

Wang Aiguo, Wang Xingyao, Sun Daosheng\*, Liu Kaiwei, Guan Yanmei, Chu Yingjie, Anhui Key Laboratory of Advanced Building Materials, Anhui Jianzhu University, Hefei Anhui, P. R. China, 230022

## PO-117

### Preparation of ZnO Nanoparticles Composite WPUA Emulsion and Study on Properties of UV Cured Coating

Yun Shen<sup>1</sup>, Jin Liu<sup>1, 2, \*</sup>, Zhen Li<sup>1, 2</sup>, Jialu Luo<sup>1</sup>, Shiwu Wang<sup>1</sup>, Jinyang Tang<sup>1</sup>, Ping Wang<sup>1</sup>, Di Wang<sup>1</sup>, Xianbiao Wang<sup>1</sup>, Xianhai Hu<sup>1</sup>, Fengjun Zhang<sup>1</sup>, <sup>1</sup>School of Materials Science and Chemical Engineering, Anhui Jianzhu University, Hefei 230601, PR China; <sup>2</sup>Anhui Key Laboratory of Advanced Building Materials, Anhui Jianzhu University, Hefei 230601, PR China

## Poster Session-4

Zoom D, 11/25 15:40-17:40  
No 857 926 6363, PW: ICMMA2022

**Session Chairman: Prof. Noor Haida Mohd Kaus (Universiti Sains Malaysia) and Dr. Woo-Sik Kim (Korea Institute of Ceramic Engineering and Technology)**

### PO-118

#### Preparation and Tribological Behavior of Copper Base Biomass Carbon Dot Films

Enzhu Hu, Hua Zhong, and Kunhong Hu, Enhao Su, School of Energy Materials and Chemical Engineering, Hefei University, Hefei 230000, China

### PO-119

#### Multi-functional nano-MoS<sub>2</sub>/sericite nanomaterials for applications in catalysis and lubrication

Kunhong Hu<sup>1</sup>, Zhixiang Li, School of Energy Materials and Chemical Engineering, Hefei University, Hefei 230000, China

### PO-120

#### Evaluation of fracture toughness behavior in epoxy-carbon fiber composite with polyamide 6

Kyo-Moon Lee<sup>1,2</sup>, Sung-Youl Bae<sup>2\*</sup>, <sup>1</sup>Major of Materials Engineering, Department of Marine Equipment Engineering, Korea, Maritime and Ocean University, 727 Taejong-ro, Yeongdo-gu, Busan 49112, Republic of Korea, <sup>2</sup>Emerging Materials R&D Division, Korea Institute of Ceramic Engineering & Technology, 101, Soho-ro, Jinju-si, Gyeongsangnam-do, Republic of Korea

### PO-121

#### Characteristics of graphite composites BP with improved conductive networking through addition of GO

Jinuk Hwang<sup>1,2</sup>, Woo Seong Tak<sup>1,2</sup>, Yongjun Jo<sup>1,2</sup>, Kyungwon Kim<sup>1,2</sup>, Young-Keun Jeong<sup>1</sup> and Woo Sik Kim<sup>2+</sup>, <sup>1</sup>Graduated School of Convergence Science, Pusan National University, Pusan 46241, Republic of Korea, <sup>2</sup>Convergence Transport Materials Center, Korea Institute of Ceramic Engineering and Technology, Jinju 52851, Republic of Korea

### PO-122

#### Reduced graphene oxide-coated carbon fiber

Woo-Seong Tak<sup>a,b</sup>, Jin Uk Hwang<sup>a,b</sup>, Woo Sik Kim<sup>a\*</sup>, <sup>a</sup>Convergence Transport Materials Center, Korea Institute of Ceramic Engineering and Technology (KICET), <sup>b</sup>Graduate School of Convergence Science, Pusan National University

### PO-123

**High-temperature tensile and fracture behaviors of polycrystalline SiC fiber derived from precursor route,** Hyuk Jun Lee<sup>1,2</sup>, Young Jin Shim<sup>1,2</sup>, Sang Hyun Joo<sup>1</sup>, Myung Chang Kang<sup>2</sup>, Kwang Youn Cho<sup>1\*</sup>, Young Jun Joo<sup>1\*</sup>, <sup>1</sup>Convergence Transport Materials Center, Emerging Materials R&D Division, Korea Institute of Ceramic Engineering and Technology, Jinju 52858, South Korea, <sup>2</sup>Graduate School of Convergence Science, Pusan National University, Busan 46241, Korea

### PO-124

#### Microwave-Assisted DeNO<sub>x</sub> System using SiC Composite Fibers as a Catalyst and Heating Elements

Sang Hyun Joo<sup>1</sup>, Hyuk Jun Lee<sup>1,2</sup>, Young Jin Sim<sup>1,2</sup>, Kwang Youn Cho<sup>1</sup>, Young Jun Joo<sup>1\*</sup>, <sup>1</sup>Convergence Transport Materials Center, Korea Institute of Ceramic Engineering and Technology, Jinju 52851, Korea, <sup>2</sup>Graduate School of Convergence Science, Pusan National University, Busan 46241, Korea

### PO-125

#### The microwave heating performance and degradation of polymer-derived SiC ceramics

Young Jin Shim<sup>1</sup>, Sang Hyun Joo<sup>1</sup>, Hyuk Jun Lee<sup>1</sup>, Kwang Youn Cho<sup>1\*</sup>, Young Jun Joo<sup>1\*</sup>, <sup>1</sup>Convergence Transport Materials Center, Emerging Materials R&D Division, Korea Institute of Ceramic Engineering and Technology, Jinju 52858, South Korea

### PO-126

#### Recovery and Standardization of Spent Activated Carbon Sample obtained from the Refined Sugar Plant

Jirapat Janshongsawang and Saksit Chanthai\*, Materials Chemistry Research Center, Department of Chemistry and Center of Excellence for Innovation in Chemistry, Faculty of Science, Khon Kaen University, Khon Kaen 40002, Thailand

### PO-127

#### Investigation of Electrical Percolation for Straight CNTs-Infused Polymer Nanocomposites via Electromechanical Analysis

Jaehyeok Doh<sup>1\*</sup>, Kihoon Lim<sup>1</sup>, Sang-in Park<sup>2</sup>, Nagarajan Raghavan<sup>3</sup>, Mantae Kim<sup>4</sup>, Sanghoon Kim<sup>5</sup>, <sup>1</sup>School of Mechanical and Material Convergence Engineering, Gyeongsang National University, Jinju-si, Gyeongsangnam-do 52725, Republic of Korea, <sup>2</sup>Department of Mechatronics Engineering, Incheon National University, Incheon, 22012, Republic of Korea, <sup>3</sup>Engineering Product Development Pillar, Singapore University of Technology and Design, 487372, Singapore, <sup>4</sup>Ceramic Fiber and Composite Center, Korea Institute of Ceramic Engineering and Technology, Jinju, Gyeongsangnam, 52851, Republic of Korea, <sup>5</sup>School of Mechanical Design Engineering, Chonnam National University, Yeosu, Jeollanam, 59626, Republic of Korea



**PO-128****Fabrication and Application of Anti-dust PM 2.5 and Antimicrobial Activity for Herbal Face Mask of Bagasse Fiber based Composites Filter Membrane**

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**PO-129****Molecular Dynamics Study of H<sub>4</sub>TTP Crystal Morphology, Jun Li<sup>1</sup> and Chan Kyung Kim<sup>\*2</sup>**

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**PO-130****Evolution of Microstructure and Mechanical Properties of Al-Zn-Mg-Cu Alloy by Extrusion and Heat Treatment**

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**PO-131****Theoretical Investigation on Enantioselective [1,2]-Stevens Rearrangement of Thiosulfonates Catalyzed by Guanidine/CuCl**

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**PO-132****Theoretical Study on the Cleavage of β-O-4 Linkage in Lignin Dimer Catalyzed by Rh-Complex**

Yan Zhang<sup>1,2</sup>, Changwei Hu<sup>1</sup>, Dianyong Tang<sup>\*2</sup>, Chan Kyung Kim<sup>\*3</sup>, Zhishan Su<sup>\*1</sup>, <sup>1</sup>Key Laboratory of Green Chemistry and Technology, Ministry of Education, College of Chemistry, Sichuan University, Chengdu, Sichuan 610064, P. R. China, <sup>2</sup>College of Pharmacy & International Academy of Targeted Therapeutics and Innovation, Chongqing University of Arts and Sciences, Chongqing 402160, PR China, <sup>3</sup>Department of Chemistry and Chemical Engineering, Center for Design and Applications of Molecular Catalysts, Inha University, 100 Inha-ro, Michuhol-gu, Incheon 22212, Korea

**PO-133****Nematic liquid crystal alignment based biosensor for plant pathogen detection**

Pemika Hirankittiwong<sup>1\*</sup>, Sirikanjana Thongmee<sup>2</sup>, Praphat Kawicha<sup>3</sup>, <sup>1</sup>Department of General Science, Faculty of Science and Engineering, Kasetsart University, Chalermphrakiat Sakon Nakhon Province Campus, Sakon Nakhon 47000, Thailand, <sup>2</sup>Department of Physics, Faculty of Science, Kasetsart University, Bangkok 10900, Thailand, <sup>3</sup>Plant Pest and Biocontrol Research Unit, Department of Agriculture and Resources, Faculty of Natural Resources and Agro-Industry, Kasetsart University, Chalermphrakiat Sakon Nakhon Province Campus, Sakon Nakhon 47000, Thailand

**PO-134****Efficient degradation of atrazine residues in wastewater by persulfate assisted Ag<sub>3</sub>VO<sub>4</sub>/Bi<sub>2</sub>MoO<sub>6</sub>/diatomite under visible light**

Jing Chen <sup>a,c</sup>, Haitao Zhu <sup>b</sup>, Qifang Ren <sup>d</sup>, Shaohua Chen <sup>a,c,d</sup>, Yi Ding <sup>a,c,d,\*</sup>, Zhen Jin <sup>a,c,d</sup>, Chunyu Xiong <sup>d</sup>, Wanmi Guo <sup>d</sup>, Xinyu Jia <sup>d</sup>, <sup>a</sup>Anhui Advanced Building Materials Engineering Laboratory, Anhui Jianzhu University, Hefei 230601, Anhui, China, <sup>b</sup> Technology Center of Hefei Customs, Hefei 230022, Anhui, China, <sup>c</sup> Anhui Provincial Key Laboratory of Environmental Pollution Control and Resource Reuse, Anhui Jianzhu University, China, <sup>d</sup> Key Laboratory of Huizhou Architecture in Anhui Province, Anhui Jianzhu University, Hefei 230022, Anhui, China

**PO-135****Effect of nano-silica and silicone oil paraffin emulsion composite waterproofing agent on the water resistance of flue gas desulfurization gypsum**

Jinpeng Li <sup>a,b</sup>, Jingyu Cao <sup>a,b</sup>, Qifang Ren <sup>a,b,c</sup>, Yi Ding <sup>a,b,c,\*</sup>, Haitao Zhu <sup>a,b</sup>, Chunyu Xiong <sup>a,b</sup>, Ranran Chen <sup>a,b</sup>, <sup>a</sup>Anhui Province Engineering Laboratory of Advanced Building Materials, Anhui Jianzhu University, Hefei, Anhui 230601, China, <sup>b</sup>Anhui Province Key Laboratory of Advanced Building Materials, Anhui Jianzhu University, Hefei, Anhui 230601, China, <sup>c</sup>Key Laboratory of Huizhou Architecture in Anhui Province, Anhui Jianzhu University, Hefei, Anhui 230601, Chin

**PO-136****Ag<sub>3</sub>VO<sub>4</sub>/g-C<sub>3</sub>N<sub>4</sub>/diatomite ternary compound reduces Cr(VI) ion in aqueous solution effectively under visible light**

Zhuhuan Jiang<sup>†ad</sup>, Haitao Zhu<sup>†b</sup>, Wanmi Guo<sup>acd</sup>, Qifang Ren<sup>acd</sup>, Yi Ding<sup>acd</sup>, Shaohua Chen<sup>b</sup>, Jing Chen<sup>d</sup> and Xinyu Jia<sup>d</sup>, <sup>a</sup>Anhui Province International Research Center on Advanced Building Materials, Anhui Jianzhu University, Hefei 230022, Anhui, China, <sup>b</sup>Technology Center of Hefei Customs District, Hefei 230022, Anhui, China, <sup>c</sup>Anhui Provincial Key Laboratory of Environmental Pollution Control and Resource Reuse, Anhui Jianzhu University, Hefei 230022, Anhui, China, <sup>d</sup>Anhui Province Key Laboratory of Advanced Building Materials, Anhui Jianzhu University, Hefei 230022, Anhui, China

**PO-137****Multifunctional  $\text{Co}_x\text{Zn}_{1-x}\text{Fe}_2\text{O}_4$ /diatomite composites with antibacterial and microwave adsorption properties**

Wanmi Guo <sup>a</sup>, Haitao Zhu <sup>b</sup>, Qifang Ren <sup>a</sup>, Shaohua Chen <sup>a</sup>, Yi Ding <sup>a,c,d</sup>, Chunyu Xiong <sup>c</sup>, Jinpeng Li <sup>c</sup>, Jing Chen <sup>d</sup>, Yuelei Zhu <sup>d</sup>,  
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**PO-138****Microwave absorption and photocatalytic activity of  $\text{Mg}_x\text{Zn}_{1-x}$  ferrite /diatomite composites**

Wanmi Guo <sup>1</sup>, Sulei Wang <sup>1</sup>, Qifang Ren <sup>1</sup>, Zhen Jin <sup>1</sup>, Yi Ding <sup>1,2,3</sup>, Chunyu Xiong <sup>2</sup>, Jinpeng Li <sup>2</sup>, Jing Chen <sup>3</sup>, Yuelei Zhu <sup>3</sup>, Won-Chun Oh <sup>4</sup>,  
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**PO-139****Application Research on Mechanical Strength and Durability of Porous Basalt Concrete**

Yuelei Zhu <sup>1</sup>, Jingchun Li <sup>2</sup>, He Zhu <sup>2</sup>, Long Jin <sup>2</sup>, Qifang Ren <sup>1</sup>, Yi Ding <sup>1\*</sup>, Jinpeng Li <sup>1</sup>, Qiqi Sun <sup>1</sup>, Zilong Wu <sup>1</sup>, Won-Chun Oh <sup>3,†</sup>,  
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**PO-140****Adsorption of volatile Organic Compounds by Inorganic Adsorbents**

A Yeon Kim, Yong Chan Kim, Ji Yeon Kim<sup>1</sup>, and Seung Kyu Park<sup>†</sup>, Department of Chemical Engineering, Hoseo University, Asan 336-795, Korea

**PO-141****Constructing Microporous Metal–Organic Frameworks Based on Pyrazole Ligand: Structure and supercapacitive performance**

Chao Feng<sup>\*1</sup>, Jing-Jing Guo <sup>1</sup>, Zong-Qun Li<sup>1</sup> <sup>1</sup>School of Material and Chemical Engineering, Bengbu University, Bengbu, 233030, PR China

**PO-142****Novel Co(II) and Ni(II) complexes based on a tripodal ligand: Crystal structure, Magnetic property and Hirshfeld surface analysis**

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**PO-143****Synthesis of titanium carbide nanocrystals by SHS method and its photocatalysis performance**

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**PO-144****Diffusion Mechanism Control between Multilayer Films based on Thick Film Technology**

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**PO-145****Two high toughness and flame retardant DOPO-containing polybenzoxazines based on polyether-urea**

Linlin Zhu<sup>1,2</sup>, Xiangyang Yang<sup>2</sup>, Yongbin Si<sup>3</sup>, Liyuan Zhang<sup>1</sup>, Xi Li<sup>1</sup> and Lingling Hou<sup>2†</sup> <sup>1</sup>Anhui Provincial Engineering laboratory of Silicon-based Materials, School of Materials and Chemical Engineering of Bengbu University, Bengbu, 233000, People's Republic of China. <sup>2</sup>Bengbu Qingquan Environmental Protection Co., LTD. Bengbu, 233000, People's Republic of China. <sup>3</sup>School of Resource and Environment of Anhui Agricultural University, Hefei, 230009, People's Republic of China

**PO-146****Long-cycle-life energy storage with holey graphene supported  $\text{TiNb}_2\text{O}_7$  nanostructure for supercapacitors**

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**PO-147****Microwave-assisted preparation of modified chitosan and its adsorption of methyl orange**

WANG Ke, ZHANG Guiyan, YIN Na, LI Zongqun <sup>1</sup>Anhui Provincial Engineering Technology Research Center of Silicon-Based Materials, Bengbu University, China 233000

**PO-148****Preparation and Properties of Naproxen -Loaded Poly(Lactic Acid) Microspheres by Electrospray Method**

Wenjing Ji<sup>1</sup>, Yangcui Ou<sup>1</sup>, Yanchao Hu<sup>1</sup>, Mi Zhou<sup>\*</sup> <sup>1</sup>Functional powder material laboratory of Bengbu City, Bengbu University, Bengbu, 233030, Anhui, China

## PO-149

### Synthesis of core-shell structure of Boron-doped Mesoporous C/SiO<sub>2</sub> Composite and CO<sub>2</sub> Adsorption Application

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## PO-150

### Research on the preparation and characterization of rifampicin-loaded ethyl cellulose composites

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## PO-151

### Adsorption removal of heavy metal Cd (II) in wastewater using bimetallic MOFs

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## PO-152

### Research on the miscibility of PMMA/FX blending systems

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## PO-153

### The phase and microstructure in in-situ oxidized SiC/Al composite

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## PO-154

### Evaluation of suitability for Weibull distribution of silicon oxycarbide fiber

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## PO-155

### High-temperature performance SiC-HfC nanocomposite fiber derived from metal-modified polycarbosilane

Seong-Gun Bae<sup>1</sup>, Sanghun<sup>1</sup> Kim, Yoonjoo Lee<sup>2</sup>, and Dong-Geun Shin<sup>1\*</sup>, <sup>1</sup> Convergence Transport Materials Center, Korea Institute of Ceramic Engineering & Technology, Jinju 52851, Republic of Korea<sup>2</sup>Semiconductor Materials Center, Korea Institutes of Ceramic Engineering & Technology, Jinju 52851, Republic of Korea

## PO-156

### Generation of Hydrogen Peroxide by Single-atom Cu on BaTiO<sub>3</sub> for Piezoelectric degradation of antibiotic

Xin Ni<sup>1</sup>, Kai Chen<sup>1</sup>, Bo Zhang<sup>1</sup>, Shaocong Ni<sup>1</sup>, Zeda Meng<sup>1†</sup>, Shouqing Liu<sup>1</sup>, Won-Chun Oh<sup>2</sup> <sup>1</sup>Suzhou University of Science and Technology, Suzhou 215009, China, <sup>2</sup>Department of Advanced Materials Science & Engineering, Hanseo University, Seosan 31962, Republic of Korea

## PO-157

### Single-atom Pd anchored on t-BaTiO<sub>3</sub> for Piezoelectric degradation of tetracycline

Kai Chen<sup>1</sup>, Xin Ni<sup>1</sup>, Bo Zhang<sup>1</sup>, Shaocong Ni<sup>1</sup>, Zeda Meng<sup>1†</sup>, Shouqing Liu<sup>1</sup>, Won-Chun Oh<sup>2</sup> <sup>1</sup>Suzhou University of Science and Technology, Suzhou 215009, China, <sup>2</sup>Department of Advanced Materials Science & Engineering, Hanseo University, Seosan 31962, Republic of Korea