

NANO KOREA 2024
Symposium

ACS Nano Summit 2024

▶ ACS Nano Summit 2024: Emerging Materials for Future Nanotechnology

Date/Time : July 4(Thu.), 2024 / 09:00–18:00

Venue : Room 210, KINTEX I, Korea

Theme : ACS Editors Keynote and Invited Talks, ACS Lectureship and Impact Awards Lecture

Introduction : Welcome to the ACS Nano Summit 2024: Emerging Materials for Future Nanotechnology. In this session, we will provide an unparalleled opportunity for global colleagues to reconnect and engage in discussions on the latest scientific breakthroughs, technological advancements, and emerging trends in the field. The distinguished conference will include keynote presentations by ACS Nano editors, who will lead themed sessions and encourage stimulating discussions on the growing challenges in the field. Featuring ACS Editors Keynote and Invited Talks, as well as ACS Lectureship and Impact Awards Lecture, this session promises insightful discussions and innovative perspectives on the evolving world of nanomaterials. Join us as we unravel the potential of emerging materials in driving advancements and revolutionizing nanotechnology as we know it.

Hosted/Organized by : ACS Publications

Program

Time	Speaker	Abstract title
Session I: Nano-Biotechnology (Chair: Il-Doo Kim)		
09:00-09:05	Organizing Committee Chair, Jinho Ahn (Hanyang Univ.)	Opening remark
09:05-09:25	ACS Nano, Topic Editor, Silvia Marchesan (Univ. of Trieste)	Chirality as a stargate for peptide self-assembly into functional nanostructures
09:25-09:45	ACS Nano, Executive Editor, Chunying Chen (NCNST)	Exploring the Biological Behavior and Fate of Nanomedicines by Advanced Light Source Analytical Techniques
09:45-10:05	ACS Nano, Executive Editor, Luis M. Liz-Marzán (CIC biomaGUNE)	Surfactants as Shape-Directing Agents for Metal Nanocrystal Growth
10:05-10:25	ACS Nano, Associate Editor, Tony Hu (Tulane Univ.)	Detecting the undetectable with AI-enabled nanotechnology
10:25-10:45	ACS Nano, Associate Editor, Wolfgang Parak (Univ. of Hamburg)	Quantitative Interaction of colloids with cells
10:45-11:15	Top-tier ACS Contributor, Taeghwan Hyeon (SNU)	Designed Synthesis and Assembly of Inorganic Nanomaterials for Energy and Catalytic Applications
11:15-12:00	Poster Session & ACS Networking time	
12:00-13:00	Lunch Break	
13:00-14:00	ACS Nano, Editor-in-Chief, Xiaodong Chen (NTU)	Conformal Nano-bio Interfaces for Sense Digitalization
Session II: Nanoelectronics, Energy & Catalyst (Chair: Luis M. Liz-Marzan)		
14:00-14:20	ACS Nano, Associate Editor, Anita Ho-Baillie (Univ. of Sydney)	2D Perovskite Optoelectronic and Solar Cell Research at the University of Sydney
14:20-14:40	ACS Appl. Nano Mater, Deputy Editor, T. Randall Lee (Univ. of Houston)	Photonic Nanoparticles for Hydrogen Production and Biosensing
14:40-15:00	ACS Nano, Associate Editor, Yan Li (Peking Univ.)	Single-Walled Carbon Nanotubes Acting as Electronic Materials
15:00-15:20	ACS Nano, Associate Editor, Jinhua Ye (Hebei Univ.)	Solar-to-Fuel Conversion: from Photocatalysis to Photothermal Catalysis
15:20-15:40	ACS Nano, Associate Editor, Mathieu Salanne (Sorbonne Univ.)	Understanding the electric double-layer from molecular dynamics
15:40-16:00	Coffee Break	
16:00-16:30	Burak Guzelturk (Argonne Nat'l Lab.) (Moderator: Xiaodong Chen)	Light-induced Structural Control in Nanocrystals
16:30-17:00	Hui Ying Yang (SUTD) (Moderator: Young Hee Lee)	High Performance Potassium Ion Batteries based on Hollow Ternary (Bi-Sb) ₂ S ₃ @N-C Nanocube
17:00-17:30	Junsuk Rho (POSTECH) (Moderator: Chunying Chen)	Metaphotonics for future optical components and devices: Design, materials and manufacturing
17:30-18:00	Poster Awards, ACS Top Contributors (Moderator: Il-Doo Kim)	

ACS Top Contributor in KOREA

ACS Nano Summit 2024 at NANOKOREA

ACS Top Contributor in KOREA

It is with great pleasure that I write to invite you to the ACS Top Contributors in Korea at ACS Nano summit session held with NANO KOREA 2024, on July 4th, 2024.

Award ceremony participants are Prof. Taeghwan Hyeon (SNU), Prof. Yang-Kook Sun (Hanyang Univ.), Prof. Sang Ouk Kim (KAIST), Prof. Han Young Woo (Korea Univ.), Prof. Cheolmin Park (Yonsei Univ.), Prof. Hu Young Jeong (UNIST), Prof. Chong Min Koo (SKKU), Prof. Ho Won Jang (SNU), Prof. Hyunhyub Ko (UNIST), Prof. Bumjun Kim (KAIST), Prof. Sunkook Kim (SKKU), Prof. Young Hee Lee (SKKU) and Prof. Il-Doo Kim (KAIST).

I look forward to seeing you at the ACS Nano Summit on July 4th.

Yours sincerely,
Prof. Il-Doo Kim and Xiaodong Chen



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About ACS NANO

ACS Nano is an international forum for the communication of comprehensive articles on nanoscience and nanotechnology research at the interfaces of chemistry, biology, materials science, physics, and engineering. Moreover, the journal helps facilitate communication among scientists from these research communities in developing new research opportunities, advancing the field through new discoveries, and reaching out to scientists at all levels.



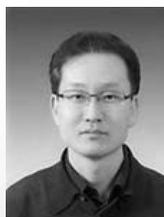
Taeghwan Hyeon
SNU



Yang-Kook Sun
Hanyang Univ.



Sang Ouk Kim
KAIST



Han Young Woo
Korea Univ.



Cheolmin Park
Yonsei Univ.



Hu Young Jeong
UNIST



Chong Min Koo
SKKU



Ho Won Jang
SNU



Hyunhyub Ko
UNIST



Bumjun Kim
KAIST



Sunkook Kim
SKKU



Young Hee Lee
SKKU



Il-Doo Kim
KAIST

[ACS] Poster Session

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

ACS_P_1

Strategies for Halide Perovskites-Based Functional Memristors towards Realization of Large-Scale Crossbar Array

In Hyuk Im and Ho Won Jang
(*Seoul National University*)

ACS_P_2

Electrochemical Cycling Performance of Lithium Metal Batteries with a Two Dimensional TiO₂ Nanosheet Coating Layer

Jun Seo Park¹, Sang Eun Lee¹, Donghyoung Kim², Mohammad Nasir¹, Hyung Mo Jeong², and Hee Jung Park¹
(¹*Dankook University*, ²*Sungkyunkwan University*)

ACS_P_3

Particle Size Control of NMP-Based Lonomer Dispersions via Multi-Frequency Sonication

Hyuk Jun Kwon^{1,2}, Joon Myung Choi², and Ki RoYoon¹
(¹*KITECH*, ²*Hanyang University*)

ACS_P_4

Development of Carbon Nanofiber-Carbon Nanotube Integrated Gas Diffusion Electrode using Electrospinning

Suyeon Bae¹, Changho Lee¹, Caroline Sunyong Lee², and Kiro Yoon^{1,2}
(¹*KITECH*, ²*Hanyang University*)

ACS_P_5

Multi-Frequency Ultrasonic Dispersion of Carbon Nanotubes as Cathode Additives for the High-Performance Li-Ion Batteries

Changho Lee¹, Seo Won Song¹, Seoyoon Shin², Kwang Won Kim¹, and Ki Ro Yoon¹
(¹*KITECH*, ²*KICET*)

ACS_P_6

Internally Connected Porous PVA/PAA Membrane with Cross-Aligned Nanofiber Network for Facile and Long-Lasting Ion Transport in Zinc-Air Batteries

Kwang Won Kim^{1,2}, Seon-Jin Choi², and Ki Ro Yoon^{1,2}
(¹*KITECH*, ²*Hanyang University*)

ACS_P_7

MXene/CNT Janus Film for Multifunctional Electromagnetic Shielding

Tufail Hassan¹, Nilufer Cakmakci², Youngjin Jeong², and Chong Min Koo¹

(¹*Sungkyunkwan University*, ²*Soongsil University*)

ACS_P_8

Advanced EMI Shielding and Joule Heating Capabilities of HighConductivity MXene/Polyurethane Nanocomposite

Seunghwan Jeong and Chong Min Koo

(*Sungkyunkwan University*)

ACS_P_9

Effective Lubricating Effect of OD Nanodiamonds for Highly Bendable and Stretchable Graphene Liquid Crystalline Fibers

Jin-Hyo Kim, Jin Goo Kim, and Sang Ouk Kim

(*KAIST*)

ACS_P_10

Centrifugal Spun Polyimide Nanofiber Protection Layer Separator for Lithium-Ion Batteries

Dae-Kwon Boo and Ji-Won Jung

(*University of Ulsan*)

ACS_P_11

Nb₂CT_x MXene for Fast Charging Lithium Metal Batteries

Shakir Zaman and Chong Min Koo

(*Sungkyunkwan University*)

ACS_P_12

Nano-Physical Unclonable Function Created by Nanopatterns from Block Copolymer Self-Assembly

Hyeon Ju Ko, Jang Hwan Kim, and Sang Ouk Kim

(*KAIST*)

ACS_P_13

Enhancing Ferroelectric Thin Film Transistor Performance with Epitaxial Yttrium-Doped Hafnium Zirconium Oxide as Dielectric Layer

J. Y. Kim and H. W. Jang

(*Seoul National University*)

ACS_P_14

Biomimetic Skin System Utilizing Artificial Mechano-Nociceptors based on Halide Perovskite Diffusive Memristors

Ji Hyun Baek, In Hyuk Im, and Ho Won Jang

(*Seoul National University*)

ACS_P_15

Human-Muscle-Inspired Single Fibre Actuator with Reversible Percolation

Sehwan Shin, Inho Kim, and Sangouk Kim

(KAIST)

ACS_P_16

Stretching Process Control of ePTFE-Based Porous Supports for Durable PEM Water Electrolysis and Fuel Cells

Daehwan Kang^{1,2}, Byungil Hwang², and Ki Ro Yoon¹

(¹KITECH, ²Chung-Ang University)

ACS_P_17

Advancements in Cartilage Regeneration: Iron Oxide-Embedded Schiff Base Hydrogels for Sustained Drug Delivery

Youngjun Choi¹, Dong-Wook Han¹, and Honghyun Park²

(¹Pusan National University, ²KIMS)

ACS_P_18

Value-Addition of Petroleum Refining Waste into High-Performance and Waste-Based Infrared Polarizer via Nanofabrication

Woongbi Cho¹, Jehwan Hwang², Sang Yeon Lee³, Jaeseo Park⁴, Nara Han³, Chi Hwan Lee², Sang-Woo Kang⁴, Augustine Urbas⁵, Jun Oh Kim⁴, Zahyun Ku⁵, and Jeong Jae Wie¹

(¹Hanyang University, ²Purdue University, ³Inha University, ⁴KRISS, ⁵Air Force Research Laboratory)

ACS_P_19

Large-Scale Production of ZnO QDs via Hydrodynamic Cavitation Technique

Taiyu Jin¹, Haishuo Wu¹, Il-Doo Kim², and Da-Wei Fang¹

(¹Liaoning University, ²KAIST)

ACS_P_20

Joule-Heating Assisted Efficient Synthesis of Co₄S₃/Co₉S₈ Nano-Catalyst on Carbon Nanofiber for Enhanced Li-Polysulfide Conversion and Prolonged Cycle Performance in Lithium-Sulfur Batteries

Seongcheol Ahn, Minsoo Kim, and Il-Doo Kim

(KAIST)

ACS_P_21

Design Strategy of Hollow Porous Carbon Nanomaterial Derived from PS@ZIF for Enhanced Electrocatalytic Activity

Heejun Park, Jong Won Baek, and Il-Doo Kim

(KAIST)

ACS_P_22

Highly Stable Lithium Metal Anode based on Ultra-Thin Nanofiber Protection Layer

Yujang Cho, Heejun Park, and Il-Doo Kim

(KAIST)

ACS_P_23

Template-Free Electrochemical Growth of Vertical Single-Crystalline Cu Nano-Wires for BEOL Interconnection

Jae Wook Lee and Jae Yong Song

(POSTECH)

ACS_P_24

Empowering Polysulfide Control in Lean Electrolyte Lithium-Sulfur Batteries with Nickel-Cobalt Alloy Nanoparticles and Metal Oxide Nanoparticles

Chaiwon Lee and Jang-Yeon Hwang

(Hanyang University)

ACS_P_25

Revealing the Nucleation and Interfacial Deposition Rates of Sulfur/LiPolysulfide on Carbonaceous Materials with Controlled Graphitization Levels in Lithium-Sulfur Batteries

M.S. Kim¹, J.S. Nam¹, S.H. Cho², J.W. Jung³, and I.D. Kim¹

(¹KAIST, ²NNFC, ³University of Ulsan)

ACS_P_26

Direct Electricity Generation from Directional Migration of Ion through MXene-Based Nanochannel

Sangyun Na, Geonyoung Jung, Yoojin Chang, and Hyunhyub Ko

(UNIST)

ACS_P_27

Ultrathin $Ti_3C_2T_x$ MXene Film-Type Shape-Configurable Thermoacoustic Loudspeakers with Tunable Sound Directivity

Geonyoung Jung, Jinyoung Kim, and Hyunhyub Ko

(UNIST)

ACS_P_28

Plasmonic Hydrogel Actuators for Octopus-Inspired Photo/ThermoResponsive Smart Adhesive Patch

Jeeyoon Kim, Jeonghee Yeom, Yun Goo Ro, Geoseong Na, Woonggyu Jung, and Hyunhyub Ko

(UNIST)

ACS_P_29

Replicating Cicada Wing Nanostructure through Electrohydrodynamic Instability in Extended Mode

Hyunje Park, Heejoon Chae, and Dae Joon Kang

(Sungkyunkwan University)

ACS_P_30

Direct-Contact Annealing for Carbon Nanooion Synthesis with Photothermal Agents

Dogyeong Jeon, Hamin Shin, Jun-Hwe Cha, and Il-Doo Kim

(KAIST)

ACS_P_31

Exploring Cutting-Edge Hyperbolic Dispersion in Semicrystalline Conjugated Polymers via First-Principles Calculations

Suim Lim^{1,2}, Yeon Ui Lee³, and Kanghoon Yim¹

(¹KIER, ²Sogang University, ³Chungbuk National University)

ACS_P_32

Efficiency Enhancement of InGaP/GaAs Double-Junction Thin Film Solar Cell using TiO₂ Nanotextured Surface

Hyo Jin Kim, Gwang Yeol Park, and Woo Yong Jeong

(KOPTI)

ACS_P_33

2D Heterointerface-Entrapped Pt Single-Atoms for Exceptionally Stable Hydrogen Evolution Catalysts

Mingyu Sagong, Hamin Shin, Jaewoong Lee, Jihan Kim, and Il-Doo Kim

(KAIST)

ACS_P_34

Atmospheric Moisture-Driven Electricity Generators using Asymmetric Hygroscopic Materials for Wound Healing

Yeji Han, Yujang Cho, Min Soo Kim, Seongcheol Ahn, and Il-Doo Kim

(KAIST)

ACS_P_35

Enhanced Stability and High Energy Density Lithium Metal Batteries via Multifunctional SiO₂@Cu Nanofiber Membrane Infusion

Heejun Park and Il-Doo Kim

(KAIST)

ACS_P_36

Colorimetric Sensing Array and Nano-Fiber Yarn for Distinguishing Carbonyl Groups

Donghyun Kim, Jinho Lee, Seongcheol Ahn, Chungseong Park, Euichul Shin, and Il-Doo Kim

(KAIST)