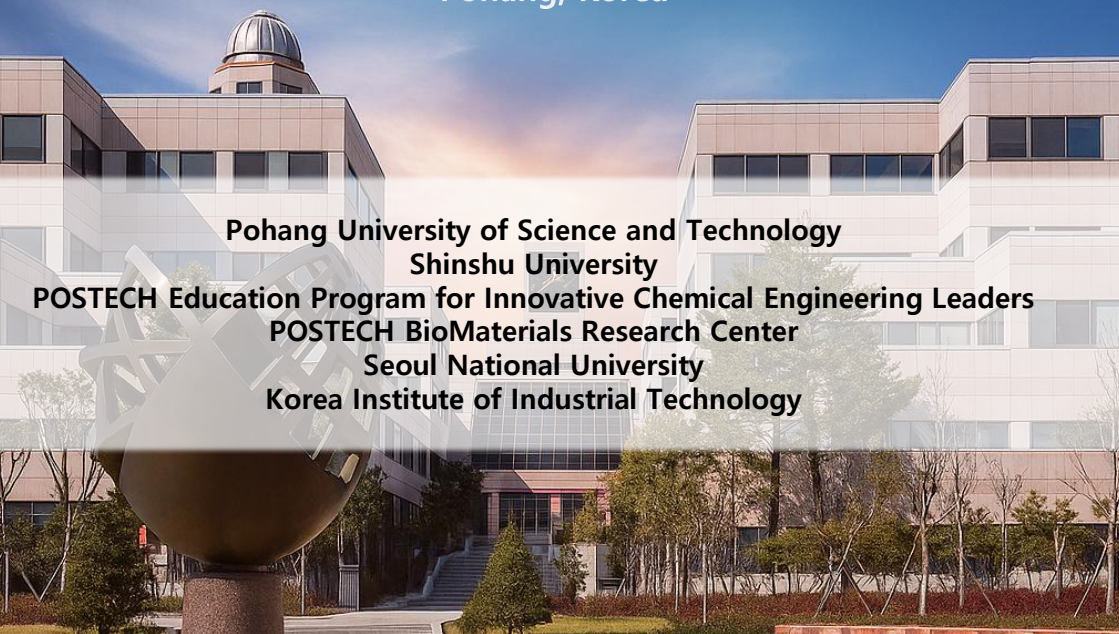
2025 JCK Symposium

16th Japan-China-Korea International Symposium on High-Tech Fiber Engineering for Young Researchers

September 15(Mon)-18(Thu), 2025

Pohang University of Science and Technology
Pohang, Korea



Pohang University of Science and Technology
Shinshu University
POSTECH Education Program for Innovative Chemical Engineering Leaders
POSTECH BioMaterials Research Center
Seoul National University
Korea Institute of Industrial Technology

JCK Symposium History

15th	2024.9.2-5 @ Nantong University, China
14th	2023.8.28-31 @ Soochow University, China
13th	2021.12.15-16 @ Kyoto University, Japan
12th	2021.9.19 @ Shinshu University, Japan & Online
11th	2019.9.8-12 @ Qingdao University, China
10th	2018.8.24-30 @ Soochow University, China
9th	2017.8.20-23 @ Shinshu University, Japan
8th	2016.9.25-30 @ Seoul National University, Korea
7th	2015.11.12-20 @ Soochow University, China
6th	2013.8.19-26 @ Seoul National University & Hanyang University, Korea
5th	2013.3.4-8 @ Soochow University, China
4th	2011.8.29-9.4 @ Shinshu University, Japan
3rd	2009.12.11-12 @ Chonbuk National University, Korea
2nd	2008.8.6-9 @ Shinshu University, Japan
1st	2007.9.10-12 @ Chonbuk National University, Korea

Welcoming Remarks

Dear Colleagues and Friends,

It is my great pleasure to welcome you to the 16th Japan–China–Korea International Symposium on High-Tech Fiber Engineering for Young Researchers, here at Pohang University of Science and Technology (POSTECH) in Pohang, Korea.

Since it began in 2007, this JCK symposium has been held in turn in Japan, China, and Korea. Each year, it has helped young researchers share ideas, learn from senior scientists, and build strong friendships across our three countries. Past meetings—in places like Jeonju, Ueda, Seoul, Qingdao, Kyoto, Soochow, and Nantong—show how this community continues to grow and renew itself. The goal of JCK has always been simple: to connect young scientists with each other and with mentors, so that new ideas can turn into real collaborations.

Founded in 1986, POSTECH is Korea's leading university in science and technology, renowned not only for advancing the nation's research and innovation but also for fostering global impact through world-class education, pioneering discoveries, and strong international collaboration.

I would like to sincerely thank all participants for bringing their latest work and the organizing members for their tremendous support. A special welcome goes to the young researchers: please ask questions, share your thoughts, and take this chance to build lasting connections with colleagues from Japan, China, and Korea.

Thank you again for joining us. I wish you an enjoyable and successful symposium and a memorable time in Pohang.

Sincerely yours,

Hyung Joon Cha,
Organizer-In-Chief
SeAH Chair Professor
Pohang University of Science and Technology

Congratulatory Remarks

Distinguished guests, esteemed colleagues, and young researchers, It is a great pleasure to welcome all of you to the 16th JCK Symposium, held here at the beautiful campus of POSTECH. I would like to extend my sincere gratitude to Professor Cha of POSTECH, who has taken on the responsibility of organizing this year's symposium. I also wish to express my appreciation to Professor Lee from Seoul National University, Professor Zhang from Soochow University, Professor Ding Bing from Donghua University, and many other distinguished scholars from Korea, China, and Japan who have gathered here today to share their knowledge and insights.

The JCK Symposium is more than an academic event. It is a vibrant platform driven by young researchers and graduate students from Korea, China, and Japan, who are shaping the future of high-performance fibers, functional materials, and advanced textile technologies. What makes JCK truly special is its open and inclusive spirit—a place where emerging scholars can freely present their work, engage in dynamic discussion, and draw inspiration from one another, regardless of seniority or academic background. This symposium is not merely a venue for exchanging data or technical ideas. It is a gathering where young minds from diverse backgrounds come together as one, united by a shared passion for innovation and discovery. I firmly believe that the connections formed here will grow into lasting partnerships, and that many of you sitting here today will go on to become global leaders—researchers, entrepreneurs, and policymakers who will shape the world of tomorrow.

Over the past 15 years, the JCK Symposium has played a critical role in promoting collaboration in fields such as nanofibers, smart textiles, eco-friendly processes, and functional composites. Looking ahead, we must broaden this cooperation into joint research platforms, academic-industrial collaborations, student exchange programs, and pathways for commercialization. Through these efforts, we can not only expand the boundaries of research but also establish a model of international cooperation that transcends national borders.

Dear young researchers, May your experience here in Pohang become a turning point in both your academic and personal journeys. Let this symposium be a space where you learn from one another, grow together, and forge a shared vision of the future—one where science connects us, and collaboration defines us.

Once again, I warmly congratulate all of you on the successful opening of the 16th JCK Symposium and wish you continued health, inspiration, and success in your research.

Thank you.

Ick Soo KIM
Distinguished Professor,
National University Corporation
Shinshu University

Congratulatory Remarks

Dear Distinguished Guests, Colleagues, and Young Scholars,

On behalf of the organizing committee, it is my great pleasure to welcome you to the 16th Japan-China-Korea International Young Scholars Symposium on Advanced Fibers at POSTECH.

Since its inception, this symposium has been dedicated to a powerful vision: fostering collaboration and innovation among the brightest young minds in fiber science from East Asia. Over the past fifteen meetings, we have proudly witnessed this platform grow into a vibrant incubator for ideas. It has catalyzed international research projects, launched careers, and strengthened the academic bonds between our three nations, driving progress in smart textiles, sustainable materials, and composites.

Today, our field is evolving with unprecedented urgency. The global demand now calls for intelligent, adaptive, and sustainable fiber solutions that address critical challenges in healthcare, energy, and the environment. This symposium is an opportunity to engage with these needs directly, to share breakthroughs, and to forge the collaborations that will define the next generation of advanced materials.

Looking ahead, our community must continue to expand its horizons. We are committed to not only deepening the ties between China, Japan, and Korea but also to mentoring young scholars and embracing global perspectives. You, the researchers and students here today, are the key to this future. We encourage you to connect boldly, challenge conventions, and build the networks that will drive our field forward.

Our sincere gratitude to POSTECH for hosting this event and to everyone participating. Let us make this symposium a milestone of inspiration and partnership.

Sincerely yours,

Ke-Qin Zhang
Professor
National Engineering Laboratory for Modern Silk
Soochow University

Program at a Glance

Every Session will be held at
POSTECH-Environmental Engineering Building Auditorium #101

	Sep 15 (Mon)	Sep 16 (Tue)	Sep 17 (Wed)
8:30-9:00		Conference Registration (8:30~9:00)	
9:00-10:00		Opening Ceremony (9:00~9:30)	PI Session - III (9:00~10:15)
10:00-11:00		Keynote Session (9:30~11:00)	Student Session - III (10:15~11:15)
11:00-12:00		PI Session - I (11:00~12:15)	Poster Session - II (11:15~12:15)
12:00-13:00		Lunch (12:15~13:10)	Lunch (12:15~13:10)
13:00-14:00		PI Session - II (13:10~14:25)	Student Session - IV (13:10~14:10)
14:00-15:00		Student Session - I (14:25~15:25)	PI Session - IV (14:10~15:25)
15:00-16:00	Conference Registration (15:00~18:00)	Poster Session - I (15:25~16:30)	Awarding Ceremony (15:30~16:00)
16:00-17:00		Student Session - II (16:30~17:30)	POSTECH Campus Tour (16:00~18:00)
17:00-18:00			
18:00-19:00	Welcome Reception (18:00~21:00)	Dinner (18:00~21:00)	Dinner (18:30~21:30)
19:00-20:00			
20:00-21:00			

September 15 (Mon)

(15:00-18:00)	**Conference Registration**	POSTECH – Envir. Eng. Bldg. # 101
(18:00-21:00)	**Welcome Reception**	POSTECH – POSCO Int'l. Center

September 16 (Tue)

(08:30-09:00)	**Conference Registration**	POSTECH – Envir. Eng. Bldg. # 101
(09:00-09:30)	**Opening Ceremony**	
Hyung Joon Cha	POSTECH, Korea	Welcomig remarks
Ick Soo Kim Ke-Qin Zhang	Shinshu University, Japan Soochow University, China	Congratulatory Remarks
(09:30-11:00)	**Keynote Session**	Jungsoon Lee (Chungnam National University, Korea)
Ding Bin	Shanghai Polytech University, China	Felxible/elastic ceramic nanofibrous materials
Chun Hong Zhu	Shinshu University, Japan	Study on wearable smart textiles for sensing
Ki Hoon Lee	Seoul National University, Korea	Silk protein fabrication at the interface of biology and polymer science
(11:00-12:15)	**PI Session – I**	Kai Wei (Soochow University, China)
Ke-Qin Zhang	Soochow University, China	Radiative heat regulation and integration of ther mal energy harvesting textiles from an interdiscip linary perspective
Soyoung Park	Osaka University, Japan	Functionalized nucleic acids as designable biohy brid materials for advanced bioscience
Dong Soo Hwang	POSTECH, Korea	Structurally golden colored sustainable luxury se a silk from *Atrina pectinate*
(12:15-13:10)	**Lunch**	
(13:10-14:25)	**PI Session – II**	Kye Il Joo (Ewha Womans University, Korea)
Xuehong Ren	Nantong University, China	Biomimetic nanocatalyst doped in bacterial cellul ose-based composites with biocatalytic function f or antibacterial therapy
Noriko Miyamoto	Aichi Institute of Technology, Japan	Nanotechnology-based therapeutic nucleic acids for cancer treatment
Junmin Lee	POSTECH, Korea	*Biopolymer-based platforms for high-throughput and personalized tissue modeling*

September 16 (Tue)

(14:25-15:25) **Student Session - I** Azeem Ullah (Shinshu University, Japan)

(15:25-16:30) **Poster Session - I**

(16:30-17:30) **Student Session - II** Hyeong Yeol Choi (Donga University, Korea)

(18:00-21:00) **Dinner**

September 17 (Wed)

(09:00-10:15) **PI Session – III** Jian Shi (Shinshu University, Japan)

Fei Wang	Donghua University, China	Fabrication strategies and functionality of superel astic electrospun nanofibrous aerogels
Xiaota Cheng	Shanghai University of Engineering Science, China	Direct synthesis of highly stretchable ceramic nanofi brous aerogels via 3D reaction electrospinning
Fan Wu	Shanghai University of Engineering Science, China	Breaking the thermo-mechanical trade-off in alu minum-based ceramic nanofibers for extreme the rmal management

(10:15-11:15) **Student Session - III** Gopiraman Mayakrishnan (Shinshu University, Japan)

(11:15-12:15) **Poster Session - II**

(13:10-14:10) **Student Session - IV**

(14:10-15:25) **PI Session - IV** Ji Ha Lee (Shinshu University, Japan)

Jianlong Ge	Nantong University, China	Carbon nanofibrous materials for efficient adsorptive re moval of volatile organic compounds from air
Keita Yamana	Hiroshima University, Japan	Dopasomes: novel inner cross-linked lposomes with enhanced colloidal stability
Seung Pil Pack	Korea University, Korea	Biomineralization: bio-inspired approaches and a pplications

(15:30-16:00) **Awarding Ceremony**

(16:00-18:00) **POSTECH Campus Tour**

(18:30-21:30) **Dinner**

2025 JCK Symposium

16th Japan-China-Korea International Symposium on High-Tech Fiber Engineering for Young Researchers

[S1] Keynote Session

- [S1] **Keynote Session** : Sep 16 (Tue) 9:30 ~ 11:00

September 16 (Tue), 2025, 09:30-11:00
(Environmental Engineering Building Auditorium #101)

S1-1 **09:30-10:00**

Flexible/Elastic Ceramic Nanofibrous Materials

Ding Bin
Shanghai Polytechnic University, China
Specialties: Functional fiber materials, Nanofiber aerogels, Thermal insulation, Warmth retention

Ceramic fibrous materials not only meet the needs of people's daily life, but also are widely used in aerospace, national defense, military industry, and other fields. Since ancient times, reducing fiber diameter is one of the important development trends of fibrous materials. When the diameter of the fiber is reduced to the nanoscale, the properties of the material can be effectively improved and its application fields can be broadened. Electrospinning has become the main method for preparing ceramic nanofibrous materials due to its advantages of abundant spinnable raw materials and high tunability of fiber structure. This report reviews the recent research work of our group on the controllable preparation and functional application of electrospun ceramic nanofibrous materials: (1) A variety of flexible ceramic nanofibrous materials were prepared for the first time to solve the problem of the brittleness of traditional ceramic fibers, which realized its application in the field of thermal insulation. (2) Two new construction methods were innovatively proposed to prepare ceramic nanofiber aerogels with ultralight and superelastic properties, realizing their special applications in high-temperature thermal insulation, fire protection and heat preservation, flame retardancy and noise reduction.

September 16 (Tue), 2025, 09:30-11:00
(Environmental Engineering Building Auditorium #101)

S1-2 **10:00-10:30**

Study on Wearable Smart Textiles for Sensing

Chun Hong Zhu
Shinshu University, Japan
Specialties: Textile engineering, 3D textiles, Smart textiles

Flexible wearable sensors are increasingly important for health monitoring, human–machine interaction, and smart textiles, yet conventional designs often face trade-offs between sensitivity, detection range, durability, and multifunctionality. Recent advances in fiber- and membrane-based sensing have addressed these challenges through innovations in microstructure design, wiring optimization, and material integration. In this study, a kind of wet-spinning fiber was fabricated, showing high sensitivity, broad detection ranges, and robust mechanical performance while maintaining comfort and flexibility. The fabrication method provides a versatile and scalable foundation for next-generation wearable sensing systems and intelligent textiles.

September 16 (Tue), 2025, 09:30-11:00
(Environmental Engineering Building Auditorium #101)

S1-3 **10:30-11:00**

Silk Protein Fabrication at the Interface of Biology and Polymer Science

Ki Hoon Lee
Seoul National University, Korea
Specialties: Silk proteins, Protein-based materials, Natural polymers, Cellulose nanofibers, Biomaterials

Silk, traditionally known as a textile material, is a natural protein-based polymer produced by the silkworm Bombyx mori. It is composed of fibroin and sericin, with two fibroin fibrils encapsulated by sericin. Beyond its historical role in textiles, silk is now recognized as a versatile biopolymer with potential in biomedical, environmental, and other advanced applications. Our laboratory has been exploring fabrication strategies to tailor silk proteins for specific functions in these emerging fields. A central theme of our approach is to reinterpret the hierarchical biological structure of silk proteins through the lens of polymer science. By disassembling the native protein structures and reconstructing them with an understanding of polymer physics, we have developed silk-based materials in diverse formats, suited for various applications. More recently, we have also applied biological principles to explain the morphological transitions observed in silk processing, bridging the conceptual gap between polymer theory and protein self-assembly. In this talk, I will highlight key findings from our group, emphasizing how polymer science can both inform and be informed by the unique properties of silk proteins.

2025 JCK Symposium

16th Japan-China-Korea International Symposium on High-Tech Fiber Engineering for Young Researchers

[S2] PI Session

- [S2-1] **PI Session – I** : Sep 16 (Tue) 11:00 ~ 12:15
- [S2-2] **PI Session – II** : Sep 16 (Tue) 13:10 ~ 14:25
- [S2-3] **PI Session – III** : Sep 17 (Wed) 9:00 ~ 10:15
- [S2-4] **PI Session – IV** : Sep 17 (Wed) 14:10 ~ 15:25

September 16 (Tue), 2025, 11:00-12:15
(Environmental Engineering Building Auditorium #101)

S2-1-1 **11:00-11:25**

Radiative Heat Regulation and Integration of Thermal Energy Harvesting Textiles from an Interdisciplinary Perspective

Ke-Qin Zhang
Soochow University, China
Specialties: Bio-Medical Fibers, Functionalized Fiber Materials, Green Structural Color Fibers

Amidst escalating global energy demands and pressing environmental challenges, the development of efficient and eco-friendly energy solutions has emerged as a critical research priority. Radiation-thermoregulatory textiles present a transformative approach to this endeavor, synergizing advanced micro/nano-optical fiber materials with industrial-scale printing technologies to achieve precise thermal management in wearable energy-harvesting systems. Despite significant progress in this field, a systematic framework that bridges fundamental theory, scalable fabrication, and integrated applications remains underexplored. This talk addresses this gap by elucidating the underlying principles of radiative heat modulation and demonstrating its potential for next-generation wearable devices and self-powered systems. At the core of this talk lies the strategic interplay between spectral-selective material design and hierarchical structural engineering, enabling simultaneous high-efficiency energy harvesting and dynamic thermal regulation. Modular integration of these functionalities through printing techniques not only enhances energy conversion efficiency but also ensures compatibility with large-scale industrial production. By outlining current challenges and future directions, this discussion aims to bridge laboratory research and commercialization, advancing radiation-regulative textiles as a viable path toward energy sustainability and carbon neutrality.

September 16 (Tue), 2025, 11:00-12:15
(Environmental Engineering Building Auditorium #101)

S2-1-2 **11:25-11:50**

Functionalized Nucleic Acids as Designable Biohybrid Materials for Advanced Bioscience

Soyoung Park
Osaka University, Japan
Specialties: Biohybrid catalysts and artificial metalloenzymes, Fluorescent nucleic acids, Nucleic acid therapeutics for immune system, Molecular photo switch, Biohybrid materials

DNA is one of the most abundant and naturally occurring helical polymers on Earth. Beyond its essential role in genetics, this ubiquitous biomolecule can also serve as a chiral scaffold for asymmetric synthesis. We have investigated DNA-based catalysis by directly incorporating binding ligands into DNA strands, thereby elucidating key structural and mechanistic features of these hybrid catalysts. Building on these insights, we have developed modular DNA-based hybrid catalysts by rationally designing catalytic sites within the DNA framework and exploiting their reactivity with various metal ions. Recently, we further advanced this modular strategy by incorporating amino acid residues into DNA oligonucleotides via an acyclic D-threoninol linker. This approach led to the creation of a novel class of biohybrid molecules, termed amino acid–nucleic acid hybrids (ANHs). Incorporating amino acids into DNA imparts new functional capabilities while preserving the intrinsic properties of the nucleic acid scaffold. Encouraged by these results, we are now exploring ANHs as next-generation DNA aptamers with enhanced binding and functional potential. In this talk, I will share our research journey and recent progress in developing functionalized nucleic acids as designable biohybrid materials for advanced bioscience.

September 16 (Tue), 2025, 11:00-12:15
(Environmental Engineering Building Auditorium #101)

S2-1-3 **11:50-12:15**

Structurally Golden Colored Sustainable Luxury Sea Silk from *Atrina Pectinate*

Dong Soo Hwang
Pohang University of Science and Technology (POSTECH)
Specialties: Nanomechanics, Ocean Carbon Capture, Holdfast

The harvesting of sea silk, a luxurious golden textile traditionally obtained from the endangered mollusk Pinna nobilis, faces severe limitations due to conservation efforts, driving the search for sustainable alternatives. Atrina pectinata, a phylogenetically close relative within the Pinnidae family is identified, as a viable source of biomimetic sea silk. The byssal threads of *A. pectinata* can be processed using existing methods, providing a way to continue producing this historically significant textile. These threads exhibit a remarkable hierarchical structure with globular proteins organized across multiple scales and stabilized by supramolecular sugar-lectin interactions that influence their mechanical properties. Moreover, the threads display a brilliant golden hue arising from structural coloration, ensuring exceptional lightfastness, retaining their color for millennia.

September 16 (Tue), 2025, 13:10-14:25
(Environmental Engineering Building Auditorium #101)

S2-2-1 **13:10-13:35**

Biomimetic Nanocatalyst Doped in Bacterial Cellulose-based Composites with Biocatalytic Function for Antibacterial Therapy

Xuehong Ren
School of Textile and Clothing Nantong University (NTU), China
Specialties: Antimicrobial textiles and polymers, functional textiles, and biomedical materials

Bacterial and pathogenic infection severely threatens human health, which brings great challenges to clinical therapeutics and wound care. For treating complex bacterial infections, developing novel antibacterial biomedical materials with targeted effect and multifunctions is highly desired. Nanocatalysts or nanozymes can effectively catalyze the decomposition of small molecules into antibacterial reactive oxygen species (ROS), which avoids the generation of drug-resistant bacteria and reduces the toxicity to normal tissues. In this study, bacterial cellulose (BC) which possesses excellent biocompatibility, hygroscopic property and nanofibrous structure was applied as the substrate, and several nanozyme catalysts with specific catalytic ability were synthesized and incorporated with BC to construct a series of BC/nanozymes composites with catalytic antibacterial function including thermo-sensitive injectable nanogel, hemostatic hydrogel, and composite wound dressing. This study brings novel insights for developing antibacterial materials for treating in vitro and in vivo bacterial infections and expanding the application of nanozymes in antibacterial fields.

September 16 (Tue), 2025, 13:10-14:25
(Environmental Engineering Building Auditorium #101)

S2-2-2 **13:35-14:00**

Nanotechnology-based Therapeutic Nucleic Acids for Cancer Treatment

Noriko Miyamoto
Aichi Institute of Technology, Japan
Specialties: DNA and RNA based nanotechnology, Therapeutic oligo nucleic acid medicine , Drug delivery systems

Nucleic acids, DNA and RNA, -based nanoparticles (NNPs) have garnered significant interest as potential carriers for therapeutic nucleic acid delivery. However, achieving biologically stable NNPs that evade immune recognition under physiological conditions remains a major challenge. Here, we present a novel NNPs, named RION (Reversibly ionic oligonucleotide-based nanoparticles), composed of therapeutic oligonucleotides. These nanoparticles are formed through a self-assembly process involving RNA-RNA hybridization and electrostatic interactions between chemically modified oppositely charged ionic oligonucleotides. To demonstrate the versatility of RION's chemical design, we introduced nutrient molecules onto the RION surface to enhance active targeting and cellular uptake. These nutrient-conjugated RIONs (Nut-RIONs) form spherical nanoparticles with diameters below 100 nm. Notably, Nut-RIONs exhibited dose-dependent inhibition of cell proliferation in human pancreatic cancer cells (MiaPaCa-2). This study highlights RION as a promising platform for the delivery of therapeutic nucleic acids, with strong potential for applications in cancer therapy.

September 16 (Tue), 2025, 13:10-14:25
(Environmental Engineering Building Auditorium #101)

S2-2-3 **14:00-14:25**

Biopolymer-based Platforms for High-throughput and Personalized Tissue Modeling

Junmin Lee
Pohang University of Science and Technology (POSTECH)
Specialties: Biomaterials, Tissue engineering, Stem cells, Organs-on-a-chip

Despite significant progress in biomaterials and biochip design for tissue engineering and organ-on-a-chip platforms, challenges persist in achieving high-throughput capabilities and accurately replicating dynamic biological environments. This presentation introduces fiber-engineered platforms based on biopolymer composites that address these limitations, enabling precise screening of biological factors and drug efficacy in disease models. We first demonstrate a high-throughput system specifically developed for evaluating the microenvironment of knee cartilage, using aligned biopolymer-based scaffolds to support mechanical cues and tissue-specific responses. This platform successfully identified optimal matrix conditions that enhance cartilage functionality. Additionally, we introduce a dynamic simulation platform that mimics the physiological properties of various soft tissues, utilizing flexible biopolymer fibers to replicate native mechanical stimulation. A personalized skin model is also presented, constructed using patient-derived cells and their decellularized extracellular matrices that recapitulate individual wound healing profiles and inflammatory responses. This fiber-based approach enables precision testing of regenerative therapeutics in a patient-specific context. Collectively, these fiber-engineered systems represent a transformative step toward next-generation tissue models and personalized medicine, showcasing the potential of biopolymer-based fiber platforms in regenerative healthcare and biomedical research.

September 17 (Wed), 2025, 09:00-10:15
(Environmental Engineering Building Auditorium #101)

S2-3-1 **09:00-09:25**

Fabrication Strategies and Functionality of Superelastic Electrospun Nanofibrous Aerogels

Fei Wang
Donghua University, China
Specialties: Nanofiber aerogel, Nanofiber membrane, Waterproof and breathable, Thermal insulation

Electrospun nanofibrous membranes, as the forefront of advanced fibrous materials, hold extraordinary potential applications ranging from environmental, energy to biology owing to their integrated advantages of fine diameter, extremely high aspect ratio, and high porosity. Despite their outstanding potential, the major problem associated with electrospun nanofibers is their anisotropic lamellar deposition character, which leads to the bottlenecks in further improving the thickness and porosity of current electrospun nanofibrous materials. Alternatively, three-dimensional nanofibrous aerogels with both high porosity and excellent compressive resilience might open up the possibility of solving the above problem and expand the applications of electrospun nanofibers; however, creating such aerogels has proven extremely difficult. Therefore, we create fibrous, isotropically-bonded elastic aerogels with a cellular network by two strategies, including fibrous freeze-shaping technique, and direct electrospinning. The successful synthesis of such fascinating aerogels will open broad technological implications in thermal insulation, air filtration, and flexible electrical devices.

September 17 (Wed), 2025, 09:00-10:15
(Environmental Engineering Building Auditorium #101)

S2-3-2 **09:25-09:50**

Direct Synthesis of Highly Stretchable Ceramic Nanofibrous Aerogels via 3D Reaction Electrospinning

Xiaota Cheng
Shanghai University of Engineering Science, China
Specialties: Flexible and elastic ceramic nanofiber, Aerogels, Radiative cooling, Thermal Insulation

Ceramic aerogels are attractive for many applications due to their ultralow density, high porosity, and multifunctionality but are limited by the typical trade-off relationship between mechanical properties and thermal stability when used in extreme environments. In this work, we design and synthesize ceramic nanofibrous aerogels with three-dimensional (3D) interwoven crimped-nanofibre structures that endow the aerogels with superior mechanical performances and high thermal stability. These ceramic aerogels are synthesized by a direct and facile route, 3D reaction electrospinning. They display robust structural stability with structure-derived mechanical ultra-stretchability up to 100% tensile strain and superior restoring capacity up to 40% tensile strain, 95% bending strain and 60% compressive strain, high thermal stability from -196 to 1400 ℃, repeatable stretchability at working temperatures up to 1300 ℃, and a low thermal conductivity of 0.0228 W m-1 K-1 in air. This work would enable the innovative design of high-performance ceramic aerogels for various applications.

September 17 (Wed), 2025, 09:00-10:15
(Environmental Engineering Building Auditorium #101)

S2-3-3 **09:50-10:15**

Breaking the Thermo-mechanical Trade-off in Aluminum-based Ceramic Nanofibers for Extreme Thermal Management

Fan Wu
Shanghai University of Engineering Science, China
Specialties: Ceramic micro-nano fiber, Thermal management application

Advanced aluminum-based ceramic nanofibers, leveraging their exceptional thermal stability, chemical inertness, electrical insulation, and high aspect ratio, have emerged as pivotal thermal management materials driving progress in deep space exploration, green transportation, and next-generation electronic devices. However, current ceramic nanofibers universally face the bottleneck of balancing "mechanical-thermal" properties, struggling to simultaneously achieve efficient thermal insulation/dissipation while maintaining superior mechanical strength and structural integrity. For Alumina (Al_2O_3) Nanofibers, we propose a dual-phase structural design strategy for ceramic nanofibers: Utilizing nanograin interlocking effectively suppresses abnormal grain growth at high temperatures (withstanding up to 1500 °C). Furthermore, we designed ultrafine alumina colloidal particles. This significantly reduced the grain size of the alumina ceramic nanofibers, markedly enhancing the high-temperature structural stability, compressive strength, and flexural strength of the nanofiber network. Concurrently, it optimized their inherently low thermal conductivity and extended thermal stability duration to 15 hours. For Aluminum Nitride (AlN) Nanofibers, We designed and implemented a self-templating strategy to form densified aluminum nitride nanofibers. This successfully produced self-supporting, robust AlN nanofiber membranes, overcoming the critical challenge of difficult densification in AlN ceramic nanofibers. Crucially, this approach maintained high in-plane/through-plane thermal conductivity while significantly enhancing flexibility and fracture toughness.

September 17 (Wed), 2025, 14:10-15:25
(Environmental Engineering Building Auditorium #101)

S2-4-1 **14:10-14:35**

Carbon Nanofibrous Materials for Efficient Adsorptive Removal of Volatile Organic Compounds from Air

Jianlong Ge
School of Textile and Clothing Nantong University (NTU), China
Specialties: Functional nanofibers, Oil-water separation, VOCs adsorption, Chemical protective suits materials

In recent decades, with the rapidly development of industries, a large amount of harmful volatile organic compounds (VOCs) has been emitted and pose a significant threat to ecological environment and human health. Therefore, it is very important to effectively treat the VOCs pollutions. Among various VOCs treatment technologies, the adsorptive separation technology is considered one of the most promising candidates due to its mature process, high recovery efficiency, simple operation, and low energy consumption. In general, the adsorbent is the critical component for an adsorptive separation system. Compared with other kinds of adsorbent, carbonaceous adsorbents are widely used to adsorb various gases for their advantages of large specific surface areas, developed pore structures, and stable physical-chemical properties. Recently, carbon nanofibers as an emerging type of carbonaceous adsorbents, have attracted great attentions in the field of gas adsorptions. Compared with traditional carbonaceous adsorbents (e.g. granular activated carbons and conventional activated carbon fibers), the smaller diameter of carbon nanofibers gives them higher porosity and faster adsorption kinetics, which are attractive in quick removal of VOCs. However, the relatively simple porous structures and inert surface chemical properties of common carbon nanofibers still limit their ability to further enhance the application performances.

In this contribution, a facile, effective, and scalable strategy was developed to create a hierarchical porous carbon nanofibrous membrane (CNFM) with a large specific surface area, hierarchical pore structure and functionalized chemical surfaces for the highly efficient adsorptive removal of VOCs from air. Phenolic resin and polyacrylonitrile were used as co-precursors, with silica nanoparticles serving as the dopant. The as-prepared CNFM exhibited hierarchical porous structures and rich of functional O-/N- groups on the surface. With a synergistic effect of developed micro- and meso-pores and active chemical surfaces, the carbon nanofibrous membrane demonstrated excellent adsorption separation performance for various VOCs, with comparable adsorption capacities and fast kinetics. Moreover, the membrane displayed remarkable reusability and dynamic adsorption performance for different VOCs, indicating its potential for practical applications.

September 17 (Wed), 2025, 14:10-15:25
(Environmental Engineering Building Auditorium #101)

S2-4-2 **14:35-15:00**

Dopasomes: Novel Inner Cross-linked LIposomes with Enhanced Colloidal Stability

Keita Yamana
Hiroshima University, Japan
Specialties: Biomaterials, Drug delivery

Lipid-based nanoparticles are versatile platforms extensively explored for applications such as drug delivery, biosensing, and artificial cell membranes. Among these, liposomes have been widely investigated for therapeutic use due to their biocompatibility, morphological tunability, and ability to encapsulate diverse agents. Despite these advantages, conventional liposomes often suffer from chemical and structural instability, leading to aggregation, fusion, and cargo leakage, particularly in biological environments containing surfactant-like agents such as plasma proteins or bile salts. These limitations reduce their shelf life and in vivo performance, hindering broader clinical application. To address these challenges, we designed and synthesized a novel self-polymerizable lipid incorporating a dopamine moiety as a reactive head group. This amphiphile spontaneously assembles into bilayer vesicles, termed “dopasomes,” which can undergo in situ oxidative polymerization under mild alkaline conditions in the presence of molecular oxygen. The polymerization of the dopamine groups forms a polydopamine framework within the membrane, enhancing its physical and chemical stability. The design leverages the inherent oxidative coupling properties of L-DOPA derivatives to create a cross-linked bilayer without the need for external polymerization initiators or complex synthetic steps. This approach is anticipated to improve liposomal resistance to destabilizing agents and reduce undesired cargo release, offering a promising strategy for the development of next-generation nanocarriers with enhanced robustness for biomedical applications.

September 17 (Wed), 2025, 14:10-15:25
(Environmental Engineering Building Auditorium #101)

S2-4-3 **15:00-15:25**

Biomineralization: Bio-inspired Approaches and Applications

Seung Pil Pack
Korea University, Korea
Specialties: Nano-medicine, Bio-macromolecules (DNA Aptamer, Peptide/Protein Design), Anti-Aging, Chronobiology, Biomineralization, Biomaterials, Aggregation/Flocculation

Silica is nontoxic and highly biocompatible characteristics so that silica matrix can be applied for enzyme or microbe immobilization, tissue scaffolds, drug-delivery system, biosensors and imaging. For silica synthesis, conventional methods typically require a combination of high temperatures and extreme pH and also it is difficult to prepare controlled structures. However, the discovery of the critical molecules involved in biosilicifica found both in diatoms (silaffins and polyamines) and sponges (silicateins) brings out understandings about silica forming process in vivo and has presented a new paradigm for silica synthesis under ambient or mild conditions. Here, we reported new silica-forming peptides (SFPs). They can also be genetically fused to the N- or C-terminus of other protein. The SFP-fused proteins showed silicification ability thanks to their high affinity to silica. In addition, silicified SFP-fused protein exhibited an organic-inorganic complex form. These results indicate that the SFP fusion system is a novel tool for immobilizing biomolecules on silica material for biological and industrial applications.

2025 JCK Symposium

16th Japan-China-Korea International Symposium on High-Tech Fiber Engineering for Young Researchers

[S3] Student Session

- [S3-1] **Student Session – I** : Sep 16 (Tue) 14:25 ~ 14:25
- [S3-2] **Student Session – II** : Sep 16 (Tue) 16:30 ~ 17:30
- [S3-3] **Student Session - III** : Sep 17 (Wed) 10:15 ~ 11:15
- [S3-4] **Student Session - IV** : Sep 17 (Wed) 13:10 ~ 14:10

[S3-1] Student Session

September 16 (Tue), 2025, 14:25-15:25
(Environmental Engineering Building Auditorium #101)

S3-1-1 14:25-14:35

A Breathable Fibrous Membrane with Coaxially Hetero-structured Fibers for Personal Thermal Management and Electromagnetic Interference Shielding

Jiajia Wu

Donghua University

S3-1-2 14:35-14:45

Efficient Synthesis of FeCoNiP@Graphene-CNT Nanocomposote for Enhanced Supercapacitor Performance

Adnan Muhammad

Shinshu University

S3-1-3 14:45-14:55

Humidity-responsive Actuator-based Smart Personal Thermal Management Fabrics Achieved by Solar Thermal Heating and Sweat-evaporation Cooling

Muchen Liang

Nantong University

S3-1-4 14:55-15:05

Development of Hybrid Nanogenerators based on Silk Fibroin

Hee Jin Kim

Seoul National University

S3-1-5 15:05-15:15

Fabrication of Piezoelectric Nanofibrous Spider-web Structures via Nonsolvent-induced Phase Separation for High-efficiency PM0.3 Air Filtration

Xing Yi

Donghua University

S3-1-6 15:15-15:25

Construction of Flexible Conductive bio-based Aerogel and Its Applications for Multifunctional Sensing

Dandan Xie

Shinshu University

[S3-2] Student Session

September 16 (Tue), 2025, 16:30-17:30
(Environmental Engineering Building Auditorium #101)

S3-2-1 16:30-16:40

Ultralight and Superelastic Curly Ultrafine Fiber Aerogels for High-Performance Warmth Retention

Qiqi Song

Donghua University

S3-2-2 16:40-16:50

Size Control of One-dimensional Macromolecular Assemblies via Crystallization-driven Self-assembly of Amphiphilic Graft Copolymers

Sorami Yamagiwa

Shinshu University

S3-2-3 16:50-17:00

Fiber Composites for Enhancing Methyl Iodine Adsorption Under High Humidity

Yajie Zhang

Nantong University

S3-2-4 17:00-17:10

Design and Application of PVDF/PVP Passive Radiation Cooling Nanofiber Membrane

Xujing Wang

Soochow University

S3-2-5 17:10-17:20

Crack to Sense: Multi-wall Fiber Sensor Exhibiting Resistance Increase Under Partial Compression

Chen Ziwei

Shinshu University

S3-2-6 17:20-17:30

Flexible Barium Aluminate Nanofibrous Membranes via Confined-gelation Electrospinning for High-temperature Thermal Insulation

Rongjia Zhang

Donghua University

[S3-3] Student Session

September 17 (Wed), 2025, 10:15-11:15
(Environmental Engineering Building Auditorium #101)

S3-3-1 10:15-10:25

Synthesized Bioactive Lignin Nanoparticles/Polycaprolactone Nanofibers: A Novel Nanobiocomposite for Bone Tissue Engineering

Miah Md Sumon
Shinshu University

S3-3-2 10:25-10:35

Drug Release Behavior and Anticancer Evaluation of Fe2O3 - and Fe3O4- Loaded Cellulose Acetate Nanofibers

Dayae Kang
Chungnam National University

S3-3-3 10:35-10:45

Durable Nntibacterial CuxO Nanoparticle-coated Cotton Textiles with Improved Hydrophobic and Mechanical Performance Through Adhesion and in-situ Oxidation of nano-Cu Glue

Baojie Chen
Nantong University

S3-3-4 10:45-10:55

Electrospun Nanofibrous Patch Embedded with Quantum Dots for Light-driven Antibacterial Therapy

In Ho Nam
Pohang University of Science and Technology (POSTECH)

S3-3-5 10:55-11:05

Supramolecular Ferritin-tannic Acid Nanocomplex as a Ferroptosis-Inducing Platform for Cancer Treatment

Yamamoto Miura
Hiroshima University

S3-3-6 11:05-11:15

Redesigned Elastin Domain-derived Proteins as Biomaterials for Nanofiber Applications

Seung Kyeum Cho
Pohang University of Science and Technology (POSTECH)

[S3-4] Student Session

September 17 (Wed), 2025, 13:10-14:10
(Environmental Engineering Building Auditorium #101)

S3-4-1 13:10-13:20

One-step Fabrication of Mechanically Robust and Fluorine-free Nanofiber Membranes for Waterproofness and Breathability

Xuemei Li
Donghua University

S3-4-2 13:20-13:30

Graphene Oxide Embedded Polyvinylidene Fluoride Nanofibers with Wet-adhesion for Mask Cartridge Materials

Siemeng Liu
Shinshu University

S3-4-3 13:30-13:40

Dual-mode Hierarchical Energy Management Fabric for Raindrop Energy Harvesting and Radiative Cooling in Sustainable Outdoor Energy Management

Yan Wang
Soochow University

S3-4-4 13:40-13:50

Comparative Biodegradation Study of Polybutylene Succinate Fibers for Fishing Gear in Diverse Environmental Conditions

Jungkyu Kim
Seoul National University

S3-4-5 13:50-14:00

Preparation of PLA Fiber based Aerogels and Study on Filtration and Separation Performance

Guojin Gao
Donghua University

S3-4-6 14:00-14:10

Donnan Effect-enhanced Double-network Aerogel for High-salinity Solar Interfacial Evaporation Desalination

Nuo Liu
Shinshu University

2025 JCK Symposium

16th Japan-China-Korea International Symposium on High-Tech Fiber Engineering for Young Researchers

[P] Poster Session

- [P1] **Poster Session – I** : Sep 16 (Tue) 15:25-16:30
- [P2] **Poster Session – II** : Sep 17 (Wed) 11:15-12:15

[P1] Poster Session

September 16 (Tue), 2025, 15:25-16:30
(Environmental Engineering Building #Floor 1)

P1-1 Ultrathin Dual-Network Aerogel Fibrous Membranes for Energy-Efficient Personal Thermal Management
Peili Zhao, Yucheng Tian, Yitao Liu, Bin Ding
Donghua University, Shanghai Polytechnic University

P1-2 Fabrication and Characterization of Electrospun Carbon/Graphene Nanofiber Yarn as a Counter Electrode for Wire-Shaped Solar Cells
Atsuya Kawai
Shinshu University

P1-3 Electrical, Thermal, and Bending Sensing Characterization of Recycled Wool Blends Yarn Functionalized with Graphite Nano Fiber and Silver Nanowires
Hyeong Yeol Choi
Dong-A University

P1-4 Preparation and Properties of PVA/CSXWO3@PEG1000 Core-Shell Phase Change Fiber
Rui Luo, Kai Wei
Soochow University

P1-5 Inner–Outer Surface Anchoring of Ultrafne Bi (Tri)-Metallic Molybdates on N-, B-, and F-Doped Hollow-Core Carbon Nanofbers: Cost-Efective Nanocomposites with Low-Metal Loading for Energy and Environmental Applications
Seungjoon Lee
Shinshu University

P1-6 Preparation and Application of Oriented Nanofiber/Hydrogel Composite Flexible Sensors
Hao Liu, Kai Wei
Soochow University

P1-7 Development of High-Performance PVDF-Based Piezoelectric Sensors Incorporating CND
Ryotaro Minami
Shinshu University

September 16 (Tue), 2025, 15:25-16:30
(Environmental Engineering Building #Floor 1)

P1-8 Improving Silk Fibroin Based Composite Films as Substrate Materials for Electronic Skin
Ruyi Liu
Seoul National University

P1-9 Design and Development of Radiation-Cooled Porous Poly-L-Lactic Acid Fiber Membranes
Aoyun Shen, Kai Wei
Soochow University

P1-10 Fabrication and Evaluation of Coiled Yarns for the Development of Fiber Actuators
Kanae Kojima, Chunhong Zhu, Hideaki Morikawa
Shinshu University

P1-11 Preparation and Microwave Absorption Properties of Bilayer PVDF/Ti3CNTx Composite Membrane
Tingting Zhang, Kai Wei
Soochow University

P1-12 Development of Composite Materials Molded by FDM 3D Printers with Low Environmental Impact
Ryohei Aoki
Shinshu University

P1-13 Core-Shell Charge-Transfer Cocrystals for Optical Encryption Communication in High-Performance Thermoelectric Generators
Si Qi Chen
Soochow University

P1-14 Fabrication of Eggshell-membrane/MXene Coated PET/PVDF Nanofiber-based Separator
Hayato Ezaki, Mayakrishnan Gopiraman, Kim ick soo
Shinshu University

September 16 (Tue), 2025, 15:25-16:30
(Environmental Engineering Building #Floor 1)

P1-15 Aramid-Based Composite Nanofiber Separator with Thermally Conductive and HF-Scavenging Layer for Suppressing Hot Spots and Dendritic Li Growth in Lithium Metal Batteries
Jaeseon Lee, Jinsoo Yoon, Minyeing Jeon, Seong-Geun Oh
Hanyang University

P1-16 Controlled Self-assembly of Organic Charge-Transfer Cocrystals for Human Energy Harvesting and Wireless Transmission System
Xinyu Liu
Soochow University

P1-17 Tunable Helicity in Pt(II) Supramolecular Polymers via Controlled Activation Barriers
Kayeong Go, Tomoki Nishimura, Sung Ho Jung, Ji Ha Lee, Jong Hwa Jung
Shinshu University, Gyeongsang National University(GNU)

P1-18 Hierarchical Cellular Structured Ultrathin Aerogel Micro/Nanofiber Membranes for High-Efficiency Wind-Resistant Warmth Retention
Wenxiao Zhang
Donghua University

P1-19 A Study of MoS_2 and $Ba_{1-x}Ca_xTiO_3$ effects on PVDF Nanofibers by Electrospinning
Jeong Jin Park, Jee Ha lee, Ick Soo Kim
Shinshu University

P1-20 Amorphous Indium Oxide Nanofiber for Selective Electrochemical Ammonia Synthesis
Ruixiang Xu, Siyu Qiang, Yi-Tao Liu, Bin Ding
Donghua University

September 16 (Tue), 2025, 15:25-16:30
(Environmental Engineering Building #Floor 1)

P1-21 Preparation of Calix[4]Arene-Based Gels Introducing 4,4'-Azodianiline as Photoresponsive Functional Additives
Yongbaek Kim, Ji Ha Lee
Shinshu University

P1-22 PVA/SPI Recyclable Conductive Hydrogel Applied to Wearable Strain Sensors
DEQIAN YANG
Shinshu University

P1-23 Direct Assembly of Aerogel Micro-Nanofiber/MXene Sponges with Dual-Network Structures for All-Day Personal Heating
Lin Tang
Donghua University

P1-24 3D Printable Carboxymethylated Silk Fibroin Inks
Yeonwoo Yu, Heejin Kim, Ruyi Liu, Garam Choi, Ki Hoon Lee
Seoul National University

P1-25 Geometrical Design Theory of Sleeve Cap and Armhole Curves
T. Miyamori, T.Natsuki1
Shinshu University

P1-26 Inhibited Grain Growth Through Phase Transition Modulation Enables Excellent Mechanical Properties in Oxide Ceramic Nanofibers up to 1700°C
Runnan Xu, Yi-tao Liu, Bin Ding
Donghua University,

P1-27 Micro/Mesostructure Design of Ceramic Nanofibrous materials
Songchun Fang, Fan Wu, Yitao Liu, Bin Ding
Donghua University, Shanghai University

[P2] Poster Session

September 17 (Wed), 2025, 11:15-12:15
(Environmental Engineering Building #Floor 1)

P2-1 Effect of Heat Treatment on the Porosity and Water Vapor Permeability of PVA Nanofiber Webs Loaded with *Sophora Japonica* Fruit Extract
Yujin Lee, Jungsoon Lee
Chungnam National University

P2-2 Oxygen-Releasing Environment Created by Electrospun PHA–Eggshell Membrane Nanofibers for Enhanced Wound Healing
Miyu Yamamoto, Ick soo. Kim
Shinshu University

P2-3 Development of Cellulose Nanofiber (CNF)-reinforced Natural Polymer Films for Mechanically Stable and Moisture-retaining Wound Healing
Garam Choi, Yeonwoo Yu, Heejin Kim, Ruyi Liu, Ki Hoon Lee
Seoul National University

P2-4 Preparation and Absorption Properties of Carbon Fibers Loaded with Nano Iron Oxide
Guangyu Zhang
Nantong University

P2-5 Biodegradable Fish Gelatin/Polylysine Nanofibrous Adsorbents for Effective Palladium(II) Upcycling
Seon-Gyeong Kim, Jungkyu Kim, Seojin Kim, Hyoseung Lim, Dawoon Seo, Chaeeun Kim, Dongho Shin, Hyo Won Kwak
Seoul National University

P2-6 Preparation of UiO-66-NH_2/Polyacrylonitrile Composite Nanofibrous Membrane for Adsorption and Removal of PFAS in Water
S. Kobe, Y. Yue, Y. Mukai, I. S. Kim, K. Hattori, E. Hasegawa, S. Hatsuyama
Shinshu University, Nagoya University, METAWATER Co.

September 17 (Wed), 2025, 11:15-12:15
(Environmental Engineering Building #Floor 1)

P2-7 Sustainable Synthesis and Characterization of Nitrogen and Phosphorus Functionalized Lignin Nanoparticles for Flame-Retardant Applications
Chaeeun Kim, Jungkyu Kim, Seojin Kim, Hyoseung Lim, Dawoon Seo, Dongho Shin, Hyo Won Kwak
Seoul National University

P2-8 Sustainable Bioactive Food Packaging Based on Electrospun Zein-Polycaprolactone Nanofibers Integrated with Aster Yomena Extract Loaded Halloysite Nanotubes
Ryota Matsue
Shinshu University

P2-9 Pore-Engineered Cellulose Membranes with *In-Situ* Grown UiO-66-NH_2 for Enhanced Performance
Mingyeong Kim, Hoik Lee
KoreaKorea Institute of Industrial Technology (KITECH)

P2-10 Design and Synthesis of Lysine-decorated Flexible Porous Carbon Nanofiber Membrane for Superior Formaldehyde Adsorption
Chen Sun, Yameng Xiao, Hualei Liu, Yi-Tao Liu, Jianyong Yu, Bin Ding
Donghua University, Shanghai University

P2-11 Enhanced Dye Removal and Antibacterial Efficacy of Copper-Doped ZnO Nanoparticles on Cellulose Nanofibers
Ken Ozaki
Shinshu University

P2-12 Production Dynamics and Post-COVID Resilience in Korea's Textile Industry: A 9-Year Longitudinal Analysis
Seoyeon Han, Lidiia Khleborodova, EungTae Kim
Chungnam National University

P2-13 Drug Release Control of Chitosan Films with Acetic Acid and Citric Acid
Mai Horita, Akihiro Yabuki, Ji Ha Lee
Hiroshima University, Shinshu University

September 17 (Wed), 2025, 11:15-12:15
(Environmental Engineering Building #Floor 1)

P2-14 Electrospun Biodegradable Nanofibers Containing Ag/TiO_2 Nanowires for Skin Protection with Antibacterial and UV-Blocking Properties.
Min Yeong Jeon
Hanyang University

P2-15 Activated Carbon Fiber Felts Engineered with Tailored Surface Chemical Properties for Efficient Adsorption of Gaseous Methyl iodine in Air Condition
Qixia Liu
Nantong University

P2-16 Membrane Emulsification-Derived Cellulose Microbeads Encapsulating Vitamin C with pH-Sensitive Release *via* Chitosan Nanowhisker Coating
Jisoo Lee, Hoik Lee
Korea Institute of Industrial Technology (KITECH)

P2-17 Photoacoustic Imaging using Bioavailable Polysaccharide–Porphyrin Nanocomplexes for Diagnosis and Therapy
Seiya Fujita, Riku Omokawa, Riku Kawasaki, Risako Miura, Teruyuki Kondo, Atsushi Ikeda
Hiroshima University, Kyoto University

P2-18 Integrated Utilization of Lignocellulosic Components for Sustainable Palladium Recovery from Industrial Wastewater
Dawoon Seo, Jungkyu Kim, Seojin Kim, Hyoseung Lim, Chaeeun Kim, Dongho Shin, Hyo Won Kwak
Seoul National University

P2-19 Breaking Barriers in Soft Material Printing: High-Fidelity DLP Fabrication of Silk Sericin *via* Height-Adjusted Curing and Local Error Optimization
Xuanwen Wang
Soochow University

September 17 (Wed), 2025, 11:15-12:15
(Environmental Engineering Building #Floor 1)

P2-20 High-Lignin Content Loaded EVOH Nanofibers *via* Electrospinning
Seojin Kim, Jungkyu Kim, Hyoseung Lim, Seon-Gyeong Kim, Dawoon Seo, Chaeeun Kim, Dongho Shin, Hyo Won Kwak
Seoul National University

P2-21 Facile and Scalable Surface Functionalization of Cotton Fabrics for High-Efficiency Solar Seawater Desalination
Mengmeng Qin
Shinshu University

P2-22 Sericin-Based Biofilms Reinforced with TEMPO-Oxidized Chitosan and Crosslinked *via* Maillard Reaction
Dongho Shin, Jungkyu Kim, Seojin Kim, Hyoseung Lim, Seon-Gyeong Kim, Chaeeun Kim, Dawoon Seo, Hyo Won Kwak
Seoul National University

P2-23 Study on the Preparation and Filtration Performance of Washable Nanofiber-Based Masks
Shumin Li
Donghua University

P2-24 Quaternized Lignin Nanoparticles for Effective Removal of Per- and Polyfluoroalkyl Substances
Hyoseung Lim, Jungkyu Kim, Seojin Kim, Chaeeun Kim, Dawoon Seo, Dongho Shin, Hyo Won Kwak
Seoul National University

P2-25 Controlled Drug Release from Protein Gels Based on the Valency of Salts
Han Jae Choi, Ick Soo Kim, Ji Ha Lee
Shinshu University

P2-26 Highly Compressible, Wave-Transparent, and Heat-Insulating SiO_2 Microfiber/Boron Nitride Nanosheet Composite Aerogels: Implications for Aircraft Radome Materials
Shijin Tian
Donghua University

Hyung Joon Cha
Pohang University of Science and Technology (POSTECH), Korea
Specialties: Biomaterials, Molecular biotechnology, Tissue engineering, Drug delivery

Yaewon Park
Yonsei University, Korea
Specialties: Functional Fibers, Sustainable Textile Materials and Processing, Bio-derived Fiber Systems

Azeem Ullah
Shinshu University, Japan
Specialties: Electrospun nanofibers, Food packaging materials, Advanced fiber-based materials, Biodegradable nanocomposites.

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Shinshu University, Japan
Specialties: Heterogenous Catalysis, Electrospun nanofibers, Energy storage, 2D-Materials, Sustainable materials, Biomedical, Carbon nanocomposites.

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Specialties: Electrospun nanofibers, Energy-harvesting nanomaterials, Advanced fiber-based materials, Biodegradable nanocomposites.

Jian Shi
Shinshu University, Japan
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Jungsoon Lee
Chungnam National University(CNU), Korea
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Eung Tae Kim
Chungnam National University (CNU), Korea
Specialties: Fashion Technology, AI in Fashion Design, Human-centered Wearable Systems, Textile Industry Analysis

Hoik Lee
Korea Institute of Industrial Technology(KITECH), Korea
Specialties: Cellulose, Recycle, Fiber Engineering, Nanofiber, Microbeads

Kye Il Joo
Ewha Womans University, Seoul, Korea
Specialties: Gene therapy, Biomaterials, Viral vector engineering, Drug delivery, Tissue engineering

Ji Ha Lee
Shinshu University, Japan
Specialties: Gel materials, Supramolecular chemistry, Polymer, Host-guest chemistry

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Anhui Polytechnic University(AHPU), China
Specialties: Flexible electronic textiles, Knitted fabric structural design

Kai Wei
Soochow University, China
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Guangyu Zhang
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Specialties: Textiles, Nanotechnology, Functional fibers, Antibacterial

Qixia Liu
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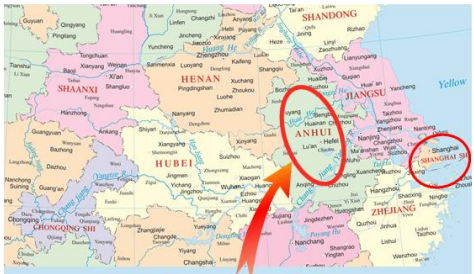
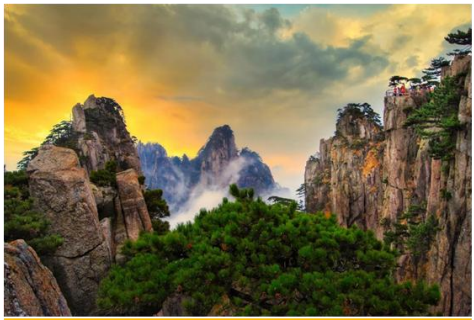
Meet in Anhui, where Huangshan—the finest landscape under heaven—awaits in 2026



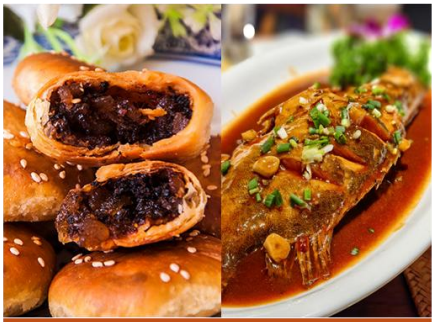
Anhui province is here

Main gate of university

- **Anhui Polytechnic University (AHPU)** is a key provincial university in Anhui Province with a primary focus on engineering.
- Engineering, Chemistry, and Materials Science are ranked in the top 1% globally by ESI.
- Its academic disciplines cover engineering, science, literature, management, economics, law, and the arts.



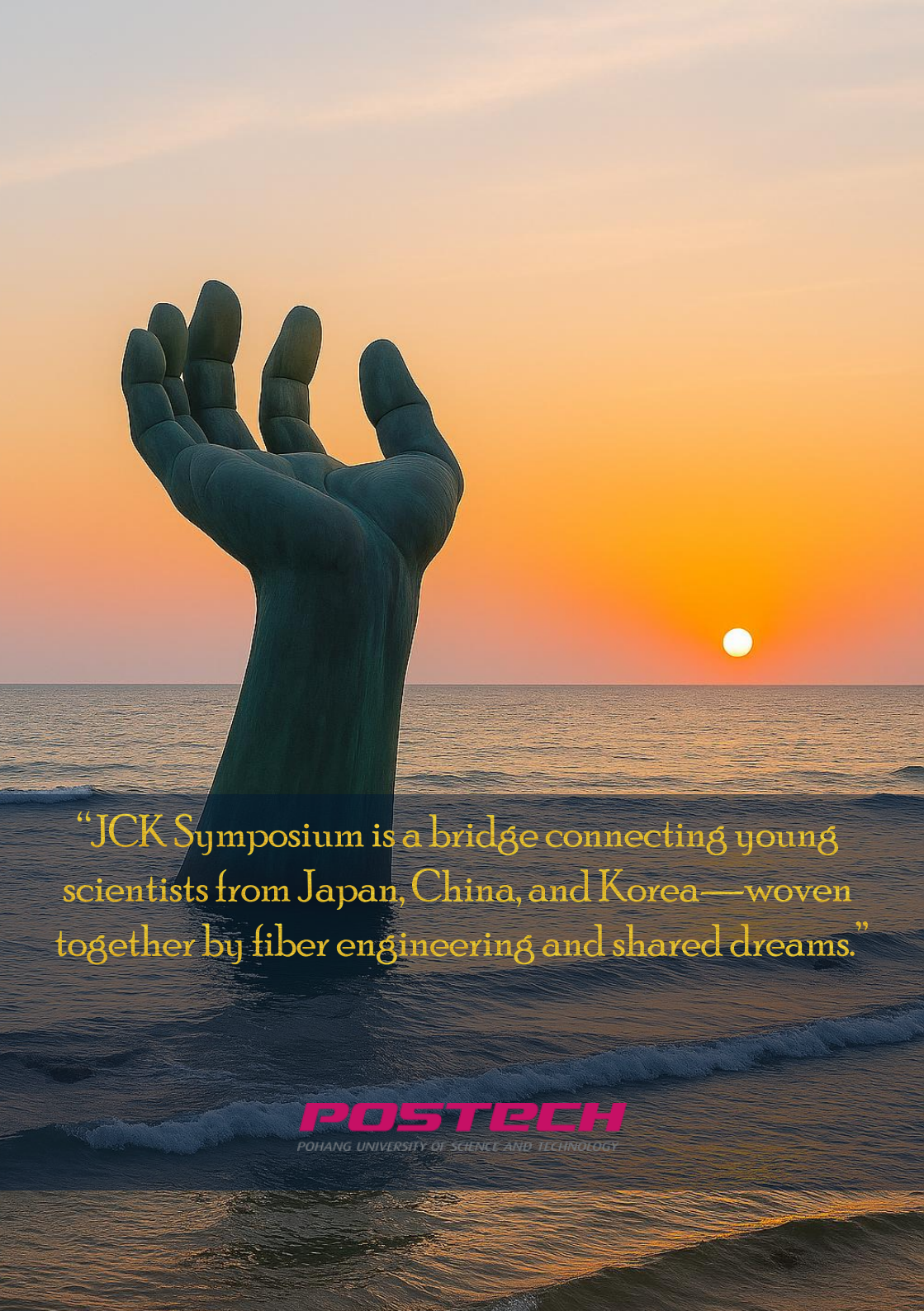
Huangshan
(UNESCO World Heritage Site)



Huangshan Flatbread &
Huangshan Stinky Perch

CETC Wuhu Diamond Aircraft
Manufacture CO., LTD

Chery Automobile:
A Fortune Global 500 Company


"JCK Symposium is a bridge connecting young scientists from Japan, China, and Korea—woven together by fiber engineering and shared dreams."
POSTECH
POHANG UNIVERSITY OF SCIENCE AND TECHNOLOGY