WE ARE THE NEXT
KOREA UNIVERSITY

2025 Future-Shaping ACE (Architectural, Civil, and Environmental Engineering) Congress

August 25-28, 2025

Location

Simultaneous online broadcasting

Selected sessions to be held face-to-face at Korea University

Online pre-registration begins at October 21, 2024

Registration access https://bit.ly/ACECONGRESS2025 (No registration fee)

Zoom Link

https://korea-ac-kr.zoom.us/j/87698274777?pwd=DuTIKHJpwgLud20KONoxgInkhHrO92.1 (Password : 163977)

Organized by

4단계 BK21 건축사회환경공학교육연구단
BK21 FOUR R&E Center for Civil, Environmental and Architectural Engineering

BK21 FOUR f-ace lab Future and Fusion Lab of Architectural, Civil and Environmental Engineering

유무기복합형 태양전지 에너지혁신연구센터
Energy Innovation Research Center for Hydrid Solar Cells

워터 리파이너리 플랫폼 자동화/모듈화 선도연구센터
Global Center for Automation and Modularization of Water Refinery Platform

2025 Future-Shaping ACE (Architectural, Civil, and Environmental Engineering) Congress

About the Congress

This congress aims to offer a multi-disciplinary platform for researchers in architectural, civil, and environmental engineering to address important global challenges for shaping our future cities. During the four-day event, a series of sessions will cover a broad spectrum of key topics relating to buildings and infrastructure. They will provide opportunities for researchers across the world to share on-going research progress, discuss major research challenges, and initiate international research collaborations.

Welcome Message

Jaesang Lee
Vice-Director of BK21 FOUR R&E Center

This year, the congress sessions are being conducted in a hybrid mode—a fusion of online and in-person meetings—fostering knowledge exchange and promoting interdisciplinary collaboration among attendees from multiple time zones. The main themes of the congress include: (i) smart mobility, (ii) built environment, (iii) eco and energy systems, and (iv) climate, water, and resilient infrastructure. We have invited both international and domestic early-career researchers, as well as academic leaders, to deliver talks highlighting recent academic achievements across seven sessions. The BK21 Four program, in partnership with the f-ace Lab, the Energy Innovation Research Center for Hybrid Solar Cells, and the Global Center for Automation and Modularization of Water Refinery Platforms, has hosted this international event. All support is sincerely appreciated

I would like to express my profound gratitude to Prof. Chulsang Yoo for presenting his plenary lecture. Furthermore, the hard work and dedication of all committee members are deeply appreciated. Thanks to the sponsorship of Korea University in celebration of its 120th anniversary, we organized more sessions this year, allowing international researchers to present their talks in person. With the common theme of light as a driving force to induce chemical redox reactions, the in-person session on Eco and Energy Systems was jointly organized. I am confident that the congress will serve as a valuable forum to provide well-balanced learning opportunities for student attendees from a broad spectrum of research backgrounds, while reinforcing academic exchange, the original objective of this congress. I hope you enjoy every minute of the congress lectures during this late summer in Korea. Thank you again for your continuous involvement.

Chulsang Yoo
Professor
Korea University

Plenary Lecture “Water Security in the Era of Climate Change”

The definition of water security is broad. Simply put, water security refers to the reliable availability of an acceptable quantity and quality of water for health, livelihoods, ecosystems, and production—along with an acceptable level of water-related risks. Key components of water security include availability, accessibility, quality, sustainability, and, finally, risk management. In particular, the last component, risk management, should answer the question: “Are communities protected from floods and droughts?” Unfortunately, climate change worsens water security by disrupting the water cycle, altering precipitation patterns, and increasing the frequency and severity of extreme weather events. This results in greater uncertainty, scarcity, and risks related to water availability, quality, and distribution. Simply put, we are experiencing more intense rainfall in some regions, and less rainfall or prolonged dry spells in others. This means more frequent and severe floods and droughts. Additionally, we must recognize that the risk of flooding is even greater in urban areas. There are many reasons for this, but one key factor is that the design criteria—particularly the return period (or recurrence interval)—used for urban drainage systems is relatively short: typically 2 to 10 years, and at most 30 years. This is much lower compared to the return periods for small channels or local streams (10–50 years), and large rivers (100–300 years). Therefore, it is practically impossible to prevent all flooding in urban areas. However, protecting human lives remains the top priority. For this reason, radar-based rainfall observation, rainfall nowcasting/forecasting, and early warning systems are especially important in urban flood management.

Themes

August 25	August 26	August 27	August 28
Smart Mobility	Built Environment	Eco and Energy Systems	Water and Resilient Infrastructure

External Invited Speaker

Meng Xu
Beijing Jiaotong University

Tarun Rambha
Indian Institute of Science

Min Xu
The Hong Kong Polytechnic University

Tao Liu
Southwest Jiaotong University

Prateek Bansal
National University of Singapore

Chungkuk Jin
Florida Institute of Technology

Sungpil Ahn
Ocergy

Hyungchul Yoon
Chungbuk National University

Youngjin Choi
KIOST

Kiseok Kim
Texas A&M University

Hyung-Koo Yoon
Daejeon University

Jongmuk Won
UNIST

Jung-Doung Yu
Jeonbuk National University

Wonyong Choi
KENTECH

Kangwoo Cho
POSTECH

Yunho Lee
GIST

Hyoung-il Kim
Yonsei University

Sang Il Seok
UNIST

Jin Young Kim
Seoul National University

Jangwon Seo
KAIST

Jin-Wook Lee
Sungkyunkwan University

DoSoo Moon
University of Hawai’i at Mānoa

Suyun Paul Ham
University of Texas

Bryan Karney
University of Toronto

Enrico Creaco
University of Pavia

Sanghoon Jun
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