ISRERM 2026

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10th International Symposium on Reliability Engineering and Risk Management

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Reliability Engineering and Risk Management

CONFERENCE BROCHURE

June 28 – July 1, 2026, Sapporo, Japan

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Welcome to ISRERM2026

On behalf of the organizing committee, I am pleased to welcome you to the 10th International Symposium on Reliability Engineering and Risk Management (ISRERM 2026), held at Hokkaido University in Sapporo, Japan, from June 28 to July 1, 2026.

ISRERM is a biennial international conference that provides a vital platform for researchers and practitioners from diverse disciplines to exchange knowledge and advance the fields of reliability engineering and risk management. Since its establishment in 2008 by Professors Jie Li and Yan-Gang Zhao, with the support of Professor Alfredo Ang, the symposium has promoted the development and application of reliability-based, risk-based, and uncertainty-informed decision-making approaches to ensure the safety and performance of engineering systems throughout their lifecycles.

Over the years, ISRERM has been successfully hosted by leading institutions around the world, including Tongji University (2008, 2010), Kanagawa University (2012), National Taiwan University of Science and Technology (2014), Yonsei University (2016), National University of Singapore (2018), Beijing University of Technology (2020), Leibniz University Hannover (2022), and Hefei University of Technology (2024). As the symposium reaches its 10th edition, we are honored to bring ISRERM back to Japan, continuing its tradition of global collaboration and academic excellence.

ISRERM 2026 aims to provide an inspiring and interdisciplinary forum for the exchange of ideas on theories, methodologies, and applications in reliability engineering and risk management. The symposium fosters discussions on reliability assessment, risk and uncertainty quantification, mitigation and management, and decision-making strategies, while promoting collaboration across disciplines that face common challenges.

In recent years, rapid technological advancements—including artificial intelligence, data-driven engineering, and cyber-physical systems—have transformed the landscape of reliability and risk analysis. ISRERM 2026 offers an opportunity to address emerging issues and explore innovative, integrative solutions.

The success of ISRERM relies on the dedication and contributions of many individuals and organizations. We sincerely thank all presenters for their high-quality research, the Alfred Ang lecture and the keynote speakers for their valuable insights, and the members of the organizing, advisory, and technical committees, MS organizers, and session chairs for their tireless efforts.

Finally, despite the uncertainties in the current international environment, we sincerely appreciate all participants who have traveled to Sapporo from around the world. We hope that the symposium will provide a stimulating environment for fruitful discussions, new collaborations, and lasting professional relationships. We also hope you enjoy your stay in Sapporo and experience Hokkaido's rich culture and natural beauty.

Takeshi Kitahara

Conference Chair

Organization

Organized by

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KANTO GAKUIN UNIVERSITY

Co-Organized by

INSTITUTE FOR RISK AND RELIABILITY

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Outline

Conference Name :

ISRERM2026 - 10th International Symposium on Reliability Engineering and Risk Management

Date :

June 28 – July 1, 2026

Venue :

Hokkaido University, Conference Hall

Organizer :

Hokkaido University, Kanto Gakuin University

Registration :

June 28,2026 16:00-19:00 (at Red Brick Building Hall)

June 29,2026 08:15-18:00

June 30,2026 08:30-18:00

July 01,2026 08:30-16:00

Language:

The official language of ISRERM2026 is English.

Information regarding presentations:

- Each talk will have a 20-minute time slot. This time is to include your presentation and Q&A.
- There will be up to six 20-minute time slots in each technical session.
- You will be presenting from your own laptop. The adapter for laptops is HDMI. If you need another adapter, you must bring your own.
- The default for the screen is 16:9.
- There is no specified template for this symposium.

Access to the Venue

Conference Venue

-Hokkaido University Conference Hall

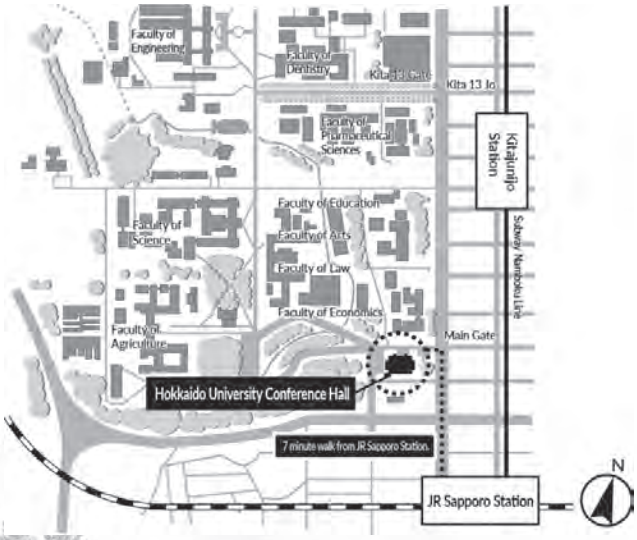
(Nishi 5 chome, 8-1, Kita 8 jo, Kita Ward, Sapporo)

By Train:Get off at “JR Sapporo Station” and walk 7 minutes.

By Subway:Sapporo City Subway, Namboku Line

Get off at “Sapporo Station” and walk 7 minutes.

*This facility does not have parking. Please use the nearest public transportation.



-Former Hokkaido Government Office Building Red Brick Building (Reception venue)

(Nishi 5 Chome-8-1 Kita 8 Jonishi, Kita Ward, Sapporo)

Once you exit through the South Gate of Hokkaido University, the Former Hokkaido Government Office Building ("Red Brick Office") can be seen straight ahead in the distance. The building is approximately a 10-minute walk from the gate.

-Sapporo Beer Garden (Welcome Dinner venue)

(2-10, Kita 7-jo Higashi 9-chome, Higashi-ku, Sapporo)

A shuttle bus service will be provided from Hokkaido University to the dinner venue.

The shuttle bus will depart at 18:15 on June 29 from the Main Gate of Hokkaido University.

For those who prefer to walk, the venue is also accessible on foot and takes approximately 30 minutes.

The dinner venue restaurant is located on the second floor of Poplar Hall.

-Keio Plaza Hotel Sapporo (Gala Dinner venue)

(2-1, Kita 5-jo Nishi 7-chome, Chuo-ku, Sapporo)

Hokkaido University Wireless LAN (Wi-Fi) Information

Wi-Fi access is available throughout the venue.

Please connect to the Wi-Fi network **“eduroam”** and log in using the individual ID and password printed on the back of your name badge.

Important Notes

- Users are responsible for all activities conducted with their own ID and password.
- Do not share your login credentials with others.
- Please follow the instructions of the network administrators and comply with university regulations and applicable laws.
- Unauthorized access, spam/chain mail distribution, illegal activities, and actions that interfere with network operations are strictly prohibited.
- The university may suspend or restrict network access without prior notice if misuse or security risks are identified.
- Violations may result in suspension of access or further disciplinary/legal action.

ISRERM2026 Timetable

Time	June 28 (Sun)	June 29 (Mon)	June 30 (Tue)	July 1 (Wed)
08:00				
08:15				
08:30		**08:30-08:50** [Opening Ceremony]		
08:45		**08:50-09:50** [Alfred Ang Lecture]		
09:00			**09:00-09:45** [Keynote Lecture 2]	**09:00-09:45** [Keynote Lecture 4]
09:15				
09:30				
09:45		**09:50-10:00** Cofee Break	**09:45-10:00** Cofee Break	**09:45-10:00** Cofee Break
10:00		**10:00-10:45** [Keynote Lecture 1]	**10:00-10:45** [Keynote Lecture 3]	**10:00-10:45** [Keynote Lecture 5]
10:15				
10:30				
10:45		**10:45-11:00** Cofee Break	**10:45-11:00** Cofee Break	**10:45-11:00** Cofee Break
11:00		**11:00-12:40** [Parallel Session 1] [IARERM Board Meeting]	**11:00-12:40** [Parallel Session 4]	**11:00-12:40** [Parallel Session 7]
11:15				
11:30				
11:45				
12:00				
12:15				
12:30		**12:40-13:45** Lunch	**12:40-13:45** Lunch	**12:40-13:45** Lunch
12:45				
13:00				
13:15				
13:30				
13:45		**13:45-15:45** [Parallel Session 2] [Special Memorial Session]	**13:45-15:45** [Parallel Session 5]	**13:45-15:45** [Parallel Session 8]
14:00				
14:15				
14:30				
14:45				
15:00				
15:15				
15:30				
15:45		**15:45-16:00** Cofee Break	**15:45-16:00** Cofee Break	**15:45-16:00** Cofee Break
16:00	**16:00-19:00** [Registration & Ice Break] Red Brick Building Hall	**16:00-18:00** [Parallel Session 3] [Special Memorial Session]	**16:00-18:00** [Parallel Session 6]	**16:00-17:00** Closing Ceremony
16:15				
16:30				
16:45				
17:00				
17:15				
17:30				
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18:00				
18:15				
18:30				
18:45				
19:00		**19:00-21:00** Welcome Dinner Sapporo Beer Garden	**19:00-21:00** Gala Dinner Keio Praza Hotel	
19:15				
19:30				
19:45				
20:00				
20:15				
20:30				
20:45				
21:00				

Alfredo Ang Lecture

To Alfredo H-S. Ang, in recognition of his remarkable and pioneering contributions to the development of rational safety criteria for the design of structures using probabilistic methodology, and for his dedicated service to the profession.

During his career, Ang combined academic research and teaching in various aspects of structural engineering. His major effort was directed towards structural safety through the application of probability and reliability concepts. He made significant pioneering contributions to probability-based safety analysis and design for a wide range of structural engineering problems.

He authored or co-authored more than 300 publications and was a lead author of the two-volume textbook, Probability Concepts in Engineering Planning and Design, which has been translated into several languages and adopted by major universities worldwide. An active teacher, he developed both undergraduate and graduate courses in probabilistic methods, lectured extensively, and organized seminars and short courses.

Ang extended his theoretical work to practical problems, including seismic hazard analysis, earthquake engineering, wind engineering, offshore structures, and life-cycle cost effectiveness in design criteria development including optimal design of complex structures. As a consultant and technical adviser, he served numerous governmental and industrial organizations, both in the United States and abroad.

His work on safety criteria has had a major impact on engineering specifications and practice. He served the American Society of Civil Engineers (ASCE) for many years and in many positions, including international director of the board and chair of several committees. He also received the Nathan M. Newmark and Alfred M. Freudenthal medals, E. Howard Award, and numerous other awards from ASCE.

Given his leadership role in the development of ISRERM, The Executive Board of ISRERM proposed to establish the Alfredo Ang Lecture in honor of Professor Alfredo H-S. Ang in June 2017, starting with the 6th ISRERM. Until now, four distinguished professors have delivered the Alfredo Ang Lecture, including Professors Jie Li, Kok-Kwang Phoon, Yan-Gang Zhao, and Michael Beer. The Alfredo Ang Lecture will further strengthen ISRERM's position as one of the premium venues to share research and practice in this burgeoning field and would bring greater visibility to the body of work on how engineering contributes to the building of safer and more resilient communities.

"Extracting in-situ dynamic properties with Bayesian perspectives"

Siu-Kui Au

Nanyang Technological University

Biography

Dr Au is professor in the School of Civil and Environmental Engineering at Nanyang Technological University (NTU) Singapore. He obtained BEng (1995) and MPhil (1997) from the Hong Kong University of Science and Technology, and PhD (2001) from the California Institute of Technology, all in civil engineering. Before the present position he has held academic positions at NTU, City University of Hong Kong and University of Liverpool.

A chartered civil engineer, Dr Au performs fundamental and applied research in machine learning for engineering reliability and structural health monitoring (SHM). He has developed a Monte Carlo method called 'Subset Simulation' for uncertainty propagation and rare event simulation. See monograph 'Engineering Risk Assessment with Subset Simulation' (Wiley). Originally developed for seismic risk problems, the method has found applications in other disciplines, e.g., recently in nuclear fuel, power systems and air traffic. In SHM, Dr Au is experienced in full-scale dynamic testing of structures and has consulted on long-span pedestrian bridges, large-span floors/roofs, super-tall buildings, microtremors for seismic microzonation and deep sea sensing. Recent research in this area focuses on fundamental theory, computational algorithm, practical implementation, and the 'science' (achievable precision) of modal identification and structural system identification of full-scale structures. See monograph 'Operational Modal Analysis: Modelling, Bayesian Inference, Uncertainty Laws' (Springer).

Dr Au is a recipient of the IASSAR Junior Research Prize (2005), Nishino Prize (2011), JSPS Fellowship (2014) and Tan Chin Tuan Fellowship (2015). He chaired the ASCE Dynamics Committee (2014-17); is Associate Editor of Structural Health Monitoring (Sage) and Earthquake Spectra (EERI/Sage); and is Editorial Board Member of Probabilistic Engineering Mechanics (Elsevier) and Journal of Risk & Uncertainty Analysis in Engineering (ASCE-ASME) A & B.

Keynote Lecture

Keynote Lecture1

Towards Data-centric Geotechnics: Concepts, Methodologies, and Challenges

Takayuki Shuku

Tokyo City University

Biography :

Takayuki Shuku is a Professor in the Department of Urban and Civil Engineering at Tokyo City University (TCU), Japan.

He received his Bachelor's and Master's degrees in Science and Engineering from Shimane University and earned his Ph.D. from Okayama University in 2011. Prior to his current position, he worked as a design engineer in the Department of Civil Engineering at Ohmoto Gumi Co., Ltd., and held an academic appointment at Okayama University.

His research interests include inverse analysis (data assimilation), data-driven modeling, and machine learning applications in geotechnical engineering. Recently, he has been actively promoting the dissemination of research outcomes to industry and society through the organization of short courses and workshops for practitioners in Japan.

Dr. Shuku is the recipient of several awards, including the JGS Best Paper Award (2011), ISSMGE Bright Spark Lecture Award (2019), JSCE Best Paper Award (2020), and the GEOSNet Young Researcher Award (2022). He currently serves as an Executive Board Member of Soils and Foundations (Elsevier), Associate Editor of the Journal of Risk & Uncertainty Analysis in Engineering (ASCE-ASME), and Editorial Board Member of Geodata & AI (Elsevier).

Keynote Lecture2

From Reliability to Resilience: Scalable Network Methods for Complex Infrastructure

Edoardo Patelli

University of Strathclyde

Biography :

Edoardo Patelli is a Professor in Risk and Uncertainty and Head of the Centre for Intelligent Infrastructure at the University of Strathclyde. Formerly, he held significant roles at the University of Liverpool, including Deputy Director of the Institute for Risk and Uncertainty and Co-Director of the Centre for Doctoral Training in “Risk and Uncertainty”.

His research spans over 300 peer-reviewed publications in leading international journals and 6 book chapters and 1 book. He serves as an Associate Editor for ASCE-ASME Journal of Risk and Uncertainty and has guest-edited for reputable journals like International Journal of Reliability and Safety and Structural Safety.

Dr. Patelli is leading an interdisciplinary research group focused on developing and apply efficient and robust computational tools supported by AI technologies for Risk, Safety and Uncertainty Quantification across different sectors (Civil, Mechanics, Aerospace, Nuclear, Energy) able to deal with scarce data and vagueness of information. Recent research interests focus on developing robust probabilistic methods, simulation-based modelling, digital twins, and innovative approaches for resilience engineering. Recent applications include the assessment of human reliability, and the analysis of safety procedure based on NPL, the development of digital twin for a drone network for supporting health system, developing localised and robust early warning tools for coastal flood based on machine learning, and the development of efficient and reliable computational tools for decision making under severe uncertainty.

Prof. Patelli serves as vice-Chair of European Safety and Reliability Association (ESRA), member of the Board Committee of IARERM, and the International Joint Research Centre for Resilient Infrastructure (ICRI), Tongji University, China, He also member of the Nuclear Innovation and Research Advisory Board (NIRAB) to provides independent, expert advice to the UK Government.

Keynote Lecture3

Reliability Assessment of Marine Structures in Extreme Environmental Conditions

Erik Vanem

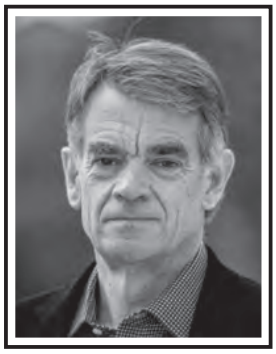
Det Norske Veritas

Biography :

Erik Vanem is currently working as a senior metocean specialist for DNV Energy systems at DNV's headquarters in Høvik, Norway. Previously he worked as a senior researcher in the maritime transport group at DNV Group Research and Development for more than 20 years, where he was involved in a number of research projects related to maritime safety and risk assessment. For 8 years he was also associate professor at the Department of Mathematics, University of Oslo in a 20% position from 2016 – 2024. Prior to joining DNV he worked three years in the research department of Telenor, three years at PGS reservoir, one year at the Oslo University College and spent some time at the Norwegian Defence Research Establishment. He holds a Cand. Scient degree (Master of Science equivalent) in Physics (1996) and a PhD in Statistics (2012), both from the University of Oslo. As a researcher he has authored and co-authored a number of papers published in international journals (approx. 100) and international conference proceedings (approx.. 100) and is also the author of a monograph and several book chapters. He has been supervisor of several students at master and PhD level and has been opponent and member of several PhD evaluation committees. He has served as paper reviewer for a number of recognized scientific journals and conferences and is currently member of the editorial board of Ocean Engineering (Elsevier) and associate editor for Journal of Offshore Mechanics and Arctic Engineering (ASME). He is also currently member of the ISSC technical committee on Environment. As a researcher he secured external funding for several national and international research projects, and acted as project manager and coordinator of several collaboration projects with academic and industry research partners. As metocean specialist for DNV his current focus is on metocean description and risk and reliability assessment of marine structures.

Keynote Lecture4

Data-driven Uncertainty Assessment and Reliability Updating within a Bayesian Framework



Hector Jensen

Santa Maria Technical University

Biography :

Hector Jensen is a Professor Civil Engineering at the Santa Maria Technical University, Valparaiso, Chile, and Professor of Mechanical Engineering at the Catholic University of Chile, Santiago. Chile. He is a Mathematician Civil Engineer from the University of Chile, and he received his PhD in Applied Mechanics from the California Institute of Technology (CALTECH), Pasadena, USA. His research interests include Computational Stochastic Mechanics, Advanced Simulation Methods, Robust and Reliability-Based Optimization, Risk and Sensitivity Analysis, Fuzzy Analysis, Finite Element Analysis, Reliability Analysis of Complex Utility Networks, Dynamic Sub-structuring, and Bayesian Model Updating. He has been visiting professor in several American and European universities, including University of California at Los Angeles (UCLA), California Institute of Technology (CALTECH), University of Michigan (UM), University of Innsbruck, etc. He has published numerous journal and conference papers, as well as book chapters in areas of his expertise. In addition, a book that deals with the application of reduced-order models to complex simulation-based problems has been published by Springer in 2019 (Sub-Structure Coupling for Dynamic Analysis: Application to Complex Simulation-Based Problems Involving Uncertainty). He is preparing a new book related to the Reliability, Sensitivity and Optimization of Linear Structural Systems under Stochastic Gaussian Excitation based on Advanced Simulation Techniques. He has been invited to give lectures, keynotes, semi-plenary and plenary lectures in a number of universities and international conferences. He is member of the editorial board of several journals, and he has been guest editor of different Journals, including Computers and Structures, Mechanical Systems and Signal Processing and Reliability Engineering and System Safety. He is also member of the scientific committee of many international conferences and reviewer of different journals. In 2018 he was selected by the Recruitment Program of High-end Foreign Experts of the State Administration of Foreign Affairs of the People's Republic of China. He is a member of the International Joint Research Center for Engineering Reliability and Stochastic Mechanics (JCERSM) and he is listed among the top 2% scientists globally by the Stanford/Elsevier ranking list in Civil Engineering and Applied Mathematics.

Keynote Lecture5

High-dimensional uncertainty propagation via deterministic sampling and frequency-based density estimation method

Jun Xu

Hunan University

Biography :

Dr. Jun Xu is a Professor at the College of Civil Engineering, Hunan University, China. He received his Ph.D. in Structural Engineering from Tongji University in 2015 and was a joint Ph.D. student at Rice University from 2012 to 2014. Recognized as a “Top-notch Young Talent” , “Outstanding Youth” of Hunan Province, and a Yuelu Scholar, Dr. Xu’s research primarily focuses on structural reliability, stochastic vibration, uncertainty quantification and propagation, and the safety assessment of renewable energy structures such as large-scale wind turbines. Dr. Xu has authored over 80 peer-reviewed papers, including more than 70 as the first or corresponding author in top-tier SCI journals. His academic impact is widely recognized; he has been consistently listed among the World’s Top 2% Scientists by Stanford University (both Career and Single-Year lists) and as a Highly Ranked Scholar in Reliability Engineering by Scholar GPS. He currently serves as a board member of the Joint Committee on Structural Safety (JCSS) and the Chinese Society for Vibration Engineering (CSVE). Furthermore, he serves as the Vice Chair of the Technical Committee on Time-Variant Global Reliability of Structures and Systems of the International Association for Structural Safety and Reliability (IASSAR), the Vice Chair of the Technical Committee on Stochastic Dynamics of the International Society of Mechanical System Dynamics (ISMSD), and an Editorial Board Member for several academic journals including the ASCE-ASME Journal of Risk and Uncertainty in Engineering Systems, Parts A and B. His honors include the First Prize of the Hunan Provincial Science and Technology Progress Award (Renewable Energy), the Second Prize of the Hunan Provincial Electric Power Science and Technology Progress Award, the Wiley High Contribution Author Award, the Elsevier Featured Paper Award, and the Excellent Scholar Paper Award at the National Stochastic Vibration Conference, etc..

Special Memorial Session

Honoring the Legacy of Prof. Alfredo Hua-Sing Ang (1930–2024)

Description :

The community of reliability engineering and risk management lost its most luminous guiding figure with the passing of Prof. Alfredo Hua-Sing Ang on October 14, 2024, at the age of 94. As the 10th International Symposium on Reliability Engineering & Risk Management (ISRERM 2026) convenes in Sapporo, Japan, we dedicate this prominent special session to celebrating the life, scientific achievements, and enduring spirit of a true titan in our field.

Prof. Ang was not merely a pioneer; he was the foundational architect of modern structural safety and reliability. As a member of the National Academy of Engineering of USA and the founding President of the International Association for Structural Safety & Reliability (IASSAR), he fundamentally transformed how engineers perceive uncertainty. His academic journey, spanning decades at the University of Illinois at Urbana-Champaign (UIUC) and the University of California, Irvine (UCI), produced seminal methodologies that remain industry standards today. From the point estimate method and the probabilistic network evaluation technique (PNET) method for system reliability to the widely adopted Park-Ang damage model in earthquake engineering, his technical contributions laid the cornerstone for risk-informed design. Furthermore, his classic two-volume treatise, *Probability Concepts in Engineering Planning and Design* (co-authored with Wilson H.C. Tang), remains the definitive reference for scholars and practitioners worldwide.

The relationship between Prof. Ang and the ISRERM series was profound and intrinsic. He was a constant source of inspiration and a staunch supporter of this symposium's mission to advance risk management technologies. His influence on the ISRERM community was formalized in 2018 during the 6th ISRERM in Singapore, where the Executive Committee established the "Alfredo H.S. Ang Lecture" as the standing keynote address, a testament to his status as the intellectual patriarch of this gathering. Even in his later years, Prof. Ang remained an active force in scientific inquiry, publishing cutting-edge research on reliability-based

optimization as recently as 2021. His dedication to mentorship cultivated a generation of global leaders in academia and engineering, many of whom are active participants in this symposium today.

This special session is invited only, featuring a curated lineup of distinguished speakers, including world-renowned scholars, former students, and close collaborators of Prof. Ang. The presentations will not only reflect on his historical contributions but also demonstrate how his theories continue to drive contemporary research in stochastic mechanics, infrastructure resilience, and disaster risk reduction.

We invite the ISRERM community to join us in this solemn yet celebratory session. Together, we will honor the memory of a visionary who defined our discipline, ensuring that his commitment to engineering safety and his spirit of international collaboration continue to illuminate our path forward.

Organizers:

Jie Li (Tongji University)

Michael Beer (Leibniz University Hannover)

Jian-Bing Chen (Tongji University)

Mini-Symposia

MS02

Uncertainty Inverse Problems and Stochastic System Identification in Engineering Structures

Organizers:

Meng-Ze Lyu (Hong Kong University of Science & Technology)

Sha Wei (Shanghai University)

Shenghan Zhang (Hong Kong University of Science & Technology)

Wang-Ji Yan (University of Macau)

Jianbing Chen (Tongji University)

Michael Beer (Leibniz Universität Hannover)

MS03

Bayesian Model Inference for Risk and Reliability

Organizers:

Pengfei Wei (Northwestern Polytechnical University)

Sifeng Bi (Beihang University)

Masaru Kitahara (Hokkaido University)

Marcos Valdebenito (Technical University of Dortmund)

Jingwen Song (Northwestern Polytechnical University)

Alice Cicirello (University of Cambridge)

Matthias Faes (Technical University of Dortmund)

Michael Beer (Leibniz Universität Hannover)

MS04

Bayesian Model Updating and Risk Management with Applications in Structural Health Monitoring

Organizers:

Yi-Chen Zhu (Southeast University)

Siu-Kui Au (Nanyang Technological University)

MS05

Recent Developments and Challenges on Response Determination, Risk Assessment and Uncertainty Propagation of Stochastic Dynamic Systems

Organizers:

Vasileios Fragkoulis (University of Liverpool)

Danko Jerez (Universidad Técnica Federico Santa María)

Ioannis Mitseas (University of Leeds)

Yuanjin Zhang (Wuhan University of Technology)

Fan Kong (Hefei University of Technology)

Michael Beer (Leibniz Universität Hannover)

MS06

Probabilistic Modeling, Uncertainty Quantification, and Risk Assessment of Dynamic Structures Subject to Environmental Loads

Organizers:

Marco Behrendt (Rice University)

Takashi Miyamoto (Institute of Science Tokyo)

Takeshi Kitahara (Kanto Gakuin University)

Michael Beer (Leibniz Universität Hannover)

MS07

Towards Reliable and Resilient Infrastructure Systems through Uncertainty-Informed Asset Management

Organizers:

Daijiro Mizutani (Tohoku University)

Xian-Xun Yuan (Toronto Metropolitan University)

Jinwoo Lee (Korea Advanced Institute of Science and Technology)

MS08

Risk and Reliability for Maritime and Ocean Engineering Applications

Organizers:

Tomoki Takami (Kobe University)

Masaru Kitahara (Hokkaido University)

Yongjian Xue (DNV)

Erik Vanem (DNV)

MS10

Data-Driven Modeling and Uncertainty Quantification for Complex and Nonlinear Systems

Organizers:

Masaru Kitahara (Hokkaido University)

Taro Yaoyama (The University of Tokyo)

Sangwon Lee (The University of Tokyo)

Yuma Matsumoto (NIED)

MS11

Use of Geo-Test Sites for Uncertainty Characterization in Geotechnical Engineering

Organizers:

Chong Tang (Dalian University of Technology)

Marco D'Ignazio (Tampere University)

MS12

Reliability Testing

Organizers:

Tobias Leopold (Esslingen University of Applied Sciences)

MS13

Efficient Surrogate Modeling in Geotechnical Engineering

Organizers:

Shui-Hua Jiang (Nanchang University)

Jiawei Xie (The University of Newcastle)

Peng Lan (Nanchang University)

Jinsong Huang (The University of Newcastle)

MS14

Multi-Hazard Disastrous Effect Modelling and Dynamic Reliability Analysis

Organizers:

Xu Hong (Hefei University of Technology)

Meng-Ze Lyu (Hong Kong University of Science & Technology)

Tianyou Tao (Southeast University)

Fan Kong (Hefei University of Technology)

Michael Beer (Leibniz Universität Hannover)

Jie Li (Tongji University)

MS15

AI/IoT Technologies for Maintenance and Natural Disaster Prevention of Infrastructure

Organizers:

Pang-jo Chun (The University of Tokyo)

Takashi Miyamoto (Institute of Science Tokyo)

Ji Dang (Saitama University)

Gakuho Watanabe (Yamaguchi University)

Takeshi Kitahara (Kanto Gakuin University)

MS16

Uncertainty Evolution in Complex Engineering Dynamical Systems: Advances in Stochastic Dynamics Techniques

Organizers:

Yi Luo (Leibniz University Hannover)

Kai Cheng (Technical University of Munich)

Alice Cicirello (University of Cambridge)

Jianbing Chen (Tongji University)

Michael Beer (Leibniz Universität Hannover)

Pol D. Spanos (Rice University)

MS17

Life-Cycle Assessment, Management, and Dynamic Adaptation of Civil Infrastructure Systems under Climate Change

Organizers:

You Dong (The Hong Kong Polytechnic University)

Yaohan Li (Hong Kong Metropolitan University)

Hongyuan Guo (The Hong Kong Polytechnic University)

MS18

Next-Generation Structural Control for Enhancing Resilience and Mitigating Risks Under Natural Hazards

Organizers:

Yongbo Peng (Tongji University)

Masayuki Kohiyama (Keio University)

Giuseppe Quaranta (Sapienza University of Rome)

Dario De Domenico (University of Messina)

MS19

Recent Applications of Probability, Reliability, and Risk Concepts in Wind Engineering

Organizers:

Kazuyoshi Nishijima (Kyoto University)

Naoki Ikegaya (Kyushu University)

MS20

Real-Time Reliability Updating for Engineering Systems

Organizers:

Zhao Zhao (Southwest Jiaotong University)

Pei-Pei Li (Beijing University of Technology)

Yi Zhang (Southeast University)

Zhao-Hui Lu (Beijing University of Technology)

Yan-Gang Zhao (Beijing University of Technology)

MS21

Life-Cycle Performance Assessment of Civil Structures under Multiple Hazards

Organizers:

Hiroshi Matsuzaki (Institute of Science Tokyo)

Mitsuyoshi Akiyama (Waseda University)

MS22

Machine Learning Applications in Natural Hazard Modeling and Simulation

Organizers:

Chao Sheng (Sichuan University)

Jian Yang (Dongguan University of Technology)

Chao Feng (Chang'an University)

Xizhong Cui (Harbin Institute of Technology)

Jize Zhang (Hong Kong University of Science and Technology)

Zhongdong Duan (Harbin Institute of Technology)

Hanping Hong (Harbin Institute of Technology)

MS23

Advances in Reliability Assessment and Optimization of Structures and Infrastructure Systems

Organizers:

Hadi Amlashi (University of South-Eastern Norway)

David Lehký (Brno University of Technology)

Drahomír Novák (Brno University of Technology)

MS24

Stochastic Finite Element Methods, Surrogate Models and Their Applications on Model Updating

Organizers:

Bin Huang (Wuhan University of Technology)

Heng Zhang (Yangtze University)

Zhifeng Wu (Wuhan Institute of Technology)

Hui Chen (Wuhan Institute of Technology)

MS25

Reliability and Risk Analysis with Machine Learning and Surrogate Modeling

Organizers:

Chaolin Song (The University of Hong Kong)

Jiaji Wang (The University of Hong Kong)

Min Li (Rensselaer Polytechnic Institute)

Bo Sun (Zhejiang University of Technology)

Jinsong Zhu (Tianjin University)

MS26

AI-Empowered Methods for Structural Reliability Analysis

Organizers:

Chao Dang (TU Dortmund University)

Zhouzhou Song (TU Dortmund University)

Yang Li (Yanshan University)

Jun Xu (Hunan University)

Marcos Valdebenito (TU Dortmund University)

Matthias Faes (TU Dortmund University)

Michael Beer (Leibniz Universität Hannover)

MS27

Physics-Informed Machine Learning for Uncertainty Quantification and Reliability Analysis

Organizers:

Lukáš Novák (Brno University of Technology)

Matthias Faes (Technical University of Dortmund)

Alice Cicirello (University of Cambridge)

Michael Shields (Johns Hopkins University)

MS28

Advanced Approaches for Uncertainty Quantification and Design Optimization under Polymorphic Uncertainty

Organizers:

Luyi Li (Northwestern Polytechnical University)

Changcong Zhou (Northwestern Polytechnical University)

Wanying Yun (Northwestern Polytechnical University)

Kaixuan Feng (Xi’an Jiaotong University)

Yan Shi (City University of Hong Kong)

MS30

Advances in Stochastic Mechanics

Organizers:

Yong Xu (Northwestern Polytechnical University)

Jianbing Chen (Tongji University)

Bin Pei (Northwestern Polytechnical University)

Meng-Ze Lyu (Hong Kong University of Science & Technology)

Xiaole Yue (Northwestern Polytechnical University)

Yongge Li (Northwestern Polytechnical University)

MS31

Leveraging Agentic AI and Large Language Model for Advancing Reliability Engineering and Risk Management

Organizers:

Man Kong Lo (The Hong Kong Polytechnic University)

Stephen Wu (The Institute of Statistical Mathematics)

MS32

Bridging Data and Design: ML/AI Applications in Geotechnical Practice

Organizers:

Andy Y.F. Leung (National Yang Ming Chiao Tung University)

Takayuki Shuku (Tokyo City University)

MS33

Current Issues in Structural Health Monitoring and Management on Civil Infrastructures

Organizers:

Chul-Woo Kim (Kyoto University)

Yoshinao Goi (Gifu University)

Yaohan Li (Hong Kong Metropolitan University)

Takeshi Kitahara (Kanto Gakuin University)

Parallel Sessions

Parallel Session 1
29th June 2026 11:00–12:40
Venue: Small Hall / Rooms 1– 4

Small Hall -MS27

Physics-Informed Machine Learning for Uncertainty Quantification and Reliability Analysis

Chairs: Lukáš Novák

Time	Title	Authors
11:00–11:20	A physics-informed neural network with subset simulation for structural reliability analysis	Weixi Wang (Presenter), Wei-heng Zhang, Huu-Tai Thai, Sebastian Thöns
11:20–11:40	A framework for dealing with limited data and uncertainty in Deep learning based on Kolmogorov–Arnold Neural Network	Zhen Yang (Presenter), Edoardo Patelli
11:40–12:00	On the convergence of Physics-informed Polynomial Chaos Expansion	Qitian Lu (Presenter), Lukas Novak
12:00–12:20	UNCERTAINTY QUANTIFICATION IN CRITICAL HEAT FLUX PREDICTIONS BY PHYSICS-INFORMED NEURAL NETWORKS	Nicola Pedroni (Presenter)
12:20–12:40	Uncertainty Quantification in Data-Driven Hysteresis Modeling Using a Partially Bayesian Neural Architecture	Jongha Joo (Presenter), Jaehwan Jeon, Junho Song

Room 1 - MS33-1

Current Issues in Structural Health Monitoring and Management on Civil Infrastructures

Chairs: Chul-Woo Kim and Yoshinao Goi

Time	Title	Authors
11:00–11:20	Online Probabilistic Estimation of Structural Condition	Zhi-Hao Wang (Presenter), Chul-Woo Kim
11:20–11:40	Bayesian evaluation of healthy and abnormal thresholds in vibration monitoring of a railway bridge pier for scour assessment	Daigo Kawabe (Presenter), Chul-Woo Kim

Time	Title	Authors
11:40–12:00	Evaluation of Low-Density Regions in the Ground Using Cross-Hole Muography Considering Measurement Variability	Toshifumi Shibata (Presenter), Shin-ichi Nishimura
12:00–12:20	Structural deterioration management via system reliability-based disaster resilience analysis using deep reinforcement learning	Jinseo Park (Presenter), Taeyong Kim, Junho Song

Room 2 — MS04

Bayesian Model Updating and Risk Management with Applications in Structural Health Monitoring

Chairs: Yi-Chen Zhu and Siu-Kui Au

Time	Title	Authors
11:00–11:20	Bayesian ambient modal identification considering the coupling effects of structural responses and environmental conditions	Wei Xu (Presenter), Yi-Chen Zhu
11:20–11:40	Bayesian Modal Analysis Considering External Excitation Effects Using Expectation-Maximization	Zi-Yu Guan (Presenter), Yi-Chen Zhu
11:40–12:00	Sparse Bayesian Model Selection Considering Environmental Effects in Operational Modal Analysis	Shanhao Wu (Presenter), Tomonori Nagayama, Masaru Kitahara, Yichen Zhu
12:00–12:20	Drift Removal in Displacement Estimation Using Acceleration Response Induced by Traffic Loads	Duy Nguyen The (Presenter)

Room 3 - MS23-1

Advances in Reliability Assessment and Optimization of Structures and Infrastructure Systems

Chair: Drahomír Novák

Time	Title	Authors
11:00–11:20	STOCHASTIC MRAS-BASED STRATEGY OPTIMIZATION: INTEGRATION INTO PYCATSHOO, A PLATFORM FOR PROBABILISTIC PERFORMANCE ASSESSMENT OF COMPLEX SYSTEMS	Hassane CHRAIBI (Presenter), Jean-Christophe HOUDEBINE
11:20–11:40	Structural damage identification using one dimensional convolutional neural network	Bohumil Šplíchal (Presenter), David Lehký
11:40–12:00	Surrogate-assisted reliability-based design optimization of offshore wind turbine reinforced concrete gravity-based foundation	David Lehký (Presenter), Hadi Amlashi, Drahomír Novák, Bohumil Šplíchal

Time	Title	Authors
12:00–12:20	Reliability-Based Evaluation of Cable Fatigue in Cable Stay Bridges	Indra Sidi (Presenter), Hamzah Arief, Amatulhay Pribadi, Widi Nugraha

Room 4 — MS17

Life-Cycle Assessment, Management, and Dynamic Adaptation of Civil Infrastructure Systems under Climate Change

Chair: You Dong

Time	Title	Authors
11:00–11:20	Optimization of Cloud Seeding Intervention Timing for Heavy Rainfall Control: A Study with Simplified Cases on Use of Importance Sampling for the Least-Squares Monte Carlo Method in Rare-Event Estimation	Dai Araki (Presenter), Kazuyoshi Nishijima
11:20–11:40	Resilience-Oriented Stress Testing of National Energy Grids under Climate Uncertainty and Increasing Renewable Penetration	Uichan Seok (Presenter), Ji-Eun Byun, Junho Song
11:40–12:00	Experimental investigation on shear behavior of GFRP-reinforced concrete beams with carbon mesh stirrups	Huu Hiep Pham (Presenter), Seung-Hee Kim, Si-Hyun Kim, Kyoung-Kyu Choi

Parallel Session 2
29th June 2026 13:45–15:45

Main Hall - SS-1

Honoring the Legacy of Prof. Alfredo Hua-Sing Ang

Chairs: Jie Li, Michael Beer, and Jianbing Chen

Time	Title	Authors
13:45–13:55	Reflections on a Five-Decode Friendship	Bruce Ellingwood
13:55–14:05	Photography Portfolio for the Special Session Honoring Prof. A. H-S. Ang	Lucia Faravelli
14:05–14:30	Evolution of Structural Reliability Engineering: A Historical Perspective	Hitoshi Furuta
14:30–14:55	Life-Cycle Global Structural Reliability under Multiple Loading and Hazards: A Physics-Informed Perspective	Jie Li
14:55–15:20	From Contribution to Legacy: The Inspiration of Prof. Alfredo H-S Ang to Taiwan Tech and the Founding of the Ang Award in Taiwan	Shi-Shuenn Chen
15:20–15:45	System Reliability Assessment by Method of Moments	Yan-Gang Zhao

Small Hall — MS07

Towards Reliable and Resilient Infrastructure Systems through Uncertainty-Informed Asset Management

Chairs: Daijiro Mizutani, Xian-Yun Yuan, and Jinwoo Lee

Time	Title	Authors
13:45–14:05	Bayesian Estimation of Vertical Displacement in PC Bridges during Construction using Strain and Inclination Data	Tetsushi Ohno (Presenter), Ikumasa Yoshida, Hidehiko Sekiya, Atsushi Yasuda, Keiko Tateno
14:05–14:25	Resilience-Based Assessment of Road Bridge Importance under Disaster and Normal Conditions	Junjie Wu (Presenter), Tetsuro Goda, Yuzuki Fuse, Toru Kouchi, Yukari Nakamura, Megumi Okamoto, Masaaki Nakano
14:25–14:45	Robotics-Based Automation for Pothole Detection and Repair: Impact Assessment and Planning Optimization	Jaemin Shin (Presenter), Jinwoo Lee
14:45–15:05	Effect of Accurate Measurement of Traffic Loadings Through Weigh-In-Motion Sensors on Pavement Management Systems	Yunkyeong Jung (Presenter), Jinwoo Lee

Time	Title	Authors
15:05–15:25	Surrogating Maximum Likelihood Estimation of Continuous-Time Markov Chains for Infrastructure Deterioration	Natsuki Yamashita (Presenter), Daijiro Mizutani, Yu Otake
15:25–15:45	Rule-Based Maintenance Policies for Network-Level Pavement Systems under New Inspection Technologies	Yuto Nakazato (Presenter), Nana Sato, Daijiro Mizutani, Yu Otake

Room 1 — MS33-2

Current Issues in Structural Health Monitoring and Management on Civil Infrastructures

Chair: Chul-Woo Kim and Daigo Kawabe

Time	Title	Authors
13:45–14:05	Bridge maintenance strategy combining system reliability assessment using structural health monitoring with expert heuristics	Kei Akutsu (Presenter), Zhihao Wang, Chul-Woo Kim
14:05–14:25	System identification of a long-span cable-stayed bridge subjected to long-period ground motions for enhancing seismic infrastructure resilience	Islam HAOUAS (Presenter), Gaku Shoji
14:25–14:45	Anomaly Detection in Each Modal Response Using Bayesian Hypothesis Testing and Stochastic Subspace Identification	Yoshinao Goi (Presenter)
14:45–15:05	Quantification of Epistemic Uncertainty in Structural Health Monitoring of Structures: Robust Sensor Anomaly Detection under Changing Environmental Conditions	Niklas Winnewisser (Presenter), Felix Mett, Thomas Potthast, Jan-Hauke Bartels, Matteo Broggi, Michael Beer

Room 2 — MS12

Reliability Testing

Chair: Tobias Leopold

Time	Title	Authors
13:45–14:05	Testing procedures for verifying a quantitative product reliability target - requirements, similarities, and differences	Tobias Leopold (Presenter)
14:05–14:25	Quantifying the Systematic Error of Single-Weibull Approximations for Competing Failure Modes	Tim Herrmann (Presenter), Martin Dazer
14:25–14:45	Estimating Lifetime Models from Operational Spectra by Reconstructing Cumulative Damage	Paula Fischer (Presenter), Martin Dazer

Room 3 — MS23-2

Advances in Reliability Assessment and Optimization of Structures and Infrastructure Systems

Chair: Drahomír Novák

Time	Title	Authors
13:45–14:05	Data-Driven Reliability Assessment of Water Distribution Networks	Fatemeh Boloukasli Ahmadgourabi (Presenter), Rebecca Dziedzic
14:05–14:25	Making uncertainties propagation, reliability analysis, optimization easy using FReET software employing MS Excel	Drahomír Novák (Presenter), Miroslav Vořechovský, Radoslav Rusina
14:25–14:45	Efficient Reliability-Based Discrete Topology Optimization via Quantile Surrogate Modeling	Jaewon Jeong (Presenter), Jungho Kim, Junho Chun, Junho Song

Room 4 — MS28

Advanced Approaches for Uncertainty Quantification and Design Optimization under Polymorphic Uncertainty

Chair: Jasper Behrensdorf

Time	Title	Authors
13:45–14:05	Discrete fail-safe truss optimization under loading uncertainty	Wei Shen (Presenter), Michael Beer
14:05–14:25	Propagation of Imprecise Power Spectral Densities for Stochastic Dynamics	Jasper Behrensdorf (Presenter), Marco Behrendt, Matteo Broggi, Michael Beer
14:25–14:31	A new separable scheme for efficient uncertainty propagation of structural systems with hybrid uncertainties	Luyi Li (Presenter), Yunfei Jiao, Zeming Chang
14:31–14:37	Advanced Network Reliability Analysis Methods	Yan Shi (Presenter), Cheng Liu
14:37–14:43	PyUncertainNumber for uncertainty propagation with black-box models: beyond probabilistic arithmetic	Yu Chen (Presenter), Scott Ferson, Edoardo Patelli
14:43–14:49	Interval model updating using Kriging model-assisted differential evolution adaptive metropolis algorithm	Junchao Liu (Presenter), Luyi Li, Hao Wang
14:49–14:55	High-Efficiency Stratified Sampling Method for Extremely Small Failure Probability	Hao Wang (Presenter), Luyi Li, Junchao Liu
14:55–15:01	A cost-effective calculation approach for failure probability bounds under hybrid random-interval uncertainty	Kaixuan Feng (Presenter), Peng Han
15:01–15:07	An efficient sequential adaptive Kriging surrogate model based method for estimating the parameter global reliability sensitivity indices	Wanying Yun (Presenter)

Time	Title	Authors
15:07–15:13	A framework for quantifying interval process based on Bayesian optimization and surrogate model	Rongyao Song (Presenter), Changcong Zhou
15:13–15:19	Region sensitivity analysis method based on interval quantile for models with interval uncertainties	Hanghang Li (Presenter), Changcong Zhou
15:19–15:25	An improved single-loop importance sampling method based on progressive hierarchical strategy for generalized failure probability function under high-dimensional and high-reliability applications	Zhenzhou Lu (Presenter), Xiaomin Wu, Xu Ding
15:25–15:31	A weighted importance sampling method for estimating local reliability sensitivity	Zhenzhou Lu (Presenter), Xu Ding, Xiaomin Wu
15:31–15:37	Output probability density function estimation based on the weighted kernel density estimation method under variable distribution parameters	Zhenzhou Lu (Presenter), Yifan Guo, Yizhou Chen
15:37–15:43	Adaptive radial sampling combined with stratified mixture importance sampling for efficiently estimating extremely small failure probability under random-interval uncertainty	Zhenzhou Lu (Presenter), Yuhua Yan

Parallel Session 3
29th June 2026 16:00–18:00

Main Hall - SS-2

Honoring the Legacy of Prof. Alfredo Hua-Sing Ang

Chairs: Jie Li, Michael Beer, and Jianbing Chen

Time	Title	Authors
16:00–16:25	Seismic PRA Methodology for Nuclear Power Plants as an Integral Application of Structural Reliability Theory	Tsuyoshi Takada
16:25–16:50	Enhancement of Reliability through the new Earth Retaining System with PO beams	Sang-Hyo Kim
16:50–17:15	Local Digital Twin Approach for Fatigue Reliability Assessment of Welded Tubular Joints	Ser-Tong Quek
17:15–17:40	From Structural Reliability to Risk, Resilience and Sustainability: Honoring the Legacy of Professor Alfredo H-S. Ang	Mitsuyoshi Akiyama
17:40–18:05	Training MCMC for rare events:What should we aim for?	Siu-Kui Au

Small Hall — MS19

Recent Applications of Probability, Reliability, and Risk Concepts in Wind Engineering

Chair: Kazuyoshi Nishijima

Time	Title	Authors
16:00–16:20	Evaluation of Design Wind Loads based on Non-exceedance Probability Curves of Extreme Wind Speeds within Moving Periods	Yuan-Lung Lo (Presenter), Shao-Wei Lee
16:20–16:40	Considering the joint probability density function of instantaneous and mean wind speeds for wind environmental assessment	Naoki Ikegaya (Presenter)
16:40–17:00	Practically estimating instantaneous wind speed distribution for wind environmental assessment	Yezhan Li (Presenter), Naoki Ikegaya
17:00–17:20	Exploring Indoor Heterogeneous Mixture of Scalar Concentration based on Spatiotemporal Distribution of Probability Density Functions	Ryu Itokazu (Presenter), Kazuki Kuga, Naoki Ikegaya, Kazuhide Ito
17:20–17:40	Advantages and challenges in a high-resolution wind damage assessment considering detailed building characteristics and effects of surrounding environment	Lizhi Wen (Presenter), Kotaro Kuge, Daisuke Urano, Kazuyoshi Nishijima
17:40–18:00	Tornado parameter inference based on damage survey using Bayesian network	Kazuyoshi Nishijima (Presenter), Naoki Ogata, Takashi Takeuchi

Room 1 — MS14

Multi-Hazard Disastrous Effect Modelling and Dynamic Reliability Analysis

Chair: Meng-Ze Lyu

Time	Title	Authors
16:00–16:20	Typhoon Resilience Assessment for Urban High-rise Buildings under Concurrent Wind and Rain Hazards	Hao Qin (Presenter), Xiaoliang Niu, Changhai Zhai
16:20–16:40	ESTIMATION METHOD OF SPATIAL DISTRIBUTION OF SEISMIC INTENSITY ON ENGINEERING BEDROCK FOR REAL-TIME EARTHQUAKE DISASTER RISK ESTIMATION	Yuna Tanaka (Presenter), Michiyo Sugai, Akira Akamatsu, Yasuhiro Mori

Room 2 — GS-1

Chair: Kohei Nagai

Time	Title	Authors
16:00–16:20	A Study on the Evaluation of Fine Fraction Content and Humus Content in Soil Using Resistivity	Kotaro Takechi (Presenter), Keisuke Nomura, Mamoru Fujii, Ryutaro Baba
16:20–16:40	Stochastic framework for radionuclide migration in deep geological repositories	Zhibao Zheng (Presenter)
16:40–17:00	A Risk-Based Reliability Analysis of Edge Data Center Overheating: A CFD Evaluation of Cold Aisle Containment	Jinwoo Choi (Presenter), Seungkeun Yeom, Jaewon Jeoung, Sua Kim, Taehoon Hong
17:00–17:20	A Stochastic Multiphysics Framework for Predicting Corrosion Evolution in Nuclear Waste Canisters	Shenghao Piao (Presenter), Zhibao Zheng, Michael Beer
17:20–17:40	Foundational Hybrid Simulation Modeling for Robot-Automated Exterior Wall Finishing Operations	Seohyeon Kim (Presenter), Soun Jo, Minjae Lee, Eunsang Park, Minji Baek, Ajin Jo, Hyounseung Jang, Jimin Kim

Room 3 — MS20

Real-Time Reliability Updating for Engineering Systems

Chair: TBA

Time	Title	Authors
16:00–16:20	Search Path Optimization Method Considering Building-Specific Probability of Victims Requiring Rescue and Time Dependent Decay of Survival Rates	NATSUKI SUNADORI (Presenter), Akira Akamatsu, Michiyo Sugai, Yasuhiro Mori

Time	Title	Authors
16:20–16:40	Machine Learning-based Automated Recognition for Multi-worker Collaboration and Roles in Construction Sites	Hyunsoo Oh (Presenter), Sohyun Kim, Chanjin Lee, Kwangbok Jeong, Jaewook Lee
16:40–17:00	Load-Following Control Strategy for Small Modular Reactors Based on Reinforcement Learning	Wenbin Xie (Presenter), Changhong Peng, Zhanxiang Huang

Room 4 — MS24

Stochastic Finite Element Methods, Surrogate Models and Their Applications on Model Updating

Chair: TBA

Time	Title	Authors
16:00–16:20	Random Finite Element Analysis for Pipeline Performance Subjected to Faulting	Jiun-Shiang Wang (Presenter), Che-Yu Chang
16:20–16:40	Stochastic Continuum Modelling Framework for Subsurface Fracture Uncertainty Propagation	Laurenz Knipper (Presenter), Zhibao Zheng
16:40–17:00	Power series expansion of eigenpair of structure with non-Gaussian parameters	Bin Huang (Presenter), Yunchong Chen, Heng Zhang
17:00–17:20	Stochastic homotopy surrogate model aided reliability-based optimization for high-dimensional problems	Guanyu Zhang (Presenter), Bin Huang

Parallel Session 4
30th June 2026 11:00–12:40

Small Hall — MS15-1

AI/IoT Technologies for Maintenance and Natural Disaster Prevention of Infrastructure

Chair: Ji Dang

Time	Title	Authors
11:00–11:20	Crack detection using CNN with video images of railway tunnel central passage	Yuichiro Kadota (Presenter), Koichiro Takuwa, Takeshi Kitahara
11:20–11:40	Active Semi-Supervised Learning for Scalable Corrosion Detection in Steel Structures	SAL SAAAD AL DEEN TAHER (Presenter), Ji Dang
11:40–12:00	Development of a Construction Site Waste Detection Model Using Generative AI–Based Synthetic Image	Yewon Hwang (Presenter), Liu Xin, Hyungjoon Kim, Junho Choi, Junhwan Shin, Jaewook Lee, Kwangbok Jeong
12:00–12:20	Multi-label damage diagnoses of steel bridge bearings using Vision Transformer	Kanata Akaishi (Presenter), Ji Dang, Hiroyuki Aoyagi, Zou Rongzhi
12:20–12:40	An Empirical Study of Bridge Point Cloud Semantic Segmentation Across Structural Spans	Zhongyi Sun (Presenter), Kenta Itakura, Yu Chen, Chao Lin, Pang-jo Chun

Room 1 — MS05

Recent Developments and Challenges on Response Determination, Risk Assessment and Uncertainty Propagation of Stochastic Dynamic Systems

Chair: Michael Beer

Time	Title	Authors
11:00–11:20	Reliability function analysis of a linear oscillator subjected to non-Gaussian random excitation using the equivalent non-Gaussian excitation method and the Hermite moment model	Takahiro Tsuchida (Presenter)
11:20–11:40	Hypothesis-based Reliability Testing	Marius Bittner (Presenter), Kostia Zuev, Michael Beer

Time	Title	Authors
11:40–12:00	Fractional Moments-Driven Mixture Models for First Passage Probability Estimation in Stochastic Systems with Fractional Dynamics	Thomas Potthast (Presenter), Danko Jerez, Vasileios Fragkoulis, Chen Ding, George Pasparakis, Michael Beer
12:00–12:20	Improved Maximum Response Prediction of MDOF Structures Using a Deep Learning-based Modified CQC Method	Dongjin Kim (Presenter), Qiujin Ma, Oh-Sung Kwon, Junho Song

Room 2 — MS32-1

Bridging Data and Design: ML/AI Applications in Geotechnical Practice

Chairs: Andy Y.F. Leung and Takayuki Shuku

Time	Title	Authors
11:00–11:20	A multivariate normal distribution for properties of frozen soils	Yuki Kugisaki (Presenter), Reo Migita, Masato Ohishi, Takayuki Shuku
11:20–11:40	Geological modeling using a symbolic evolution algorithm	Takayuki Shuku (Presenter), Noriko Otani
11:40–12:00	Probabilistic Reduction of Uncertainty in AI-Based Consolidation Settlement Prediction Using Site Investigation Data	Kazuhiro ODA (Presenter)
12:00–12:20	Data-centric Liquefaction-induced settlement predictions for Shallow-Founded Buildings in Taiwan	Jiun-Shiang Wang (Presenter), Chih-Chieh Lu, Yuan-Chang Deng, Shih-ting Lu

Room 3 — MS08-1

Risk and Reliability for Maritime and Ocean Engineering Applications

Chair: Erik Vanem

Time	Title	Authors
11:00–11:20	An active learning classification surrogate model for efficient structural reliability analysis	Yan Liu (Presenter)
11:20–11:40	Nonlinear Time-Reversal Method for Efficient Probabilistic Design Wave Identification	Wataru Fujimoto (Presenter), Tomoki Takami
11:40–12:00	Active Learning-Based Reliability Analysis Based on Noisy Wave Measurements	Tomoki Takami (Presenter), Masaru Kitahara, Hidetaka Houtani

Time	Title	Authors
12:00–12:20	An Introductory Study on Stochastic Evolution of Ship Motion with Parameter Uncertainty and Its Second-Order Probabilistic Safety Interpretation	Atsuo Maki (Presenter), Tomoki Takami, Leo Dostal, Kouki Wakita, Keiji Katsumura, Masaru Kitahara
12:20–12:40	Temporally Coherent Modeling of Tropical-Cyclone Compound Flooding for Reliable Coastal Hazard Estimation	Min Chung (Presenter), Ryota Wada, Jeremy Rohmer, Philip Jonathan

Room 4 — MS13

Efficient Surrogate Modeling in Geotechnical Engineering

Chair: Yu Otake

Time	Title	Authors
11:00–11:20	Optimal Sensor Placement for Real-Time Response Reconstruction Considering Measurement Errors in Finite Element Model of Multilayered Slope under Rainfall Infiltration	Nuofeng Lin (Presenter), Kiyonobu Kasama, Lihang Hu
11:20–11:40	Physics-Informed Surrogate Modeling of MASW Phase Velocity Using Spatial Averaging	Yen-Hsiang Chang (Presenter), Jianye Ching
11:40–12:00	Reliability Analysis of Tunnel Longitudinal Response Considering Spatial Variability of Soil: An Approach Based on Random Field and CNN Surrogate Model	Fei Meng (Presenter), Shifan Qiao

Parallel Session 5
30th June 2026 13:45–15:45

Small Hall — MS15-2

AI/IoT Technologies for Maintenance and Natural Disaster Prevention of Infrastructure

Chair: Pang-jo Chun

Time	Title	Authors
13:45–14:05	Post earthquake fast bridge damage detection method applying UAV, 3D model and AI	Tomoya Yoshida (Presenter), Ji Dang
14:05–14:25	Bridge Bearing Health Monitoring as Information Retrieval: A Consensus-Based Autoencoder Framework	RONGZHI ZUO (Presenter), JI DANG, SHOJIRO MAKI, WATARU FUJITA
14:25–14:45	Rapid Debris Volume Estimation Using UAV-Based 3D Point Clouds: Validation Experiments and Application to the 2024 Noto Peninsula Earthquake	Xin Wang (Presenter), Ji Dang
14:45–15:05	Enhancing Urban Road Surface Segmentation from 3D Point Clouds via Transfer Learning for Infrastructure Realiability Assessment	Kewei Ren (Presenter), Pang-jo Chun, Kenta Itakura
15:05–15:25	Study of Vision–Language Segment-Anything Models for Bridge Defect Recognition	Bowen Jiang (Presenter), Pang-jo Chun
15:25–15:45	Integrating Point Cloud Features with Large Language Models for Bridge Understanding	Yu Chen (Presenter), Chao Lin, Zhongyi Sun, Pang-jo Chun

Room 1 — MS10-1

Data-Driven Modeling and Uncertainty Quantification for Complex and Nonlinear Systems

Chair: Taro Yaoyama

Time	Title	Authors
13:45–14:05	Bayesian sparse system identification for nonlinear seismic response estimation	Tomoki Takizawa (Presenter), Ryota Kurihara, Masaru Kitahara
14:05–14:25	Remaining Useful Life Assessment of Railway Track Systems Using a DE-MCMC–Based Hazard Markov Model	Yu WU (Presenter), Kai XUE, Boyu ZHAO, Tomonori NAGAYAMA
14:25–14:45	D-BEX: Dynamic Basis Extraction for Uncertainty Quantification and Sensor Routing in Geotechnical Engineering	Sopheakpolin Mom (Presenter), Yu Otake

Time	Title	Authors
14:45–15:05	Latent space-based sampling of critical ground motions for structures using deep generative models	Yuma Matsumoto (Presenter), Taro Yaoyama, Sangwon Lee, Tatsuya Itoi
15:05–15:25	Graph Neural Networks for Multi-Site 1-Hour Rainfall Prediction Using JMA Nowcast Grids	Tatsuya Kamba (Presenter), Yasutoshi Nomura
15:25–15:45	Symbolic-Regression-Based 1-Hour-Ahead Groundwater Level Forecasting for Slope Monitoring at Kiyomizu-dera Okunoin, Kyoto	

Room 2 — MS32-2

Bridging Data and Design: ML/AI Applications in Geotechnical Practice

Chairs: Andy Y.F. Leung and Takayuki Shuku

Time	Title	Authors
13:45–14:05	Incorporation of Soil Classification and Geology in Probabilistic Characterization of Shear Strength Parameters for Completely Decomposed Granite (CDG) in Hong Kong	Hansong Pang (Presenter), Andy Leung
14:05–14:25	A Preliminary Case Study on the Impact of Geotechnical Property Information on Decision-Making throughout the Lifecycle of Road Structures	Tetsuya Kouno (Presenter), Yudai Tachibana, Takayuki Shuku
14:25–14:45	Integrated Stratigraphic and Soil Property Modeling Using Potts Model and Gaussian Process Regression	Kosei Kawata (Presenter)

Room 3 — MS08-2

Risk and Reliability for Maritime and Ocean Engineering Applications

Chair: Tomoki Takami

Time	Title	Authors
13:45–14:05	Quantitative representations of COLREG-compliant behaviour from large-scale AIS trajectory data	Arne Huseby (Presenter)
14:05–14:25	Posterior Distribution Estimation of Parameters in Multiple Maneuvering Models Using Model-Test Data	Yushin Ando (Presenter), Tomoki Takami, Atsuo Maki, Keiji Katsumura, Masahiro Sakai
14:25–14:45	A Study of Load Factors Adjusting Failure Probability Considering the Reliability of Site Amplification Factors Evaluation in Fourier-Spectrum-Based Probabilistic Seismic Hazard Analysis	Noriki Sugahara (Presenter), Atsushi Nozu, Hiroki Eguchi, Masayuki Yamada, Yusuke Fukunaga, Yosuke Nagasaka, Nobuoto Nojima, Masahiro Takenobu, Takahiro Uehara

Time	Title	Authors
14:45–15:05	Time-Domain Fatigue Reliability Assessment of Floating Offshore Structures Using Neural-Operator Surrogate Models	Wangyu Choi (Presenter), Jungho Kim, Seonghyun Lim, Junho Song
15:05–15:25	Risk-driven failure-mode ranking in time-variant reliability assessment of pitting-corroded subsea pipelines	Mojtaba Mokhtari (Presenter), Bernt Leira
15:25–15:45	System Reliability-based Design Optimization of Floating Offshore Wind Turbines Considering Energy Production	Junseob Shin (Presenter), Seonghyun Lim, Junho Song

Room 4 — MS21-1

Life-Cycle Performance Assessment of Civil Structures under Multiple Hazards

Chairs: Hiroshi Matsuzaki and Mitsuyoshi Akiyama

Time	Title	Authors
13:45–14:05	Deterioration distribution of cold region structures considering risk	Atsushi Sutoh (Presenter), Hiroaki Kanekiyo, Takashi Sato
14:05–14:25	Life-cycle reliability of green-grey infrastructure systems under non-stationary rainfall due to climate change	Naoko Takano (Presenter), Mitsuyoshi Akiyama, Koki Aoki, Reon Koyama
14:25–14:45	A NON-PARAMETRIC APPROACH TO INVESTIGATE NONSTATIONARY COASTAL EXTREMES WITHIN A BAYESIAN FRAMEWORK	Ravi Thapa (Presenter), Mitsuyoshi Akiyama, Reon Koyama, Dan Frangopol
14:45–15:05	Quantitative Resilience Assessment and Recovery Visualization of Interdependent Water and Sewer Networks	Tetsuro Goda (Presenter), Junjie Wu, Yukari Nakamura, Masaaki Nakano, Yuri Miyazaki

Parallel Session 6
30th June 2026 16:00–18:00

Small Hall — MS25

Reliability and Risk Analysis with Machine Learning and Surrogate Modeling

Chair: Chaolin Song

Time	Title	Authors
16:00–16:20	Bridge Safety Assessment with Machine Learning-assisted Prediction of Loading Capacity	Zuqian Jiang (Presenter), Rucheng Xiao
16:20–16:40	Load-Carrying capacity prediction of UHPC beams using machine learning	Zhengyang Zou (Presenter), Bin Sun, Jian Huang
16:40–17:00	A Comparative Analysis of Time-Series Clustering Methods for Pattern-Based Classification of Scope 3 Carbon Emissions in Construction Projects	Seongkyun Ahn (Presenter), Seungwon Seo, Choongwan Koo
17:00–17:20	A Comparative Study on the Robustness to Initial Samples in Adaptive Surrogate Modeling Using Gaussian Process Regression	TOMOKA NAKAMURA (Presenter), IKUMASA YOSHIDA, YU OTAKE
17:20–17:40	A Comparative Study of Sampling Methods for Failure Probability Calculation in Reactor Passive Systems	Fanyue Zeng (Presenter), changhong peng, hong jiang
17:40–18:00	Impact of Parameter Correlations on the Failure Probability Calculation of Reactor Passive Systems	Fanyue Zeng (Presenter), changhong peng, hong jiang

Room 1 — MS10-2

Data-Driven Modeling and Uncertainty Quantification for Complex and Nonlinear Systems

Chair: Sangwon Lee

Time	Title	Authors
16:00–16:20	Discretization Method in Bayesian Networks for System Reliability	Koki Fukuda (Presenter), Sangwon Lee, Taro Yaoyama, Tatsuya Itoi
16:20–16:40	An Application of a Tabular Foundation Model to Geotechnical Site Characterization: Spatial Prediction and Uncertainty Assessment	Taiga Saito (Presenter), Yu Otake, Stephen Wu
16:40–17:00	Cross entropy-based importance sampling via normalizing flows	Taro Yaoyama (Presenter), Sangwon Lee, Masaru Kitahara, Tatsuya Itoi
17:00–17:20	Short-term Local Rainfall Prediction using PatchTST with JMA Nowcast and Gauge Observations	Sara Baba (Presenter), Yasutoshi Nomura

Time	Title	Authors
17:20–17:40	Interpretable Equation Discovery for Sensor-Driven Soil Fertility Assessment via Symbolic Regression	Yudai Morii (Presenter), Yasutoshi Nomura
17:40–18:00	Probabilistic SINDy Model for Ensemble-based Uncertainty Quantification of Structural Hysteresis	Soyeon Park (Presenter), Jaehwan Jeon, Junho Song

Room 2 — GS-2

Chair: Satoshi Nishimura

Time	Title	Authors
16:00–16:20	Seismic Fragility Analysis of a Pile-Supported Bridge Pier using High-Dimensional Model Representation	N Sriram (Presenter), G R Dodagoudar
16:20–16:40	Development of a CFD-Based Model for Assessing Worker Health Risks from Dust Dispersion in Construction Sites	Jeong Hyejin (Presenter), Park Juyeon, Kim Hyeonggyun, Shakiba Sadeghi, Jeong Kwangbok
16:40–17:00	Risk-Informed Performance-Based Seismic Design Framework for Building Functionality: A Case Study of Scenario Earthquakes	Miwa Sadamoto (Presenter), Tatsuya Itoi
17:00–17:20	Development of a Nonlinear Mechanical Model for Fiber Concrete-Enhanced Steel Columns with Flexural-Shear Failure Mode	Chien-Kuo Chiu (Presenter), Fikri Ghifari
17:20–17:40	A Probabilistic Slope Safety Assessment Using Statistical Analysis and Physical Modeling	Yu-Hsi Chen (Presenter), Kuo-Wei Liao

Room 3 — MS22

Machine Learning Applications in Natural Hazard Modeling and Simulation

Chair: Jize Zhang

Time	Title	Authors
16:00–16:20	Bayesian Updating and Model Class Selection for Earthquake Early Warning Systems	Hongjie Li (Presenter), Jize Zhang
16:20–16:40	Heteroscedastic Spatiotemporal Gaussian Process Modeling for Firebrand Spotting Prediction in Wildfire Spread	Yoonseo Cho (Presenter), Junho Song

Room 4 — MS21-2

Life-Cycle Performance Assessment of Civil Structures under Multiple Hazards

Chairs: Hiroshi Matsuzaki and Mitsuyoshi Akiyama

Time	Title	Authors
16:00–16:20	Tsunami casualty risk assessment based on an integrated pedestrian–vehicle evacuation framework with seismic and liquefaction damage to road networks	Rena Horiguchi (Presenter), Mitsuyoshi Akiyama, Noa Suzuki, Reon Koyama, Ravi Thapa, Koki Aoki, Dan Frangopol
16:20–16:40	Reliability-based safety assessment of corroded RC bridge superstructures considering structural redundancy	Mayu Ogushi (Presenter), Mitsuyoshi Akiyama, Shizuya Sasaki, Shun Nakamura, Zhejun Xu
16:40–17:00	Seismic fragility analysis of seismically isolated bridges using updated shear stiffness of isolators based on Bayesian inference	Hiroshi Matsuzaki (Presenter)
17:00–17:20	Probabilistic estimation of the load-deflection relationship of post-tensioned PC beams considering spatial steel corrosion	Yusuke Okamura (Presenter), Mitsuyoshi Akiyama, Taisei Uehara, Shunta Inagaki, Zhejun Xu

Parallel Session 7
1st July 2026 11:00–12:40

Small Hall — MS15-3

AI/IoT Technologies for Maintenance and Natural Disaster Prevention of Infrastructure

Chair: Takashi Miyamoto

Time	Title	Authors
11:00–11:20	Geometry-Corrected 360° Unfolded Surface Mapping for Defect Localization in Square and Octagonal Drainage Pipelines	Supawit Saiwimarn (Presenter), Ji Dang
11:20–11:40	Reliability-Based Natural Language Interface for Fire Safety Simulation: A Local LLM Approach to CFAST Input Generation	Zafar Avzalshoev (Presenter), Pang-jo Chun
11:40–12:00	Surrogate Modeling of Seismic Wave Propagation via a Hybrid Approach Combining Parametric Physics-Informed Neural Networks and Numerical Solutions	Takashi Miyamoto (Presenter), Kotaro Taguchi
12:00–12:20	A Model Context Protocol Framework for Bridge Data Generation with Large Language Model Integration	Shreejan Maharjan (Presenter), Pang-jo Chun
12:20–12:40	UGV-Driven Indoor Damage Detection of Ceilings and Walls Using PatchCore	Yoshihiro Nitta (Presenter), Masashi Abe, Yu Fukutomi

Room 1 — MS03-1

Bayesian Model Inference for Risk and Reliability

Chair: Masaru Kitahara

Time	Title	Authors
11:00–11:20	Amortized Bayesian Inference for Optimal Experimental Design in Structural Health Monitoring	Andres Martinez (Presenter)
11:20–11:40	Bayesian Updating under Hybrid Uncertainties with Transport-based Likelihood Metamodels	Jan Grashorn (Presenter), Lukas Fritsch, Michael Beer, Sylvia Keßler
11:40–12:00	A data assimilation framework for estimating hydraulic conductivity and SWCC parameters from mini disk infiltrometer tests	Xuesen Li (Presenter), Kiyonobu Kasama, Yuichi Yahiro
12:00–12:20	Latent-Space Surrogate Modeling for Bayesian Updating of Resistance Spot Welding Simulations	Bouwe Verkens (Presenter), Matthias Faes, Patrick Van Rymenant, David Moens

Time	Title	Authors
12:20–12:40	Static Data Fusion with Variational Autoencoders: A Generative AI and Bayesian Inference based Framework	Migel Arachchillage Kasun Madusanka Dharmasiri (Presenter), Taichi Ishikawa, Riki Honda

Room 2 — MS02

Uncertainty Inverse Problems and Stochastic System Identification in Engineering Structures

Chairs: Meng-Ze Lyu and Shenghan Zhang

Time	Title	Authors
11:00–11:20	An adaptive K-Nearest Responses Method for Stochastic Model Updating	Roberto Rocchetta (Presenter), Vasco Medici, Federico Rosato
11:20–11:40	A framework for load effect combination analysis considering spatiotemporal uncertainty of floor live loads	Wenhan Wu (Presenter), Jun Chen, Hao Zeng
11:40–12:00	A probabilistic framework for reliability-based calibration of shear design provisions for circular concrete filled steel tube columns	Zebin Wu (Presenter), Chengqing Liu, Ying Ma
12:00–12:20	Reconstructing hidden dynamics: A full-probabilistic framework for unobserved states under partial measurements	Meng-Ze Lyu (Presenter), Shenghan Zhang, Jian-Bing Chen, Michael Beer, Jie Li

Room 3 — MS18

Next-Generation Structural Control for Enhancing Resilience and Mitigating Risks Under Natural Hazards

Chair: Masayuki Kohiyama

Time	Title	Authors
11:00–11:20	Optimal design of tuned mass damper inerters for improving the reliability of base-isolated structures under pulse-like ground motions	Renjie Han (Presenter), Robby Caspeele, Mia Loccufier, Kevin Dekemele, Giuseppe Quaranta, Antonina Pirrotta, Yongbo Peng
11:20–11:40	Parameter Design of a Bidirectional Tuned Mass Damper with Rigid Body Swing and Horizontal Spring Oscillation Using Possible Ground Motion Dataset	Masayuki Kohiyama (Presenter), Yuki Simizu
11:40–12:00	Performance evaluation of Tuned Mass Dampers under Strong Winds using machine learning approaches	Zhen Sun (Presenter)

Room 4 — MS16

Uncertainty Evolution in Complex Engineering Dynamical Systems: Advances in Stochastic Dynamics Techniques

Chair: Yi Luo

Time	Title	Authors
11:00–11:20	Time-dependent reliability-based optimization using adaptive Gaussian process regression with quantiles	Wei Shen (Presenter), Chao Dang, Michael Beer
11:20–11:40	Uncertainty Evolution in Building Thermal Response: A Stochastic Dynamics Framework for Infrared Thermography Prediction	Jun Chen (Presenter), Meng-Ze Lyu, Shenghan Zhang
12:00–12:20	Efficient Stochastic Dynamics of Vehicle-Railway-Bridge Systems Using the One-Dimensional Dimension-Reduced Probability Density Evolution Equation (DR-PDEE) Framework	Yi Luo (Presenter), Peng Yuan, Michael Beer

Parallel Session 8
1st July 2026 13:45–15:45

Small Hall — MS06

Probabilistic Modeling, Uncertainty Quantification, and Risk Assessment of Dynamic Structures Subject to Environmental Loads

Chairs: Takeshi Kitahara and Takashi Miyamoto

Time	Title	Authors
13:45–14:05	Training MCMC for rare events: what should we aim for?	Siu-Kui Au (Presenter)
14:05–14:25	Neural Network with variational Monte Carlo for Bayesian inference and response estimation of nonlinear systems	Huian Lin (Presenter), Takeshi Kitahara
14:25–14:45	Multi-Objective Finite Element Model Updating of a Multi-Span Steel Girder Bridge Using Integrated Multi-Restart CMA-ES, NN, and SNT	Koravith Tiprak (Presenter), Kouichi Takeya, Eiichi Sasaki
14:45–15:05	Importance Line Sampling for Dynamic Reliability of Linear Stochastic Systems	Mauricio Misraji (Presenter), Marcos Valdebenito, Matthias Faes
15:05–15:25	Surrogate modeling using Gaussian process regression for optimization of site-specific tsunami evaluation condition for a infrastructure in coastal area	Ayumi Nishi (Presenter), Gaku Shoji
15:25–15:45	Granger causality-based disaster resilience analysis for recovery decision support of interdependent infrastructure systems	Ra-yeon Kim (Presenter), Youngjun Kwon, Junho Song

Room 1 — MS03-2

Bayesian Model Inference for Risk and Reliability

Chair: Matteo Broggi

Time	Title	Authors
13:45–14:05	Hierarchical Approximate Bayesian Computation considering measurement uncertainties	Miriam Dodt (Presenter), Alice Cicirello, Marcos Valdebenito, Augustin Persoons, David Moens, Matthias Faes
14:05–14:25	Algorithms for Bayesian Inference in UncertaintyQuantification.jl	Matteo Broggi (Presenter), Lukas Fritsch, Jasper Behrensdorf, Jan Grashorn, Michael Beer

Time	Title	Authors
14:25–14:45	Sparse Transport Maps for Bayesian Model Updating in Engineering Applications	Lukas Fritsch (Presenter), Jan Grashorn, Matteo Broggi, Michael Beer
14:45–15:05	Hierarchical Bayesian Model for Ground Motion Prediction in Data-sparse Seismic Regions	Joonhyung Lee (Presenter), Junho Song
15:05–15:25	A Comparison of Sliced-Normal Maps and Approximate Bayesian Computation for Stochastic Model Updating	Thomas Potthast (Presenter), Masaru Kitahara, Matteo Broggi, Michael Beer

Room 2 — GS-3 / MS30 / MS31

GS-3 , MS30 Advances in Stochastic Mechanics , MS31 Leveraging Agentic AI and Large Language Model for Advancing Reliability Engineering and Risk Management

Chair: Yasunori Miyamori

Time	Title	Authors
13:45–14:05	Experimental investigation on rehabilitation effectiveness of local-corroded RC slabs using external CFRP strip plates	Chien-Kuo Chiu (Presenter), Yonas Yilma
14:05–14:25	Punching Shear of GFRP-RC Slab-Column Connections: Effects of Design Parameters and Strength Model	Si-Hyun Kim (Presenter), Kyoung-Kyu Choi, Hoon-Min Kim
14:25–14:45	Vulnerability assessment of chemical storage tanks exposed to fires based on credibility theory	Qianqian Cui (Presenter), Long Ding, Jie Ji
14:45–15:05	STOCHASTIC MULTISCALE ANALYSIS OF POROUS MEDIA FLOW THROUGH DATA-DRIVEN STOCHASTIC UPSCALING	Nguyen Phu (Presenter), Zhibao Zheng, Ludovic Chamoin, Udo Nackenhorst, Michael Beer
15:05–15:25	Efficient Stochastic Averaging Solution of Fractional Differential Equations	Yi Luo (Presenter), Pol D Spanos, Michael Beer
15:25–15:45	Quantifying Liquefaction Resistance from Effective Stress Paths Using Large Language Models	Yu Otake (Presenter), Narui Miura, Wu Stephen, Yosuke Higo

Room 3 — MS26

AI-Empowered Methods for Structural Reliability Analysis

Chair: Mauricio Misraji

Time	Title	Authors
13:45–14:05	Reliability analysis of sequential series systems by Bayesian active learning	Weiming Zheng (Presenter), Chao Dang, Marcos Valdebenito, Matthias Faes
14:05–14:25	Reliability Assessment Using Spatial Domain Mapping of Sparse Measurements	Reza Allahvirdizadeh(Presenter)

Room 4 — MS11

Use of Geo-Test Sites for Uncertainty Characterization in Geotechnical Engineering

Chair: Takayuki Shuku

Time	Title	Authors
13:45–14:05	Strength and Bearing Capacity Analysis of Cement-Mixed Columns under Different Mixing Conditions Using Multi-Output Gaussian Process Regression	Zhi Li (Presenter), Kiyonobu Kasama, Hang-Li Hu, Xin-Fa Li, Kiichi Tanaka, Yuichi Yahiro
14:05–14:25	Piping Risk Assessment Based on CPTu Using Gaussian Process Regression	SUMI DAICHI (Presenter), Ota Taiki, Nishimura Shinniti, Shibata Toshihumi
14:25–14:45	Partial Factor Determination Based on the Number of Vertical Load Tests for Pile Bearing Capacity	Takayuki Shuku (Presenter), Testuya Kouno
14:45–15:05	Application of Ground Penetrating Radar and 3D Modelling in Pipeline Detection for Seismic-Resilient Urban Infrastructure	Chia-Feng Hsu (Presenter), Hao-Wei Chiu, Yu-Feng Lin, Fan-Ya Li, Shong-Loong Chen

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