

Nuclear Forum 2026

**RECENT DEVELOPMENTS IN
NUCLEAR ENERGY – EXPLORING FUTURE ENERGY
AND INNOVATION COLLABORATION**



Date : 13th July 2026 (Monday)

Time : 9:45 am – 5:45 pm

Place : LI3505, Li Dak Sum Yip Yio Chin Academic Building, City University of Hong Kong, Tat Chee Avenue, Kowloon, Hong Kong

Programme Rundown

Opening

09:45 - 10:15 **Opening keynotes**

Prof. Way KUO, Emeritus President and University Distinguished Professor for Life, City University of Hong Kong

Presentation file download,

https://drive.google.com/file/d/13lubZVOqpXErLvlcxT53AekUVUKpXJdo/view?usp=drive_link

10:15 - 10:25 **Welcome remarks**

Ir Prof. Herman TSUI, HKNS Chairman

10:25 - 10:35 **Opening keynotes from Sponsor**

Mr Jonathan LUK, Director – Commercial & Development (Nuclear), CLP Holdings

10:35 - 10:50 **Opening ceremony (photo taking session)**

Programme Rundown

Topic 1: Nuclear Energy for a sustainable future: Balancing Clean Power and Global Needs

10:50 - 11:00 **The Next Nuclear Energy Era: Opportunities and Challenges**
Mr William D. MAGWOOD, Director-General, Nuclear Energy Agency (NEA) of the OECD
Recorded video, <https://youtu.be/NCIH2-YYGBk>

11:00 - 11:25 **The Lifeline of Nuclear Industry – Nuclear Safety**
Prof. Wing-mo LEUNG, Spokesperson, Hong Kong Meteorological Society and Chairman,
Guangdong Nuclear Power Stations Nuclear Safety Consultative Committee
Presentation file download,
https://drive.google.com/file/d/1vwP2bmDBJontfifEVRqPs_3QM1Gvxrcu/view?usp=drive_link

Programme Rundown

Topic 2: Small Modular Reactors and Advanced Fission Revolutionising Deployment

- 11:40 - 12:05 The development of the world's first commercial onshore, small modular reactor (SMR)- Ling long One (ACP100)
Prof. Danrong SONG, Chief Designer & Professorship Senior Engineer, Nuclear Power Institute of China
- 12:05 - 12:30 High-Temperature Gas Cooled Reactor
Prof. Jiejuan TONG, Institute of Nuclear and New Energy Technology (INET), Tsinghua University,
Presentation file download, https://drive.google.com/file/d/1yRBMz05pdiKOA3-h2xByBiLk9SI23GAX/view?usp=drive_link
- 12:30 - 12:55 Delayed neutron precursors transport in MSRs – Modeling hierarchy and flow-perturbation response
Prof. Jie CHENG, College of Nuclear Science and Technology, Harbin Engineering University
Presentation file download,
<https://drive.google.com/file/d/141CEqAdxLE42O2udb6s7Pq2ujRCRqtEr/view?usp=sharing>
- 12:55 - 13:20 Cost reduction opportunities for Small Modular Reactors
Prof. Eugene SHWAGER AUS, Department of Engineering and Nuclear Energy Centre, Cambridge University
Presentation file download,
<https://drive.google.com/file/d/1lhgtVMdgMEBLIUR8hB7c791p4sF5mEmH/view?usp=sharing>
- 13:20 - 14:50 Luncheon

Programme Rundown

Topic 3: The Future Horizon: Pathways to Viability

14:50 - 15:15 The ITER Project: building hope for the future

Mr Laban COBLENTZ, Chief Strategic Advisor, Office of the Director-General, ITER Organization
Presentation file download, <https://drive.google.com/file/d/16D2rG5OGRRbYL-GbH5ZxoMkaXJEC2rfC/view?usp=sharing>

15:15 - 15:40 UKAEA's fusion programme: aspiration, inspiration and perspiration

Prof. Rob BUCKINGHAM, Executive Director, United Kingdom Atomic Energy Authority
Recorded video, <https://youtu.be/kTO8CS68gk>

15:40 - 16:05 From Fundamental Research to Engineering Readiness: China's Pathway Toward Fusion Energy

Prof. Zongxiao GUO, College of Physics and Optoelectronic Engineering, Shenzhen University
Presentation file download, <https://drive.google.com/file/d/1qhaP4zMQFjzGld8-LU-WsLSosI4ksM1K/view?usp=sharing>

Programme Rundown

Topic 4: Enabling Technologies: Superconductors to AI

- 16:20 - 16:45 **Recent progress in High-Temperature Superconducting Wire and Their Applications**
Prof. Yanwei MA, Institute of Electrical Engineering, Chinese Academy of Sciences
Presentation file download, https://drive.google.com/file/d/1RC556ylGeFMbWDiFe6cch7CaBP_d4lhQ/view?usp=sharing
- 16:45 - 17:10 **Digitalization and AI applications on Nuclear Power Engineering**
Dr Xidao MAO, Chief Information Officer, China Nuclear Power Engineering Corporation
- 17:10 - 17:35 **Small Modular Reactors: The Low-Carbon Energy Foundation for the AI Era**
Dr Xudan SONG, VP, Shanghai Junhe Atomic Technology Co., Ltd
Presentation file download, <https://drive.google.com/file/d/15YehQXZZUIhEz-ybvsO7FTJnKyEMmop1/view?usp=sharing>
- 17:35 - 17:45 **Closing Remarks**
Prof. Wei WANG, Department of Mechanical Engineering, City University of Hong Kong



Opening

Nuclear Forum 2026

Recent Developments in
Nuclear Energy - Exploring
future energy and
innovation collaboration



Prof. Way KUO

Emeritus President and University Distinguished
Professor for Life, City University of Hong Kong

Opening keynotes

The Fukushima earthquake on March 11, 2011 resulted in a tsunami, triggering a nuclear power plant accident and hydrogen explosions at the plant. Hong Kong's "Economic Daily" and "China Review News Network" were the first to report on March 16, "Way Kuo determined that TEPCO had concealed the truth and warned that the severity of the disaster was comparable to the Three Mile Island nuclear accident, and that people should pay attention to nuclear leaks." This comment was different from TEPCO's self-assessment and had unfortunately proved to be correct. It was reported by CNN in real time around the world, bringing up the topic of energy and environmental protection.

As a low-carbon and reliable green energy, nuclear power is an indispensable part of today's plans to mitigate air pollution and climate change.

Prof. Way Kuo is a member of the National Academy of Engineering, Emeritus President and University Distinguished Professor for Life at the City University of Hong Kong (CityU). Under his leadership, CityU has been ranked several times since 2020 by Times Higher Education as the world's most International University.

Prof. Kuo Way was the first foreign safety and reliability expert invited to inspect the disaster area after the Fukushima accident. His popular science book "Key Report on Nuclear Power" was translated and published in English, Japanese, French and the Russian. The simplified Chinese version of Peking University's "Nuclear Power, Smog You" was ranked first among the best books of China University Press in December 2014.



Opening

Nuclear Forum 2026

Recent Developments in
Nuclear Energy - Exploring
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Ir Prof. Herman TSUI

Chairman of the Hong Kong Nuclear Society
Member of the Guangdong Nuclear Power Stations
Nuclear Safety Consultative Committee (廣東核電站核安全
諮詢委員會委員)

Welcome remarks

It is my great pleasure to welcome you to the Nuclear Forum 2026: 'Recent Developments in Nuclear Energy – Exploring Future Energy and Innovation Collaboration.' It is an honour to host this exciting event.

We are currently witnessing a new industrial revolution driven by the rapid advancement of Artificial Intelligence (AI). To support this surge, adequate green energy is essential to balance economic growth with sustainability. At the same time, the instability of fossil fuel supply chains has recently highlighted the volatility of global energy prices and the fragility of our energy security.

Nuclear energy stands as a vital solution to these challenges. From Small Modular Reactors (SMRs) for the near and medium term, to fusion reactors for the longer term, nuclear power offers a reliable path toward decarbonization.

Today, we have brought together distinguished experts, policymakers, financiers, and industry leaders from around the globe. Our goal is to explore how nuclear energy can meet these global needs by revolutionizing deployment through SMRs, advancing fusion technology, and leveraging enabling technologies like high-temperature superconductors and AI. We are fortunate to have speakers from leading institutions who will share their insights on these critical topics.

I would like to extend my sincere gratitude to the organizing committee, our co-organizer CityU, our sponsors, supporting organizations, and all our speakers for making this event possible. To our attendees, thank you for your participation; we look forward to an insightful day of discussion and collaboration.

Thank you all for being here. Let us make this a productive and engaging forum. I wish you all an enjoyable and stimulating day.

Ir Prof. Tsui has extensive experiences in R&D, including 30 years in plasma technology and worked on R&D of fusion energy at national research laboratories including Fusion Research Centre, USA and UK Atomic Energy Authority. He pioneered the application of data mining—the early form of AI—to fusion research and has successfully applied fusion plasma technology to air and surface sanitization.



Opening

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Mr Jonathan LUK

Director, Commercial & Development (Nuclear),
CLP Holdings

Opening keynotes from Sponsor

Amid rising geopolitical tensions and the urgent need to decarbonise, nuclear energy is regaining global attention as a clean, reliable and scalable solution. CLP possesses more than three decades of nuclear experience - from pioneering the Daya Bay Nuclear Power Station in 1985 to supplying around a quarter of Hong Kong's electricity today. Marking its 125th anniversary, CLP will continue collaborating with industry partners and academia to explore how nuclear energy can strengthen energy security, advance Hong Kong's 2050 carbon neutrality goal, and build public understanding through education and community engagement.

Jonathan Luk commenced his finance professional career in a leading bank 30 years ago in Hong Kong. Since 2001, he joined CLP and has held various senior positions in corporate finance, asset management, strategy & planning, project finance, business development, operations, and risk management before taking on his current role as Director – Commercial & Development overseeing the commercial development of nuclear power. Jonathan is a Chartered Financial Analyst and Certified Public Accountant, and he holds a Bachelor Degree of Business Administration.



Topic 1

Nuclear Energy for a Sustainable Future: Balancing Clean Power and Global Needs

Decarbonisation strategies, lifecycle sustainability, public perception of nuclear energy, nuclear safety



Mr William D. MAGWOOD

Director-General, Nuclear Energy Agency (NEA) of the OECD

The Next Nuclear Energy Era: Opportunities and Challenges

The Nuclear Energy Agency (NEA) brings together countries with advanced nuclear technologies and a growing network of partners at a time of renewed global momentum for nuclear energy. Driven by the urgent need to decarbonise, strengthen energy security and meet rising demand, governments are increasingly turning to nuclear power as a source of reliable, low-carbon electricity. Emerging technologies, including small modular reactors (SMRs) and advanced designs, are expanding potential applications: from clean power generation to supporting energy-intensive digital infrastructure and artificial intelligence. They also open new opportunities for countries in the Global South, with more accessible technologies enabling industrial development, enhancing energy security and supporting climate resilience. NEA Director-General William D. Magwood, IV will discuss this transformation, the challenges ahead, and the role of international co-operation.

William D. Magwood, IV is the NEA Director-General since 2014. Prior, he served as Commissioner appointed by the US President and confirmed by the Senate to the US Nuclear Regulatory Commission. From 2005 to 2010 he provided independent strategic and policy advice on energy, environmental and technology policy issues. From 1998 to 2005 Mr Magwood was Director of Nuclear Energy at the US Department of Energy, where he launched several important initiatives including Generation IV International Forum (GIF). He began his career working as a scientist for Westinghouse and Edison Electric Institute. Mr Magwood holds Bachelor's degrees in Physics and English from Carnegie Mellon University and a Master of Fine Arts from University of Pittsburgh.



Topic 1

Nuclear Energy for a Sustainable Future: Balancing Clean Power and Global Needs

Decarbonisation strategies, lifecycle sustainability, public perception of nuclear energy, nuclear safety



Prof. Wing-Mo LEUNG

Spokesperson, Hong Kong Meteorological Society
Chairman, Guangdong Nuclear Power Stations Nuclear Safety Consultative Committee

The Lifeline of Nuclear Industry - Nuclear Safety

Past nuclear accidents have significantly stigmatized the nuclear industry, and fundamentally shaped public perception, policy, and global energy development. However, that stigma is slowly evolving in many regions due to the urgent need to reduce carbon emissions. Now, the perception is shifting, as nuclear energy is increasingly viewed by policymakers as a reliable, zero-emission base-load power source needed to combat climate change.

Prof. Leung will give an account of how different countries and agencies, notably China, have been helping the industry in the past decades to transcend past tragedies to usher in a new era of safe, clean energy.

Prof. Leung Wing Mo was an Assistant Director of the Hong Kong Observatory before his retirement in 2011. He was responsible for, amongst others, radiation monitoring and assessment in Hong Kong.

He is currently an adjunct professor of both the Hong Kong Polytechnic University and the Chinese University of Hong Kong.

He is the Chairman of the Guangdong Nuclear Safety Consultative Committee, spokesperson of the Hong Kong Meteorological Society, and a member of the Board of Directors/advisor of several government committees and NGOs in Hong Kong, including the Slope Safety Communication Strategic Advisory Committee, the Ombudsman, Museum Advisory Committee, The Green Earth, Conservation E3 Foundation, and the Hong Kong Red Cross.

Prof. Leung was the first professional meteorologist in Hong Kong to host local TV weather programmes, and the host of the popular science education programme MObervatory (武測天) of TVB. A total of some 400 episodes of MObervatory were aired between 2018 and 2023.



Topic 2

Small Modular Reactors and Advanced Fission Revolutionising Deployment

Gen III/IV reactors, supply chain scalability and emerging markets



Prof. Danrong SONG

Chief Designer & Professorship Senior Engineer,
Nuclear Power Institute of China

The development of the world's first commercial onshore small modular reactor (SMR)-Ling long One (ACP100)

As the global energy transition accelerates, Small Modular Reactors (SMRs) are emerging as a promising solution for delivering safe, reliable, and low-carbon energy. This presentation explores the development journey of the world's first commercial onshore SMR, highlighting the vision, technological innovation, engineering challenges, and collaborative efforts that transformed the concept into reality. This presentation offers a unique perspective on the successful commercialization of onshore SMR technology and its role in shaping the next generation of nuclear energy systems.

Chief designer and Professorship Senior Engineer in the Nuclear Power Institute of China. Dr Song graduated and obtained his PhD degree of Engineering in Nuclear Science. He has worked as the chief designer of the SMR demonstration project ACP100 in China and specializes in small and medium reactor design, isotopic production, seawater desalination, and low temperature nuclear heating plant feasibility studies.



Topic 2

Small Modular Reactors and Advanced Fission Revolutionising Deployment

Gen III/IV reactors, supply chain scalability and emerging markets



Prof. Jiejuan TONG

Professor of Nuclear Engineering, Institute of Nuclear and New Energy Technology (INET), Tsinghua University

High-Temperature Gas Cooled Reactor

As a key technology in the Generation IV nuclear energy system, the Pebble Bed Modular High-Temperature Gas-cooled Reactor (HTR-PM) offers inherent safety, high efficiency, multi-module adaptability and non-electricity industrial applications. This invited speech systematically reviews the development of HTR-PM technology in China, including HTR-10, HTR-PM, and HTR-PM600S. On the basis of summarizing the key breakthroughs, the speech analyzes the lessons in completing these first-of-a-kind (FOAK) complex nuclear programs in China. In March 2026, 38 countries including China announced their support to the Declaration on Tripling Nuclear Energy by 2050. This speech aims to share some practical insights with global researchers, developers, and countries that are embarking on nuclear energy sector.

Professor Jiejuan Tong is a Professor of Nuclear Engineering at the Institute of Nuclear and New Energy Technology (INET), Tsinghua University.

Her research primarily focuses on nuclear and radiation safety, including risk assessment and management, nuclear and radiation emergency response, risk-informed regulation, nuclear safety policy, and public acceptance. She possesses extensive research and practical experience in safety and risk assessment across various reactor types—including Pressurized Water Reactors (PWRs), Heavy Water Reactors (HWRs), Advanced Light Water Reactors, and High-Temperature Gas-Cooled Reactors (HTGRs)—as well as non-reactor nuclear facilities such as nuclear fuel cycle installations.

Professor Tong has long provided think-tank support to regulatory bodies. She has presided over and undertaken research projects commissioned by government, enterprises, and public institutions. With approximately 100 academic papers, she holds a prominent reputation in China's nuclear and radiation safety and risk assessment sectors.



Topic 2

Small Modular Reactors and Advanced Fission Revolutionising Deployment

Gen III/IV reactors, supply chain scalability and emerging markets



Prof. Jie CHENG

Associate Professor, College of Nuclear Science and Technology, Harbin Engineering University

Delayed neutron precursors transport in MSRs – Modeling hierarchy and flow-perturbation response

A modeling hierarchy with coupled neutronics, thermal-hydraulics, and delayed neutron precursor (DNP) transport is developed for liquid-fueled molten salt reactors under marine-motion perturbations. Unlike lumped-parameter treatments, the present framework retains channel-resolved flow and DNP concentration fields, with model order selected according to the target output—redistribution and residence-time shifts. The OpenMC–MOOSE–DNP workflow provides a traceable chain from source mapping and IFP kinetics to reactivity projection. Two distinct mechanisms are identified: spatially nonuniform flow redistribution and total-flow-residence-time variation. Both lead to pcm-level reactivity changes, demonstrating that DNP migration cannot be neglected when evaluating flow-induced reactivity feedback. The validation boundary is explicitly defined through nuclear-data, thermal-hydraulic, and spatial-closure uncertainties, supporting mechanism-oriented conclusions while acknowledging the need for future high-fidelity benchmarking.

Prof. Jie Cheng is an Associate Professor and doctoral supervisor at the College of Nuclear Science and Technology, Harbin Engineering University. He received his B.E. and Ph.D. degrees in Nuclear Science and Technology from Xi'an Jiaotong University in 2011 and 2019, respectively. From 2016 to 2018, he was a visiting scholar at the University of Nevada, Las Vegas, where he conducted research on the core physics and thermal-hydraulic design of advanced molten salt reactors. His research interests include molten salt reactors, supercritical water-cooled reactors, and lead-bismuth cooled fast reactors, with a focus on multi-physics coupling, thermal-hydraulic safety, and system optimization. He has authored over 40 peer-reviewed papers and currently serves as a reviewer for several international journals, including Progress in Nuclear Energy and International Journal of Heat and Mass Transfer. He is a member of the American Nuclear Society and the Chinese Nuclear Society.



Topic 2

Small Modular Reactors and Advanced Fission Revolutionising Deployment

Gen III/IV reactors, supply chain scalability and emerging markets



Prof. Eugene SHWAGERAUS

Professor of Nuclear Energy Systems Engineering,
Department of Engineering and Nuclear Energy Centre,
Cambridge University

Cost Reduction Opportunities for Small Modular Reactors

Deployment of nuclear reactors in recent years has been slow and costly in recent years, at least in some parts of the world. While China, Russia and South Korea demonstrated consistent progress in cost reduction and speed of nuclear construction, Europe and US have struggled to deliver nuclear projects on time and within budget. Small Modular Reactors potentially offer many opportunities for faster and cheaper deployment. This talk will explore some of these opportunities which would reduce projects complexity and promote standardisation and learning. A number of reactor concepts currently under development will be reviewed with respect to their potential for cost reduction and speedup of deployment.

Eugene Shwageraus is a Professor of Nuclear Energy Systems Engineering and, until recently, Course Director of Nuclear Energy MPhil in the Department of Engineering at the University of Cambridge. As a member of the Cambridge Nuclear Energy Centre, he coordinates research projects regarding advanced reactor concepts, safety, waste management, and policy. Previously, he served as the Course Director for the Nuclear Energy MPhil.

Before joining Cambridge, Professor Shwageraus was the Head of the Nuclear Engineering Department at Ben-Gurion University in Israel and a Visiting Associate Professor at MIT, where he also obtained his PhD. Throughout his career, he has acted as a Principal Investigator on numerous government and industry-sponsored research projects. Notably, he was a contributing author to the high-profile MIT Energy Initiative study, "The Future of the Nuclear Fuel Cycle."

His academic expertise focuses on numerical methods for modelling advanced reactors, specifically multi-physics coupling in Monte Carlo neutron transport codes. His technical research portfolio is extensive, covering Light Water Reactor designs for actinide transmutation, advanced fuel performance using alternative materials like SiC, and the design of fast reactors utilizing diverse coolants such as sodium, lead, molten salt, and super-critical CO₂.



Topic 3

The Future Horizon: Pathways to Viability

Fusion progress, private
ventures and inertial
confinement



Mr Laban COBLENTZ

Chief Strategic Advisor, Office of the Director-General, ITER
Organization

The ITER Project: building hope for the future

ITER is the world's largest experimental fusion energy facility, under active construction in the south of France. ITER is also a first-of-a-kind global collaboration among seven Members—China, Europe, India, Japan, Korea, Russia, and the United States—that serves as the scientific backbone behind the growth of a fusion industry. As the ITER project approaches mid-2026, it is increasingly defined by a disciplined, predictable rhythm of project execution. Over the past few months, a series of tangible milestones across tokamak assembly, system commissioning, magnet systems, and infrastructure integration support this characterization, not as isolated achievements but as evidence of well-coordinated momentum. Rather than demonstrating merely its technical capacity for solving individual challenges, ITER is demonstrating that a multinational fusion megaproject can absorb setbacks, institutionalize lessons learned, and progressively improve its industrial performance. As this performance continues, its importance will extend beyond ITER. Other fusion projects, including those already in construction and others in the early planning stages, are benefiting by inculcating ITER's technical and organizational lessons.

Laban Coblentz's career crisscrosses multiple sectors of advanced technology, entrepreneurship, and sustainable development. At the U.S. Nuclear Regulatory Commission, he applied mathematical models of probabilistic risk to improve safety at nuclear power plants. In the U.S. Congress, he led Senator Joe Lieberman's effort to create The E-Government Act of 2002. At the IAEA, he worked with DG Mohamed ElBaradei on nuclear diplomacy in Iraq, Iran, and other political hotspots, while also promoting hi-tech improvements to agricultural productivity, medicine, and groundwater management in developing countries. From the IAEA, he returned to New York to create university- and community-based models for entrepreneurship, drawing on the "maker movement" and the democratization of advanced manufacturing. For the past 10 years, he has been Head of Communication at the ITER Project in southern France, recently transitioning to a new role as Chief Strategic Advisor.



Topic 3

The Future Horizon: Pathways to Viability

Fusion progress, private
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Prof. Rob BUCKINGHAM

Executive Director, United Kingdom Atomic Energy
Authority

*UKAEA's fusion programme: aspiration, inspiration
and perspiration*

The UKAEA's STEP programme is targeting the design and build of a fusion power plant pilot based on the magnetic confinement architecture. Whilst fusion offers the potential to transform energy supply, the engineering challenges increase markedly from research concepts to power plant pilots as operational and affordability constraints and comparisons with other forms of energy supply come to the fore. Top challenges, which will require considerable global collaboration, include remountable high temperature super conducting toroidal field magnets; heating and current drive systems; power and cooling systems; tritium breeding and fuelling; and maintenance. Inclusion of maintenance as a programme driver is unusual. Intervention is expected to support operation and upgrade, and to repair or replace neutron damaged materials and components. In practice a fusion power plant burning deuterium-tritium will be a human-denied space, raising the requirement for complex remote operations and increasingly-autonomous maintenance machines.

Prof. Rob Buckingham is "Special Advisor to CEO for Robotics" at the UK Atomic Energy Authority. Previously, as Executive Director, he was responsible for building RACE, the UKAEA's centre for Remote Applications in Challenging Environments and RAICo, the Robotics and Artificial Intelligence Collaboration with the Nuclear Decommissioning Authority, AWE Nuclear Security Technologies and the University of Manchester. Rob was also Senior Responsible Owner for the JET Decommissioning and Repurposing Programme and remains fully engaged with decommissioning Fukushima Daiichi in Japan. As a founder member of the UK Robotics Growth Partnership, Rob was lead author of the UK's Robotics and Autonomous Systems 2020 Strategy and the Smart Machines 2030 Strategy. Before re-joining the UKAEA in 2014, Rob co-founded and was Managing Director of OC Robotics which developed and commercialised snake-arm® robots. He is a Fellow of the Royal Academy of Engineering and a Fellow of the Institute of Engineering and Technology. He received an OBE for services to robotics engineering in the 2021 New Year Honours.



Topic 3

The Future Horizon: Pathways to Viability

Fusion progress, private
ventures and inertial
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Prof. Zongxiao GUO

Assistant Professor, College of Physics and Optoelectronic
Engineering, Shenzhen University

From Fundamental Research to Engineering Readiness: China's Pathway Toward Fusion Energy

Driven by the growing demand for clean, sustainable and high-density energy, nuclear fusion has become one of the most promising long-term solutions for future power generation. This presentation reviews China's progress in magnetic confinement fusion, focusing on the transition from fundamental plasma physics research to reactor-oriented engineering development. China's participation in ITER and the development of key national fusion facilities, including CRAFT, BEST and CFETR, are also introduced.

Prof. Guo is an Assistant Professor, Associate Research Fellow, and PhD Supervisor at Shenzhen University. Specializing in magnetic confinement fusion and plasma-wall interactions, he has extensive research experience on the EAST superconducting tokamak. His work focuses on plasma-facing components and AI diagnostics in tokamak devices. Dr Guo has published in leading international journals and served as principal investigator for a range of national, provincial, municipal, and industry-funded research projects.



Topic 4

Enabling Technologies: Superconductors to AI

HTS magnets, advanced materials, AI for Smarter Nuclear Plants and digital twins for nuclear systems



Prof. Yanwei MA

Deputy Director, Institute of Electrical Engineering, Chinese Academy of Sciences

Recent Progress in High-Temperature Superconducting Wires and Their Applications

Driven by the rapidly growing demand for high-field magnets in magnetic resonance imaging (MRI), nuclear magnetic resonance (NMR), particle accelerators, and fusion reactors, high-temperature superconducting (HTS) wires have become a key enabling technology for next-generation superconducting applications. Compared with conventional low-temperature superconductors, HTS conductors can operate under much higher magnetic fields and temperatures, offering unique advantages for high-field magnet systems and advanced electric power technologies. Over the past decades, significant progress has been achieved in the development of Bi-2223, Bi-2212, REBCO coated conductors, MgB₂, and emerging iron-based superconducting wires. Continuous improvements in critical current density, mechanical properties, and fabrication technologies have accelerated their transition from laboratory research to practical applications. Meanwhile, challenges associated with conductor cost, large-scale manufacturing, mechanical reliability, and operational stability remain critical barriers to widespread commercialization. This presentation reviews recent advances in HTS wire development, discusses key technical challenges, and highlights emerging opportunities in high-field magnets, fusion energy systems, and superconducting power applications.

Yanwei Ma is a professor and Deputy Director at the Institute of Electrical Engineering, Chinese Academy of Sciences (IEE-CAS), where he leads the Superconducting and Energy Materials Department. He earned his Ph.D. in Materials Processing Engineering from Tsinghua University in 1996. Over the last 30 years, he has worked on a wide variety of superconducting materials, ranging from high temperature superconducting cuprates to MgB₂ and iron-based materials. His research mainly focuses on processing, vortex physics and pinning, microstructure and superconducting properties of materials (wires, tapes and coated conductors). He was honored with the 2019 ESAS Award for Excellence in Applied Superconductivity. He is also a Fellow of the IEEE. He is currently the Editor-in-Chief of Physica C: Superconductivity and its Applications. He has also served as a program/advisory committee member in important international conferences such as ASC, EUCAS and ISS.



Topic 4

Enabling Technologies: Superconductors to AI

HTS magnets, advanced materials, AI for Smarter Nuclear Plants and digital twins for nuclear systems



Dr Xidao MAO

Chief Information Officer, China Nuclear Power Engineering Corporation

Digitalization and AI applications on Nuclear Power Engineering

The nuclear power industry is undergoing a profound digital transformation driven by advances in digital engineering, data analytics, artificial intelligence (AI), and intelligent automation. As nuclear projects become increasingly complex and demand higher standards of safety, quality, efficiency, and sustainability, digital technologies are reshaping the entire lifecycle of nuclear facilities—from design and construction to operation, maintenance, and decommissioning. This presentation offers a strategic and practical perspective on how digitalization and AI are transforming nuclear power engineering and creating new pathways for achieving excellence in the next generation of nuclear energy projects.

Mao Xidao is the Chief Information Officer (CIO) of China Nuclear Power Engineering Co., Ltd. (CNPE), the Chief Expert in Digital and Intelligent Technologies, and the Director of the Digital Engineering Technology Center. He also serves as:

- Vice Chairman of the Information Technology Committee of the China Nuclear Industry Survey and Design Association;
- Deputy Head of the Cybersecurity and Information Security Working Group of the China Nuclear Energy Association;
- Vice Chairman of the Digitalization and Systems Engineering Branch of the Chinese Nuclear Society.

He previously served as the Chief Design Engineer for major nuclear power projects, including the Hualong One (HPR1000) global first-of-a-kind demonstration project. Mao has been dedicated to advancing and researching digital and intelligent transformation, with a particular focus on promoting digitalization and smart technologies within the nuclear power industry.



Topic 4

Enabling Technologies: Superconductors to AI

HTS magnets, advanced materials, AI for Smarter Nuclear Plants and digital twins for nuclear systems



Dr Xudan SONG

Senior Vice President, Shanghai Junhe Atomic Technology Co., Ltd.

Small Modular Reactors: The Low-Carbon Energy Foundation for the AI Era

The rapid advancement of artificial intelligence (AI) is driving unprecedented growth in global electricity demand, particularly from hyperscale data centers, highperformance computing facilities, and digital infrastructure. As nations seek to meet these energy needs while achieving ambitious decarbonization targets, ensuring a stable, scalable, and low-carbon power supply has become a strategic imperative. Small Modular Reactors (SMRs) are increasingly recognized as a transformative energy solution capable of supporting the next generation of AI-driven economic growth. As AI continues to reshape industries and societies, SMRs have the potential to become the low-carbon energy backbone of the digital economy. This presentation provides insights into how advanced nuclear technologies can enable the simultaneous achievement of energy security, economic growth, and climate objectives in an increasingly AI-powered world.

Holding a Bachelor's degree in Nuclear Reactor Engineering from Xi'an Jiaotong University and an EMBA from Peking University Guanghua School of Management, this veteran energy executive has over 30 years of experience in nuclear power and international energy cooperation. She previously held core senior roles at CNNC, SPIC and EDF China, serving as EDF China Division CEO and Senior Executive Vice President, with concurrent directorships in multiple nuclear, thermal and offshore wind joint ventures.



Closing

Nuclear Forum 2026

Recent Developments in
Nuclear Energy - Exploring
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innovation collaboration



Prof. Wei WANG

Department of Mechanical Engineering, City University of
Hong Kong

Closing Speech

Good afternoon, distinguished guests, keynote speakers, colleagues, and friends. As we close the Nuclear Forum 2026, I am deeply honored to offer these final reflections on a day of vision, technological ambition, and collaboration.

First, I must extend our gratitude to those who turned this vision into reality. I would like to acknowledge the Hong Kong Nuclear Society and the Department of Mechanical Engineering at the City University of Hong Kong, for organizing this event, and to CLP Power Hong Kong Limited for their generous support. Thank you also to our organizing committee, our distinguished speakers, and all of you for your active engagement.

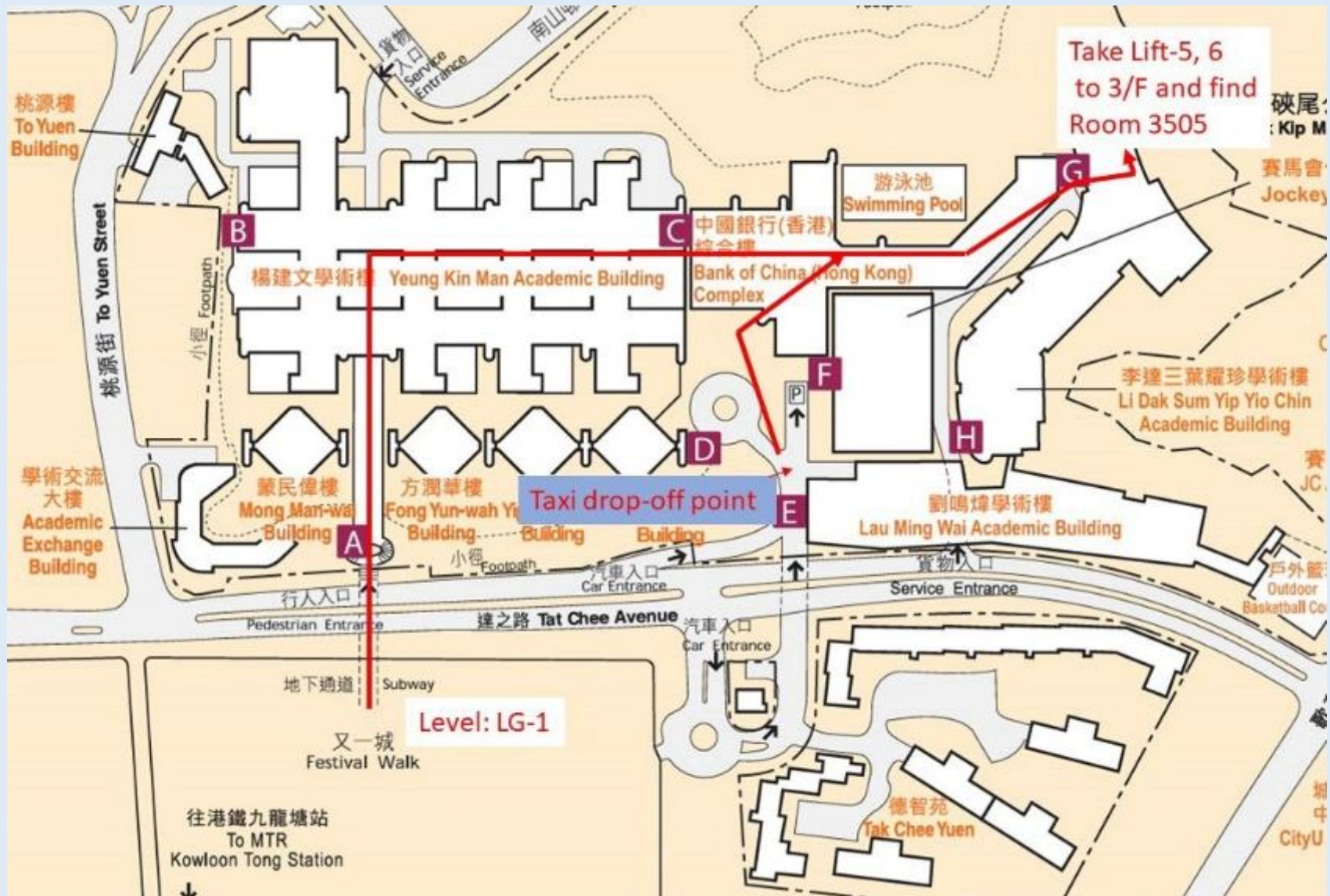
Under our theme Recent Developments in Nuclear Energy — Exploring Future Energy and Innovation Collaboration, we have mapped the full spectrum of the nuclear horizon. We anchored our discussions in absolute nuclear safety, witnessed the rapid scale-up of advanced fission and Small Modular Reactors (SMRs) like Linglong One, and explored pioneering fusion programs from China and the UK. We also highlighted a powerful convergence: how SMRs can provide the low-carbon foundation to power our rapidly expanding AI era.

Today proved that the future of nuclear energy relies on an interconnected ecosystem of scientific breakthroughs, regulatory agility, and international collaboration. This Forum has solidified Hong Kong's role as an indispensable global hub connecting Asia and the world in nuclear science and innovation. Let us transform today's dialogue into tomorrow's practical progress toward a safer, cleaner, and more resilient energy future. Thank you very much.

Prof. Wei Wang is currently Assistant Professor at the Department of Mechanical Engineering, City University of Hong Kong. He is Deputy Major Leader of the major programme of Bachelor of Engineering in Nuclear and Risk Engineering. His research focuses on the development of models and algorithms for energy systems safety, risk and resilience analysis, based on Monte Carlo simulation, mathematical modelling, and computational intelligence. He has published over 50 papers in peer-reviewed journals and international conferences.

VENUE MAP

Room 3505, Li Dak Sum Yip Yio Chin Academic Building, City University of Hong Kong



Organiser



Co-organiser



Sponsor



Support Organisations



Organising Committee

Chairman:	Ir Prof. Herman TSUI
Advisors:	Dr Jolly WONG, Mr Barry BROOKS
Secretary:	Dr Louis LIU
Treasurer:	Mr Michael YEUNG
Members:	Mr Richard FUNG, Ir Dr BL LUK, Ir Prof. Alice HU, Prof. Wei BAO, Prof. Wei WANG, Prof. Jiyun ZHAO, Ir Prof. Kan MA, Dr Ken YAU

Hong Kong Nuclear Society

Established in 2012 as a non-profit learned society, HKNS was founded to address the growing need for a dedicated platform where professionals working in diverse fields of nuclear science and technology can share knowledge, provide objective nuclear information, and promote nuclear literacy, particularly in Hong Kong. Over the years, HKNS has actively facilitated exchanges between nuclear institutions and professionals, offered technical perspectives to the government on nuclear-related issues, and maintained communication with the media for the public good.

The Society also aims to provide impartial technical information and views on the related subject to the general public to enhance nuclear literacy in Hong Kong and the surrounding regions.

The Society's membership comprises engineers, scientists, practitioners, administrators, and educators from various corporations, educational institutions, and government agencies. It is governed by four officers and an Executive Committee elected by members.

Vision

To be a focal point for the exchange of nuclear-related information and knowledge

Mission

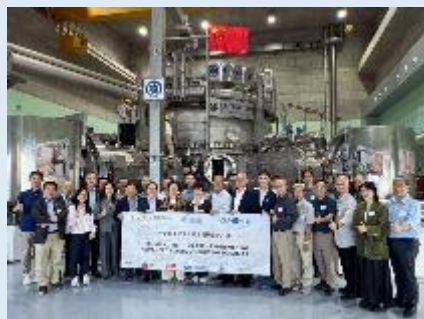
To promote nuclear literacy and public understanding, facilitate international cooperation, and serve as a trusted advisory body regarding the safe and effective application of nuclear engineering and science."

Values

Integrity, Professionalism, and Openness.



<https://www.hkns.hk>



香港核學會

香港核學會成立於2012年，是一個非營利性的學術組織。本會旨在為在核科學與技術領域工作的專業人士提供一個專業的交流平台，分享知識，提供客觀的核資訊，並提升公眾對核科技的認識，特別是在香港地區。

多年來，香港核學會一直積極推動核機構和專業人士之間的交流，為政府在核相關問題上提供技術見解，並與媒體保持溝通，以公共利益為導向。

本會還致力於向公眾提供關於相關主題的公正的技術資訊和觀點，以提高香港及其周邊地區的核素養。

學會的會員包括來自各大企業、教育機構和政府部門的工程師、科學家、從業人員、管理人員和教育工作者。學會由四位幹事和一個由會員選舉產生的執行委員會管理。

願景

成為核相關資訊和技術交流的中心

使命

提升公眾對核科技的認知，促進國際間的合作，並作為值得信賴的顧問機構，就核工程與科學的安全有效應用提供專業意見。

信念

誠信、專業、公開。

Hong Kong Nuclear Society



<https://www.hkns.hk>

Classes of Membership

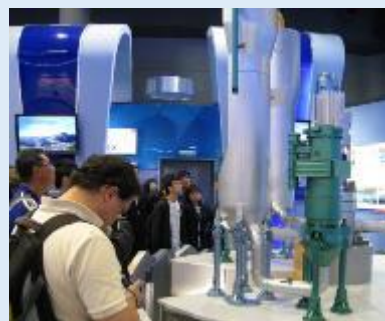
- a) General Member – A person who supports the vision, mission and values of the Society, meets the eligibility criteria*, and pays the membership dues as required. Only General Members are eligible to vote at the Society meetings;
- b) Affiliate Member – A person who has an interest in nuclear science and engineering, or one who does not wish to be a General Member at the time being;
- c) Student Member – A person who is a full-time student and interested in nuclear science and engineering.

** Eligibility Criteria for General Membership (Subject to review by the Executive Committee periodically)*

- 1. University graduate from an accredited university with a recognised discipline in nuclear science and engineering or related discipline;
- 2. Established working experience relevant to the applications of nuclear science and engineering or related industries;
- 3. With a contribution to the advancement of knowledge in nuclear science and engineering, or
- 4. Being invited by the Executive Committee.

Contact Information

Contact Person: Dr Louis Liu
Email: info@hkns.hk



香港核學會

會員類別：

- a) 正會員 – 支持本會的願景，使命和價值觀的專業人士，須符合申請資格*，並願意繳交指定費用，均可申請成為正會員。只有正會員才有資格於會議上投票；
- b) 附屬會員 – 對核科學與工程有興趣的人士，或暫時不希望成為正會員的人士；
- c) 學生會員 – 對相關科目有興趣的全職學生。

**正會員的申請資格（由執行委員會定期審查）*

- 1. 於受認可的大學完成核科學與工程或相關學科的畢業生；或
- 2. 擁有應用核科學與工程或相關行業的工作經驗；或
- 3. 曾對促進核科學和工程的知識作出貢獻；或
- 4. 獲執行委員會的邀請。

聯絡資料

聯絡人：廖境培博士
電郵：info@hkns.hk