6th International Conference on Health Monitoring of Civil & Maritime Structures

HeaMES 2025

Call for Papers (draft)

Abstracts should be sent to

info@asranet.co.uk

By the deadline of 23 February 2025

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About the Conference

There is an urgent need for further progress in structural health monitoring (SHM) for both civil and maritime structures. Maximising the availability and productivity of onshore and offshore infrastructure and marine vessels, whilst operating them safely and with minimal impact on the environment, is of major concern to operators. Many such structures are unique, e.g. ships such as FPSOs have specific constraints, loading characteristics and damage consequences that make them different to other offshore installations and conventional ships, and often more challenging to maintain and operate. Market research shows that there is a need for efficient SHM which could facilitate structural, fatigue and corrosion analyses and underpin risk based inspections to address the structural integrity of onshore and offshore structures. Radical developments in the telecommunication, sensor and data processing technologies are transforming the way that asset management is conceived and carried out. Sensors and structural health monitoring systems are increasingly becoming an integral part of new and existing buildings, bridges, offshore structures and installations, and vessels. Sensing arrays can be permanently connected to distributed management networks so that owners, users, and in general, all those involved in the management process and connected via the Internet can query in real time condition and performance during construction and operation.

Whereas today the structural engineer conceives the single building or bridge as a stand-alone project, in future it is likely that structures will be regarded as nodes of a complex infrastructure network. Design specifications, real-time operation, and any decision on maintenance, upgrading and reconstruction of the single node will reflect the management policy of the whole system, properly accounting for concepts such as cost, risk and sustainability and structural health monitoring will play a critical role in these transformed approaches. HeaMES 2024 provides an ideal platform for innovative industry and practitioners, leading researchers, technology developers, and supply chain partners to meet. Bringing the pioneering experts together, the conference aims to promote exchange of ideas.

CONFERENCE THEMES

- Performance and condition monitoring
- Quantitative SHM-based reliability, safety and performance assessment
- Modelling and dealing with uncertainty in SHM data
- Economic analysis of SHM strategies and benefits
- Management of structures exceeding design life
- Damage control, repair and strengthening

- Damage detection
- Modelling of operational and environmental influences
- Digital twin/SHM integration
- SHM-based design
- Validation and certification
- Design guidelines and codes
- Signal processing
- Big data in SHM
- Real time monitoring
- Standardization of SHM systems

- Sensors and actuators for infrastructure instrumentation
- Sensor networks
- Remote monitoring systems
- Global system integration
- Smart structures and materials
- Field applications and case studies
- Critical issues in SHM
- Visionary, disruptive and transformational concepts

Organising Committee

Professor Purnendu Das, *ASRANet Ltd, UK*
Dr Piotr Omenzetter, *University of Aberdeen, UK*

Key Dates

Abstract Deadline: 23rd February 2025
Final Payment : 26 April 2025

Registration Fees

Full registration fee : £450

Student Registration Fee: £350

Technical Advisory Panel

Prof Dimitrios Aggelis, Vrije Universiteit Brussel, Belgium

Prof Tommy Chan, Queensland University of Technology, Australia

Prof Eleni Chatzi ETH Zurich, Switzerland

Prof. Hua Peng Chen, University of Greenwich, UK

Prof Matthew DeJong, University of California, USA

Prof Monssef Drissi-Habti, University Gustave Eiffel, France

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Dr David Garcia Cava, University of Edinburgh, UK

Prof Yuanfeng Duan, Zhejiang University China

Prof Carmelo Gentile, Politecnico di Milano, Italy

Prof Nenad Gucunski, Rutgers University, USA

Dr Donya Hajializadeh, University of Surrey, UK

Mr. John Huxtable, DEWESoft, UK

Dr Abhishek Kundu, Cardiff University, UK

Prof Jun Li, Curtin University, Australia

Prof Maria Giuseppina Limongelli, Politecnico di Milano, Italy

Prof Kenneth Loh, University of California, San Diego, USA

Prof Yong Lu University of Edinburgh, UK

Dr Christian Meinhardt, GERB Vibration Contro,Germany

Dr Andy Nguyen , University of Southern Queensland, Australia

Prof Daniel V. Oliveira, University of Minho, Portugal

Dr Joshua Omer, Kingston University, UK

Dr Pooria Pahlavan , Delft University of Technology, Netherlands

Prof Jeom-Kee Paik, University College London, UK

Dr Carlo Rainieri, National Research Council of Italy, Italy

Prof Sudath C. Siriwardane, University of Stavanger, Norway

Prof Gangbing Song, University of Houston, USA

Prof Ying Wang, Harbin Institute of Technology, China

Prof Xiaojun Wei, Central South University, China

Dr Rongxin Zhou, Hefei University of Technology, China

Prof Daniele Zonta, University of Trento, Italy

KEYNOTE SPEAKERS

Dr. Nenad Gucunski, Rutgers University, USA

Dr. Nenad Gucunski is a professor and chair of Civil and Environmental Engineering at Rutgers University. He is also the Director of the Infrastructure Condition Monitoring Program at Rutgers' Center for Advanced Infrastructure and Transportation (CAIT). His primary expertise is in nondestructive testing/evaluation (NDT/NDE) of transportation infrastructure, problems of dynamic soil-structure interaction, numerical modeling, and geophysical methods. He published more than 250 publications, primarily on various aspects of the development of NDE/NDT technologies, and their application and automation. He is/was leading more than forty infrastructure-related research projects sponsored by several federal and state agencies, including the National Institute of Standards and Technology-Technology Innovation Program (NIST-TIP), SHRP 2 (Strategic Highway Research Program 2), FHWA's Long Term Bridge Performance (LTBP) Program, and National Science Foundation. He is currently leading the Advanced Bridge Technology Clearinghouse, a multi-university project sponsored by the USDOT. Dr. Gucunski and his team are the recipient of the 2014 ASCE Charles Pankow Award for Innovation for the development of RABIT (Robotics Assisted Bridge Inspection Tool) for bridge decks. Dr. Gucunski received his B.S. degree in civil engineering from the University of Zagreb, Croatia, and M.S. and Ph.D. degrees in civil engineering from The University of Michigan.

Prof Michael Havbro Faber, **Aalborg University, Denmark**

Michael Havbro Faber is Professor at the Department of Built Environment at Aalborg University, Denmark, he is discipline Director for Risk, Resilience and Sustainability at NIRAS A/S in Denmark, and he has a position as Chair Professor at Harbin Institute of Technology in China. From 2000-2011, he was a tenured professor at ETH, Zurich, Switzerland, and from 2011-2016 he was head of the Department of Civil Engineering at the Technical University of Demark. His research interests are directed on probabilistic modeling and analysis of systems with applications to governance and management of risks, resilience and sustainability in the built environment. Present engagements include the Joint Committee on the GLOBE Consensus (President), the Joint Committee on Structural Safety (Past President), the WEF (member of the Global Expert Network on Risk and Resilience), the Global Risk Forum in Davos (Research Fellow), the Danish Research Council and the Danish Academy of Technical Sciences.

Dr. Gangbing Song, University of Houston, USA
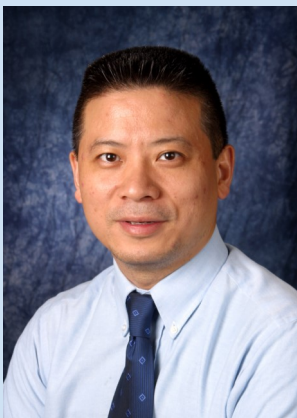
Dr. G. Song is the founding Director of the Smart Materials and Structures Laboratory and a Professor of Mechanical Engineering, Civil and Environmental Engineering (joint), and Electrical & Computer Engineering (joint) at the University of Houston. Dr. Song is a recipient of the NSF CAREER award in 2001. Dr. Song received his Ph.D. and MS degrees from the Department of Mechanical Engineering at Columbia University in the City of New York in 1995 and 1991, respectively. Dr. Song received his B.S. degree in 1989 from Zhejiang University, China. He has expertise in smart materials and structures, structural vibration control, piezoceramics, ultrasonic transducers, structural health monitoring and damage detection. He has developed two new courses in smart materials and published more than 400 peer reviewed journal articles. **His google H-index is 82**. Dr. Song is also an inventor or co-inventor of 28 US patents and. He has received research funding in smart materials and related research from NSF, DoE, NASA, Department of Education, Texas Higher Education Board, TSGC (Texas Space Grant Consortium), UTMB (University of Texas Medical Branch), OSGC (Ohio Space Grant Consortium), OAI (Ohio Aerospace Institute), ODoT (Ohio Department of Transportation), HP, OptiSolar, GE, and Cameron. In addition to his research effort, Dr. Song has passion in improving teaching using technology. He is a leader in internet enabled remote experiment/laboratory and a pioneer in systematically implementing remote experiments in engineering education. He received the prestigious Outstanding Technical Contribution Award from the Aerospace Division of ASCE, the Excellence in Research & Scholarship Award at Full Professor Level from UH, the Celebrating Excellence Award for Excellence in Education from ISA (International Society of Automation), the IEEE Educational Activities Board Meritorious Achievement Award in Informal Education, among others. Dr. Song is a member of ASCE, ASME, and IEEE. Dr. Song served as the General Chair of the Earth and Space Conference 2010, Aerospace Division, ASCE.

KEYNOTE SPEAKERS

Dr. Joshua Omer, Kingston University, UK

Dr Joshua Omer is a Senior Lecturer in Geotechnical Engineering and Director of Learning and Teaching for the School of Built Environment and Geography, Faculty of Engineering, Computing and Environment, Kingston University, London. He holds a BEng (1st Class honours) in Civil Engineering, a MSc in Structures and PhD in Geotechnical Engineering and has over 30 years of experience in industry and academia in the UK and overseas.

Dr Omer has delivered several CPD lectures, most recently to the Institution of Structural Engineers, Surrey branch (UK), undertaken a range of consultancy projects and written over 60 research papers. He is currently involved in the development of IABSE (International Association of Bridge and Structural Engineers) Guidance document for the design and reuse of offshore and onshore caisson foundations.

Dr Omer is a past recipient of the biannual David Douglas Prize and lecture, awarded by the South Wales Institute of Engineers, UK, for engineering excellence. He is a former Royal Society Industrial Fellow and winner of a Research & Development award of the Institution of Civil Engineers.

Dr Omer is a member of the editorial board of the Geo-engineering Case studies Journal of the International Society of Soil Mechanics and Geotechnical Engineering (ISSMGE) and represents the British Geotechnical Association in the ISSMGE Technical Committees TC107-Lateritic Soils and TC212-Deep Foundations. He is also a member of the Drilled Shafts Technical Committee of the Deep Foundations Institute (DFI), USA.

Dr Donya Hajializadeh, University of Surrey, UK

Donya is a Chartered civil engineer (CEng MICE) and Director of Employability at the School of Sustainability, Civil and Environmental Engineering, University of Surrey. With over a decade's experience in structural and bridge engineering, she specialises in building direct and indirect data-driven structural health monitoring systems, critical infrastructure 3R (reliability, risk and resilience) assessment, and building performance-based digital twins. Donya has worked on a diverse array of commercial and research projects, ranging from implementing virtual real-time load and load effect monitoring concepts to developing service life assessment tools for road and rail bridges across Europe. Her recent work on a scaled and practice-based feasibility study for an indirect damage detection system received DfT's Chief Scientific Advisor's 'Innovative Solution' award.

Prof. Hua-Peng CHEN, University of Greenwich, UK,

Prof. Hua-Peng Chen was a Professor of Civil Engineering at the University of Greenwich, UK, after having studied at Imperial College and received PhD from the University of Glasgow, UK. He is a Distinguished Professor and Director of Smart Transportation Infrastructure at East China Jiaotong University. He is the author of over 250 peer-reviewed publications and a book recently published by Wiley, focusing on smart structures, structural health monitoring and structural performance assessment. He serves as an Associate Editor for ASCE Journal of Aerospace Engineering and a member of editorial board for three international journals. He is a Chartered Civil Engineer (UK) and a Fellow of the Institution of Civil Engineers (UK).

KEYNOTE SPEAKERS

Prof Ying Wang, Harbin Institute of Technology, Shenzhen, China

Prof. Ying Wang obtained his PhD degree from University of Western Australia in 2010, and his Bachelor and Master's degrees from Harbin Institute of Technology, in 2002 and 2005, respectively. After working as a Lecturer/Senior Lecturer at Deakin University Australia and University of Surrey in the UK, he joined Harbin Institute of Technology Shenzhen as a Professor in 2019. To tackle the challenges facing lifecycle performance of civil infrastructure, Prof Wang is dedicated to research on Structural Health Monitoring and Digital Twin. He proposed a number of innovative approaches, specifically: 1) combining local guided wave methods and global vibration-based methods for sensing; 2) integrating physics-based and data-driven methods for interpretating monitoring data; 3) establishing performance-oriented digital twin models for civil infrastructure. Prof Wang is a national overseas youth talent; he used to be a founding member and executive committee member at Australian Network of Structural Health Monitoring, now is an executive committee member at Shenzhen Association of Artificial Intelligence. He is an editorial board member at *Buildings, Frontier in Built Environments, Journal of Intelligent Construction*.

Prof. Jun Li, School of Civil and Mechanical Engineering, Curtin University, Perth, Australia

Dr Jun Li is a Professor and Australian Research Council (ARC) Future Fellow in the School of Civil and Mechanical Engineering at Curtin University, Australia. His research interests mainly include the development and application of novel computer vision, artificial intelligence and data analytics techniques for structural health monitoring of civil engineering structures. His research outcomes have been applied to the condition monitoring of an engineering pavilion building on Curtin campus, Rockingham highway bridge and Matagarup bridge in Western Australia. Jun has published more than 210 technical publications, including over 155 journal papers, attracting over 4950 citations in Google Scholar with an H-index of 41. He was also a recipient of ARC Discovery Early Career Researcher Award (2013), and received several research awards, such as Nishino Prize (2019), Best Review Paper and Best Paper Award of Engineering Structures (2023). Jun is listed in Stanford Top 2% scientists (single year) since 2020. He is currently Academic Editor of "Structural Control and Health Monitoring", Associate Editors of "Structural Health Monitoring" and "Journal of Civil Structural Health Monitoring", and a Co-Chair of Early Career Researchers Committee of International Society for Structural Health Monitoring of Intelligent Infrastructure (ISHMII).

Prof. Xiaojun Wei
Professor, School of Civil Engineering, Central South University, China

Xiaojun Wei is a Professor of Bridge Engineering at the School of Civil Engineering, Central South University, China, after holding a position of Associate Professor of Bridge Engineering from 2019 to 2020 at the same university. Before moving to Central South University, he was a Research Fellow with the Humans and Structures Laboratory at the University of Warwick. He obtained his PhD from the Dynamics and Control Group at the University of Liverpool in 2015, his MEng and BEng in Civil Engineering from Central South University, China, in 2011 and 2008. His current research interests are in the area of smart maintenance and vibration control. Some specific research topics include suppression of wind/human-induced vibrations using linear/nonlinear control schemes and contactless structural health monitoring of real-life structures using laser scanners and/or cameras.

He is an author of more than 40 peer-reviewed papers, and a PI for two grants from National Natural Science Foundation of China and a grant from Ministry of Science and Technology of the People's Republic of China. He serves on the editorial board for three professional journals.

KEYNOTE SPEAKERS

Prof. Yuanfeng DUAN, Zhejiang University, China

Prof. Yuanfeng DUAN is a professor of Structural and Bridge Engineering, and Associate Dean (International Affairs), at College of Civil Engineering and Architecture, Zhejiang University, China. He obtained his Ph.D. degree from The Hong Kong Polytechnic University in 2004, and joined Zhejiang University in 2008 as an associate professor. He was promoted to a full professor in 2015. He visited University of Illinois at Urbana-Champaign from Dec. 2014 to Dec. 2015. His research interests include Structural Health Monitoring and Vibration Control, Vector Mechanics and Structural Dynamics. He is a member of Specialty Committee of Structural Vibration Control and Health Monitoring, Chinese Society of Vibration Engineering. He is also a Council Member of Bridge and Structural Engineering Branch of China Highway and Transportation Society. He is the obtainers of National Natural Science Grant for Excellent Young Scholar, Zhejiang Provincial Grant for Distinguished Young Scholar, and Fok Ying Tung Grant. He has been the principal investigators of 8 China National Natural Science Foundation Grants, and 1 National Key R&D Program of China. He has published over 120 papers, including over 60 SCI indexed paper, over 30 EI indexed papers, and over 20 keynote speeches or invited talks. He has been awarded 17 international invention patents (China, US, Korea, Japan). His research outputs have been applied to health monitoring or vibration control of more than 60 large-scale structures, such as Main Stadium of FIFA World Cup Qatar 2022, Hong Kong's Tseung Kwan O Cross Bay Bridge, China Quanzhou Bay Bridge, and so on.

Prof. Monssef Drissi-Habti, The French Institute for Transports, France

Monssef DRISSI-HABTI (linkedin.com/in/monssef-drissi-habti-85100a66) is Research Professor at The French Institute for Transports. He a PhD thesis (1994) and the title of Research Professor since 1999 both on thermo-mechanical behavior of ceramic composite materials for aerospace. He worked in Japan from 1995 to 1999 as visiting researcher in NIRI Nagoya and Visiting Professor at the University of Tokyo. He then worked until 2003 at Brown University of Engineering, RI, USA. His experience includes ceramic matrix composites for thermal protection of space crafts on both space programs HERMES (European Space Program) and NIPPON HOPE (Japan Space Program). His experience includes thermo-mechanical behavior of smart composite materials. In USA, he worked on super-alloys for nuclear applications, in collaboration with the Research Centre Norton - St Gobain. His current research is mainly focusing on the development of structures based on smart composite materials and smart hi-voltage power cables for offshore wind-energy generation (Projects with General Electric), transports (SNCF-TGV), smart cities and safety-security of critical infrastructures. He is PI of many national and international projects. He is also author of more than 100 articles in scientific journals.

About Sutton Town

Sutton is the principal town in the London Borough of Sutton in South London, England. It lies on the lower slopes of the North Downs, and is the administrative headquarters of the Outer London borough. It is 10 miles (16 km) south west of Charing Cross, and is one of the thirteen metropolitan centers in the London Plan.

Sutton has the largest library in the borough, several works of public art and four conservation areas. It is home to several large international companies and the sixth most important shopping area in London, centered on SuttonHigh Street. Sutton railway station is the borough's largest, with frequent services to central London and other destinations, including Horsham. It is home to the Royal Marsden Hospital and the Institute of Cancer Research, where there are plans to create the world's second biggest cancer research campus. Sutton borough is among the highest performing education authorities in the country. In 2011 it was the top performing borough for GCSE results in England.

About Venue

The Holiday Inn, London Sutton is situated in the Sutton town center. It is 5 minutes walking distance from the Sutton rail station. It is well connected with London Heathrow and Gatwick airport and 45 minutes drive from both the airports. It takes about 30 minutes from London Victoria and London bridge station to Sutton rail station. Lots of interesting places near Holiday Inn such as:

◊   Chessington World of Adventure

◊   Wimbledon All England Tennis Club

◊   Epsom Race course

◊   Hampton Court Palace

◊   Buckingham Palace

◊   Houses of Parliament

◊   London Eye

NETWORKING SESSION—WINE AND CHEESE

23 June 2025, 18:00-19:30

Holiday Inn London Sutton,

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Photo of the Hotel - HOLIDAY Inn London, Sutton

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