

The 3rd World Congress on Condition Monitoring - WCCM 2024

15-18 October 2024, Beijing, China.

The 3rd World Congress on Condition Monitoring (WCCM 2024) is host by International Society for Condition Monitoring (ISCM) and organized by the Chinese Mechanical Engineering Society (CMES) and Chinese Society for Non-destructive Testing (ChSNDT). This event follows the successful inaugural WCCM 2017 in London and Second WCCM 2019 in Singapore.

This congress presents a unique platform for engaging with leading scholars and industry experts from around the globe in the field of condition monitoring and related disciplines. Attendees will have an exceptional opportunity to exchange cutting-edge research, explore the latest technological advancements, and foster strategic collaborations within this rapidly evolving domain.

Information

<https://www.wccm2021.com/> (The website is closed now)

WCCM 2024 has successfully held in Beijing from October 15-18, 2024. More than 320 delegates from 16 countries which are Australia, Belgium, China, Czech Republic, Finland, France, Germany, Italy, Japan, Malaysia, Russia, South Korea, Thailand, USA, Uzbekistan and UK in the world attended the congress. 27 exhibitors attended the exhibition. 13 Keynote Presentations, 6 Distinguished Lectures, 202 oral presentations and 91 posters presentations were presented.

Proceedings:

Springer is reviewing the contents of the proceedings

Venue

Beijing International Convention Center, Beijing, China

Chair:

Prof. Gongtian Shen, China Special Equipment Inspection and Research Institute, China

Honorary Chair:

Prof. Academician Zhongqin Lin, Chinese Mechanical Engineering Society, China

Vice Chairs:

Prof. Academician Len Gelman, the University of Huddersfield, UK

Prof. Academician Laibin Zhang, China University of Petroleum, China

Organizing Committee**Chair:**

Prof. Gongtian Shen, China Special Equipment Inspection and Research Institute, China

Vice Chairs:

Prof. Academician Len Gelman, the University of Huddersfield, UK

Prof. Academician Laibin Zhang, China University of Petroleum, China

Members:

Prof. Fulei Chu, Tsinghua University, China

Prof. Xuefeng Chen, Xi'an Jiaotong University, China

Prof. Zhike Peng, Ningxia University, China

Prof. Jing Lin, Beihang University, China

Prof. Chao Lu, Nanchang Hangkong University, China

Prof. Jianchun Fan, China University of Petroleum, China

Prof. Bin Hu, China Special Equipment Inspection and Research Institute, China

The International Scientific Advisory Committee**Chair:**

Prof. Academician Len Gelman, the University of Huddersfield, UK

Vice Chairs:

Prof. Gongtian Shen, China Special Equipment Inspection and Research Institute, China

Prof. Academician Laibin Zhang, China University of Petroleum, China

Prof. Andrew Ball, University of Huddersfield, UK

Prof. Fulei Chu, Tsinghua University, China

Prof. Gary Qi, University of Memphis, USA

Prof. Guiyun Tian, Newcastle University, UK

Prof. Tomoki Shiotani, Kyoto University, Japan

Prof. Xuefeng Chen, Xi'an Jiaotong University, China

Prof. Zhike Peng, Ningxia University, China

Prof. Jing Lin, Beihang University, China

Prof. Jianchun Fan, China University of Petroleum, China

Prof. Shuncong Zhong, Fuzhou University, China

Members:

Prof. Haichao An, Beijing Institute of Technology, China

Dr. Sajeesh K. Babu, The International Committee for Non-Destructive Testing, Singapore

Prof. Krishnan Balasubramanian, Indian Society for Non Destructive Testing (ISNT), India

Prof. Andreas Boenisch, InnetiQs GmbH, Germany

Prof. J. Bortman, Israel

Prof. Zhenmao Chen, Xi'an Jiaotong University, China

Mr. Neal Couture, The American Society for Nondestructive Testing (ASNT), USA

Prof. Guide Deng, China Special Equipment Inspection and Research Institute, China

Prof. Longjun Dong, Central South University, China

Prof. Shaohua Dong, China University of Petroleum, China

Dr. S. Ganeriwala, USA

Prof. Xuefei Guan, China Academy of Engineering Physics, China

Prof. Jingjing He, Beihang University, China

Prof. Longbiao He, National Institute of Metrology, China

Prof. Qingbo He, Shanghai Jiao Tong University, China

Prof. A. Hope, UK

Prof. Bin Hu, China Special Equipment Inspection and Research Institute, China

Prof. Ziguang Jia , Dalian University of Technology, China

Dr. E.K. Juuso, University of Oulu, Finland

Prof. Yihua Kang, Huazhong University of Science and Technology, China

Prof. Hamid Reza Karimi, Politecnico di Milano, Italy

Mr. John Kinsey, ASNT Certification Services LLC., USA

Dr. R. Klein, Israel

Prof L. Kuravsky, Russia

Prof. J. Lacaille, France

Prof. Xiang Li , Xi'an Jiaotong University, China

Prof. Zhichao Li, Harbin Institute of Technology, China

Prof. Zhinong Li, Nanchang Hangkong University, China

Prof. Zhiyuan Liang, Xi'an Jiaotong University, China

Prof. M. Lipsett, Canada

Dr. Jindrich Liska, University of West Bohemia, Czech Republic

Prof. Junyan Liu, Harbin Institute of Technology, China

Dr. Yuan Liu, China Special Equipment Inspection and Research Institute, China

Prof. Zenghua Liu, Beijing University of Technology, China

Prof. A. Lucifredi, Italy

Prof. Zuopeng Lv , Shanghai Center of Research for Commercial Aircraft Engineering Technologies, China

Dr. Nadine Martin, Université Grenoble Alpes, France

Prof. Yonghao Miao, Beihang University, China

Prof. Yilin Mo, Tsinghua University, China

Mr. Stuart Norman, Australian institute for Non-destructive Testing, Australia

Prof M. Papaalias, UK

Prof. F. Pellicano, University of Modena and Reggio Emilia (UNIMORE), Italy

Prof. Zhaoye Qin, Tsinghua University, China

Prof. Xi Shi, Shanghai Jiao Tong University, China

Dr. Weike Song, China Special Equipment Inspection and Research Institute, China

Mr. Kari Suihkonen, KONE elevator Co.,LTD, Finland

Prof. Yanhua Sun, Huazhong University of Science and Technology, China

Prof. Vladimir A. Syasko, Russian society for NDR and TD (RSNTTD), Russia

Prof. Tetsuya Uchimoto, Tohoku University, Japan

Prof. Dong Wang, Shanghai Jiaotong University, China

Prof. Ning Wang, Dalian Maritime University, China

Prof. Weimin Wang, Beijing University of Chemical Technology, China

Prof. Zicheng Wang, Wuhan Zhongke Innovation Technology Co., Ltd, China

Prof. Tonghai Wu, Xi'an Jiaotong University, China

Prof. Zhanwen Wu, China Special Equipment Inspection and Research Institute, China

Prof. Chunguang Xu, Beijing Institute of Technology, China

Prof. Ruqiang Yan, Xi'an Jiaotong University, China

Prof. Wenxian Yang, University of Huddersfield, UK

Prof. Zhijun Yang, Northeast Petroleum University, China

Dr. G. Yebra, UK

Prof. Zhengyang Yin, National University of Defense Technology, China

Prof. Yue Yu, China Special Equipment Inspection and Research Institute, China

Prof. Hongpeng Zhang, Dalian Maritime University, China

Prof. Jun Zhang, Suzhou Nuclear Power Research Institute, China

Prof. Jiyuan Zhao, Beijing Information Science And Technology University, China

Prof. Zhangyan Zhao, Wuhan University of Technology, China

Prof. Yang Zheng, China Special Equipment Inspection and Research Institute, China

Prof. Jianfeng Zhong, Fuzhou University, China

Prof. Antonio Zippo, University of Modena and Reggio Emilia (UNIMORE), Italy

Dr. Xiyue Zou, China Special Equipment Inspection and Research Institute, China

Prof. Ming J Zuo, University of Alberta, Canada

Keynotes

1. Operation Condition Monitoring of Wind Turbine Blades. Prof. Fulei Chu, Tsinghua University, China
2. Applications and challenges of AI technology in wind turbine condition monitoring. Prof. Andrew Ball, University of Huddersfield, UK
3. Research and Application of Condition Monitoring and Health Evaluation Technology for Large-scale Amusement Rides. Prof. Gongtian Shen, China Special Equipment Inspection and Research Institute, China
4. Risk Management of Piping System Based on Wall Thinning Monitoring and Prediction. Prof. Tetsuya Uchimoto, Tohoku University, Japan
5. Machine Learning for Practical Prognosis and Health Management. Prof. Dr. Mingjian Zuo, University of Alberta, Canada
6. Progress of Ultrasonic Non-destructive Testing Instruments. Prof. Zicheng Wang, Wuhan Zhongke Innovation Technology Co.,Ltd., China
7. Recent Progression of Eddy Current Non-destructive Testing and Monitoring. Prof. Gui Yun Tian, Newcastle University, UK
8. Enhancing Infrastructure Resilience with Advanced NDT Solutions. Prof Tomoki Shiotani, Kyoto University, Japan
9. Learning Based Soft Sensing and Prediction for Industrial Applications. Prof. Hamid Reza Karimi, Politecnico di Milano, Italy
10. Physically interpretable fault feature learning: New perspective for realizing simultaneous machine condition monitoring, fault diagnosis and degradation assessment. Prof . Dong Wang, Shanghai Jiao Tong University, China
11. Metrological support and standardization of advanced NDT, CM and TD tools based on the use of internet technologies. Prof. Dr. Vladimir A. Syasko, The D.I. Mendeleev All-Russian Institute for Metrology (VNIIM), Russia
12. Terahertz Nondestructive Testing and Quantitative Evaluation. Prof Shuncong Zhong, Fuzhou University, China
13. Complexity in Biological and Mechanical Systems. Prof Antonio Zippo, University of Modena and Reggio Emilia, Italy

Distinguished Lectures

1. Intelligent Indicators for Integrating Condition Monitoring and Control. Prof. Esko Juuso, University of Oulu, Finland
2. Qualification and Certification of Condition Monitoring, Mr. John Kinsey, The American Society for Nondestructive Testing (ASNT), USA

3. How Condition Monitoring is More than Testing Critical Assets. Mr. Stuart Norman, Australian Institute for Non-Destructive Testing (AINDT), Australia
4. Novel Fault Diagnosis Technology via Motor Current Signature Analysis, Prof. Len Gelman, University of Huddersfield, UK
5. Structural multi-dimensional dynamic parameters monitoring based on displacement-sensitive fringe pattern, Prof. Hanfeng Zhong, Fuzhou University, China
6. Advances in Condition Monitoring for Long Composite Wind Turbine Blades, Prof. Wenxian Yang, University of Huddersfield, UK

Sessions

Part I: Signal detection and processing

- 1 Sensing Technology
- 2 Signal processing/ Time-frequency analysis
- 3 Signal processing/Sparse analysis
- 4 Signal processing/Others
- 5 Signal and data analysis towards integration of condition monitoring and control
- 6 Other signal detection and processing technologies

Part II: CM/NDT instrumentation and methods

- 1 Vibration monitoring and testing/ instrumentation
- 2 Vibration monitoring and testing/methods
- 3 Vibration and noise control
- 4 Acoustic monitoring and testing
- 5 Optics monitoring and testing
- 6 Electromagnetics monitoring and testing
- 7 Infrared thermography monitoring and testing
- 8 Acoustic emission monitoring and testing
- 9 Guided Waves Monitoring and Testing of pipeline
- 10 Guided wave monitoring and testing of major infrastructure
- 11 Lubricating oil analysis

- 12 Stress monitoring and testing
- 13 Multi-method combination monitoring and testing
- 14 Magnetic and Magnetostrictive sensor for CM
- 15 Other monitoring and testing

Part III: Diagnosis, assessment and prediction

- 1 Damage and fault diagnosis
- 2 Damage assessment based on vibration
- 3 Safety and health evaluation
- 4 Remaining life prediction
- 5 Uncertainty quantification and life prediction based on CM data
- 6 Phased-array ultrasound diagnosis and prognosis
- 7 Aero-engine fault diagnosis

Part IV: CM of Core components

- 1 Guided wave-based structural health monitoring
- 2 Electrical component CM and fault diagnosis
- 3 Gear CM and fault diagnosis
- 4 Bearing CM and fault diagnosis
- 5 Bolt CM and evaluating
- 6 Pump and compressor CM and fault diagnosis
- 7 Wire rope CM and fault diagnosis
- 8 Condition monitoring of components in rotating machines
- 9 Blade CM and fault diagnosis
- 10 Other components CM

Part V: CM of systems and facilities

- 1 Condition Monitoring, Diagnosis and Prediction for Chemical and Petrochemical Plant
- 2 Condition monitoring and testing for high speed maglev and railways

- 3 Condition Monitoring and Testing for wind turbines
- 4 Condition Monitoring and Testing for building
- 5 Condition Monitoring and Testing for bridges
- 6 Condition Monitoring and Testing for rock
- 7 Condition Monitoring and Testing for oil well tubing
- 8 Condition Monitoring and Testing for oil and gas pipeline
- 9 Condition Monitoring and Testing for oil and gas drilling and production equipment
- 10 Condition Monitoring and Testing for oil and gas storage facilities
- 11 Condition Monitoring and Testing for oil tank
- 12 Condition Monitoring and Testing for power plant boilers
- 13 Condition Monitoring and Testing for aircrafts
- 14 Condition Monitoring and Testing for cranes
- 15 Condition Monitoring and Testing for escalators & moving walks
- 16 Condition Monitoring and Testing for lifts
- 17 Condition Monitoring and Testing for amusement rides
- 18 Condition Monitoring and Testing for ropeways
- 19 Condition Monitoring and Testing for Marine Engineering
- 20 Condition Monitoring and Testing for hydrogen energy storage and transportation equipment
- 21 Condition Monitoring and Testing for offshore platform
- 22 Condition Monitoring and Testing for nuclear power engineering
- 23 Condition Monitoring and Testing for other equipment

Part VI: Advanced CM technology

- 1 CM based on cloud technology
- 2 CM based on IoT
- 3 Digital twin technology

- 4 Robot and automation for Condition Monitoring and Testing
- 5 AI for Condition Monitoring and Testing
- 6 Smart Detection and Monitoring of Materials and Structures Using Artificial Intelligence
- 7 Machine learning for prognosis and health management
- 8 Other advanced technology for Condition Monitoring and Testing