

The 2nd International Conference on
**Structural Health Monitoring and
Integrity Management
(ICSHMIM 2014)**

Programme

Sept. 24-26, 2014, Nanjing, China

ORGANIZATION

Sponsors:

China Instrument and Control Society (CIS)
China Special Equipment Inspection and Research Institute (CSEI)
National Natural Science Foundation
Southeast University
Nanjing University of Aeronautics and Astronautics

Organizers:

Equipment Structure Health Monitoring and Prognostics Institute of CIS (CSHMP)
Nanjing University of Aeronautics and Astronautics
Southeast University

Co-organizers:

Nanjing Special Equipment Safety Supervision Inspection & research Institute
Nanjing Boiler and Pressure Vessel Inspection & Research Institute

Supporting Organizations:

Special Equipment Science & Technology Collaboration Platform
Stress Measurement Branch of China Non-destructive Testing Society
Jiangxi Fashion Technology Co., Ltd.
Testarc Technologies Co., Ltd.

CHAIRMAN OF ORGANIZING COMMITTEE



Researcher **Shuqing Lin**, the current president of China Special Equipment Inspection and Research Institute, director-general of China Special Equipment Inspection Association, director-general of Chinese Institute of instrumentation equipment structural health monitoring and early warning, deputy director of China boiler and pressure vessel NDT personnel qualification examination committee, director of non-destructive testing branch of Beijing mechanical engineering society, deputy director of China National Accreditation Service for Conformity Assessment, director of Technical Committee of Inspection Body Accreditation, electromechanical group leader of state administration of work safety experts. Adjunct professor in Zhejiang University, Beijing University of Aeronautics & Astronautics, China University of Petroleum and Wuhan Institute of Technology.

Researcher Lin received B.S degree from Lanzhou University in July 1982. He studied as a visiting scholar in TÜV Hannover during April 1988 to July 1989. He got the III degree (the highest level) non-destructive testing personnel qualification from the institute, and the course-completion certificate from Federal Department of Economic Affairs. In 2004, he got MBA degree from Macau International Open University.

Researcher Lin has assumed and participated in about 20 national key scientific and technological projects and provincial science and technology research projects, and participated in the formulations of 6 special equipment regulations and standards. Have published 4 treatises and translations, applied for and received one patent. Was awarded the second prize of national scientific and technological progress twice, the first prize of provincial awards four times, the second prize three times, and the third prize one times.



Ke Xiong is now the Assistant to President of Nanjing University of Aeronautics and Astronautics, and the Director of State Key Laboratory of Mechanics and Control of Mechanical Structures. He received the Bachelor, Master and PhD degrees in Solid Mechanics, Experimental Mechanics and Measurement and Sensor Techniques from Nanjing University of Aeronautics and Astronautics, China, in 1982, 1994 and 1997 respectively. He became a professor at the Nanjing University of Aeronautics and Astronautics in 2003, served as assistant to President from 2008, and was chosen as director of State Key Laboratory of Mechanics and Control of Mechanical Systems in 2011. He is a council member of Chinese Aviation Society and permanent member of Indian Society for Advancement of Materials and Process Engineering. His main research interest is smart materials and structural systems, including development of actuator and adaptive structural technologies, Shape Memory Alloy, Ionic Polymer Metal Composites and devices,

structural health monitoring with Piezoelectric SMART Layer for aerospace applications and ground test of aircraft structure strength applied electro-metric techniques and experimental stress-strain analysis. A number of research projects are funded by the National Natural Science Foundation of China (NSFC). He has published one book and over 60 papers related to the development of smart materials and structural systems. He has also received 5 awards, including The 1998 National Invention Award (Third Prize) and 2001 National Teaching Award (Second Prize).

CHAIRMAN OF TECHNICAL COMMITTEE



Zhishen Wu is a chair professor at Southeast University, China and Ibaraki University, Japan. He received BS and MS from Southeast University, China in 1983 and 1986 respectively and PhD from Nagoya University, Japan in 1990. His research interests include FRP composite technologies, advanced sensor technologies, and structural health/risk/disaster monitoring and control. He is the author or co-author of over 600 papers in refereed journals and int. conference proceedings including over 50 keynote or invited papers. He also holds 50 authorized patents of invention. Although about half of his research papers have been published in Japanese or Chinese journals, his publications in English have also received wide citations, e.g. his total citation in Scopus is over 3000 times. Dr. Wu was awarded the JSCE Research Prize from Japan Society of Civil Engineering in 1990, the JSCM Technology Award from the Japan Society for Composite Materials in 2005, 2009 SHM person of the year Award from SHM, An Int. Journal, and National Prize for Progress in Science and

Technology(2nd) of China in 2012 etc. He is the chairman or board member of numerous national and int. societies, such as China chemical fibers association committee on basalt fibers as chairman, International Society for Structural health Monitoring of Intelligent Infrastructure (ISHMII) as a vice president. He were elected as follows of ASCE, JSCE, ISHMII, and IIFC(International Institute of FRP in Construction). Moreover, he serves as an editor, associate editor, editorial board member for more than ten int. journals such as Int. J. of Sustainable Materials and Structural Systems as editor. He has led over 10 important research projects in both Japan and China, and is now leading a national 973 research project on “the use of FRP composites to achieve high performance and longevity for major engineering structures(2012-2017)”.



Prof. **Shenfang Yuan**, Changjiang Chair professor of the State Key Laboratory of Mechanics and Control of Mechanical Structures, Nanjing University of Aeronautics and Astronautics(NUAA). She received her Ph.D. from NUAA in 1996. Prof. Yuan's main research interests include structural health monitoring, smart structures, sensor and measurement technology, wireless sensor network, signal processing methods and experimental mechanics. She has authored 2 books and over 200 journal papers. She holds 35 Chinese invention patents. She is the PI of a number of import projects, including China National Funds for Distinguished Young Scientists, Key Project from National Science Foundation of China, Key Program of National Basic Research Program of China and National High Technology research program. She is the winner of the Special Support Program for National High Level Leading Talents of China (2013), China National Funds for Distinguished Young Scientists from NSFC (2012), Distinguished Young Scientist Award from China Aviation Society (2011).

EXECUTIVE-CHAIRMAN OF ORGANIZING COMMITTEE



Dr. **Keqin Ding**, born in September 1968, received Ph.D degree of Solid Mechanics in 1997 from Institute of Mechanics, Chinese Academy of Sciences, researcher, doctoral tutor. The current Chinese special inspection institute director of R & D center, Beijing seized the hope that science and technology limited company general manager. And as China Mechanics Institute director, senior member of Chinese mechanical engineering society, Chinese Institute of instrumentation equipment structural health monitoring and early warning, executive vice president and secretary general, China Instrument Society of academic working committee member, China Instrument Society of Instrument Branch Director, Chinese Society for non-destructive testing stress testing & Director of professional committee, China Society for stereology theory and application of CT branch is standing director, deputy secretary-general of Beijing Society for non-destructive testing,

University of Science and Technology Beijing doctoral tutor, Nanjing University of Aeronautics & Astronautics, North Central University, Professor of Wuhan Institute of Technology, master tutor. Mainly engaged in advanced sensor technology, structural health monitoring technology, structure health diagnosis and management technology and other new technologies, new methods, new equipment research and development and application.

He has won the State Quality Inspection Administration "science and technology promotes check" award two or three prize each 2 times, first, Third Session of national safety production science and technology award two or three prize each 1 times, Chinese occupation safety and Health Association of science and technology progress award two prize 1 times, Chinese Institute of instrumentation science and technology award two prize 1 times, published more than 90 papers, applied for and obtained national invention or utility model patent 8, application of computer software copyright 10. Was named the national quality inspection administration outstanding youth, access to the central state organs youth " Innovation Award " and the special government allowances of the state council.

SCHEDULE

"3"---the page number in the abstract

September 25, 2014

Conference Room 1

Opening Ceremony (8:30-9:00)

Chairman: Dr. Keqin Ding

(China Special Equipment Inspection & Research Institute)

08:30-08:40	Opening	
08:40-09:00	Welcome	
09:00-09:20	Group Photo	
<h2>Keynote Lecture (9:20-12:00)</h2> <p>Chairman: Prof. Zhishen Wu (Southeast University) Prof. Shenfang Yuan (Nanjing University of Aeronautics and Astronautics)</p>		
09:20-09:55	Measuring the Dynamic Properties of Bridges by a Moving Test Vehicle Yong-Bin Yang, National Taiwan University, China	3
09:55-10:30	Numerical and Experimental Methods for Structural Health Monitoring with Ultrasonic Guided Waves Ulrich Gabbert, University of Magdeburg, Germany	4
10:30-10:50	Coffee Break	
10:50-11:25	Monitoring of Civil Infrastructure: from Research to Engineering Practice B. F. Spencer, University of Illinois at Urbana-Champaign, USA	5
11:25-12:00	Challenges and Opportunities for Structural Health Monitoring Under Harsh Environments Shan-Tung Tu, East China University of Science and Technology, China	6
12:00-13:30	Buffet Lunch & Break	
<h2>Invited Lecture (13:30-18:00)</h2> <p>Chairman: Prof. Hui Li (Harbin Institute of Technology) Prof. Guiyun Tian (Newcastle University, UK)</p>		
13:30-14:00	Development of an Active Wireless Sensor Node for Fatigue Crack Detection Using Nonlinear Wave Modulation Hoon Sohn, Korea Advanced Institute of Science and Technology, Korea	14

14:00-14:30	Damage Identification Using Guided Waves: from Linear to Nonlinear, from Qualitative to Quantitative, from Distributed to Dispersed Sensing Zhongqing Su, The Hong Kong Polytechnic University, China	15
14:30-15:00	RFID Sensors Based Corrosion Detection and Monitoring Gui-Yun Tian, Newcastle University, UK	12
15:00-15:30	Opportunities and Challenges of Aircraft SHM Yingchun Xiao, AVIC Aircraft Strength Research Institute, China	16
15:30-16:00	Impact Monitoring and Evaluations of Aircraft Composite Structures Lei Qiu, Nanjing University of Aeronautics and Astronautics, China	15
16:00-16:10	Jiangxi Fashion Technology Co., Ltd.	
16:10-16:40	Coffee Break	
16:40-17:10	Generalized Transmissibility Damage Indicator for Condition Monitoring of Engineering Structural Systems Zi-Qiang Lang, University of Sheffield, UK	9
17:10-17:40	Wireless Network Architecture and Model-based Fault Detection for Condition Monitoring of Dynamic Systems Xuewu Dai, Northumbria University, UK	11
17:40-18:10	Opportunities and Challenges of Structural Health Monitoring for Civil Aircraft Application Limin Gao, Commercial Aircraft Corporation of China Ltd., China	18
18:10-19:30	Welcome Dinner	

September 26, 2014 Conference Room 1

Invited Lecture (08:30-10:00)

Chairman: Prof. Zhongqing Su (Hong Kong Polytechnic University)
Prof. Hoon Sohn (Korea Advanced Institute of Science and Technology)

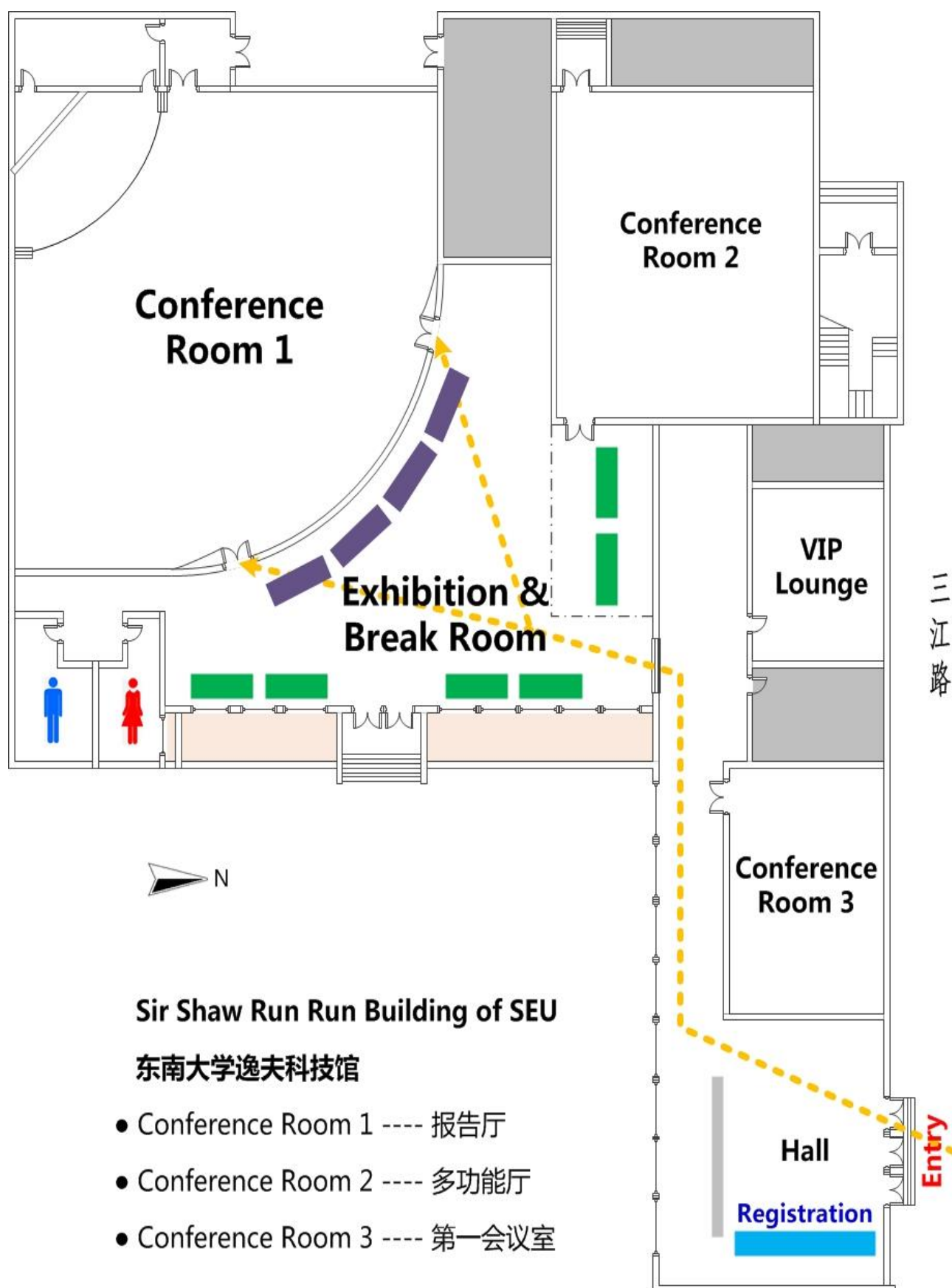
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09:00-09:30	Electromagnetic NDT and Condition Monitoring Xiandong Ma, Lancaster University, UK	10
09:30-10:00	Movable Impact Testing for Rapid Evaluation of Short/Middle Span Bridges Jian Zhang, Southeast University, China	19
10:00-10:30	Coffee Break	

Sept.26, 2014	Conference Room 1		Conference Room 2		Conference Room 3	
Stage 1 10:30-12:00	Session 2 <i>Chairman: Prof. Caiqian Yang (Southeast University)</i> <i>Prof. Lei Qiu (Nanjing University of Aeronautics and Astronautics)</i>		Session 1 <i>Chairman: Prof. Haitao Wang (Nanjing University of Aeronautics and Astronautics)</i> <i>Prof. Qiang Wang (Nanjing University of Aeronautics and Astronautics)</i>		Session 3 <i>Chairman: Prof. Guoan Yang (Beijing University of Chemical Technology)</i> <i>Prof. Guanglong Wang (Mechanical Engineering College)</i>	
10:30-10:45	A Frequency-wavenumber Domain Analysis for Lamb Wave Crack Detection <i>Yun-Kyu An, Southeast University</i>	51	The Influence Mechanism Research of Temperature on Piezoresistive MEMS Pressure Sensor <i>JIANG Bo, Mechanical Engineering College, China</i>	24	Acoustic Emission Detection Used in Wrapped Cylinders Inspection <i>CHEN Xiao-hui, China Aerodynamics Research and Development Centrea</i>	86
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11:00-11:15	Sparsity-enabled Denoising Method Based on Tunable Q-factor Wavelet Transform for Bearing Fault Diagnosis <i>DING Bao-qing, Xi'an Jiaotong University</i>	56	Study on Integrated Sensor for Metal Structure Fatigue Monitoring <i>CUI Rong-hong, Air Force Engineering University</i>	31	Visual Monitoring of Micro Crack Propagation via Luminescence Enhancement <i>ZHAO Zi-ming, East China University of Science and Technology</i>	93
11:15-11:30	Investigation of Helmholtz Coils for Edge Structure Using Inductive Thermography <i>WANG Yi-zhe, University of Electronic Science and Technology of China</i>	57	A Real-time Monitoring and Non-contacting Measurement Technology for Dynamic Deformation of a Liquid Sloshing Surface <i>LIU Shu-li, Beijing Institute of Technology</i>	32	Damage Identification for Shear Frame Structures Using Proper Orthogonal Decomposition Approach <i>XIANG Wei, Huazhong University of Science and Technology</i>	94
11:30-11:45	The Damage and Impact Imaging Method Based on 2D Linear PZTs Array and Spatial Filter without Using Lamb Wave Group Velocity <i>QIU Lei, Nanjing University of Aeronautics and</i>	58	Comparison of Damage Visualization Results with Different Damage Angles Using Laser Ultrasonic Technique <i>ZHANG Chao, Nanjing University of Aeronautics and</i>	35	Multistage Region Damage Identification Based on Lamb Waves <i>CHEN Jian-lin, Peking University</i>	95
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15:00-15:30	Coffee Break					
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15:30-15:45	An Algorithm for Non-Parametric Identification of Highly Nonlinear Structures With Incomplete Measurements LEI Ying, Xiamen University	71	Fatigue Life Prediction Analysis of Crane Structure Based on Strain Signal Measured& MSC. Fatigue WU Feng-qi, Shanghai Institute of Special Equipment Inspection & Technical Research	114	Numerical Simulation Study of Stress-magnetism Coupling For Magnetic Memory Effect of the Defect and Weld Line WAN Qiang, China Academy Of Engineering Physics (CAEP)	149
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17:15-17:30	Awarding & Closing Ceremony Chairman: Prof. Zhishen Wu (Southeast University) Prof. Shenfang Yuan (Nanjing University of Aeronautics and Astronautics)					
17:30-18:30	Buffet Dinner					

General Information

- Sketch Map of Meeting Place



- **Hotel Location**



- **Conference Venue**

Liu Yuan Hotel of Southeast University (38 Jin Xiang He Road, Xuanwu District, Nanjing China / 南京市玄武区进香河路 38 号)

- **Conference Date**

September 24th-26th, 2014

- **Dining Place**

Huifang Hall of Liu Yuan Hotel (榴园宾馆二楼荟芳厅)

- **Contact Us**

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