



2nd International Workshop on Structural Health Monitoring for Railway System (IWSHM-RS)

Call for Papers

Upon the success of the first International Workshop on Structural Health Monitoring for Railway System (IWSHM-RS), the 2nd IWSHM-RS will take place on Oct. 17-19, 2018 at Qingdao, China again and will be co-hosted by China Railway Society, CRRC Co., Ltd., CRRC Qingdao Sifang Co., Ltd., and co-organized by Stanford University, CRRC Industrial Institute Co., Ltd., National Engineering Research Center for High Speed EMU. Due to recent significant advancements in sensor technologies as well as "big data" sciences, Structural Health Monitoring Technology (SHM) has been recognized as the key technology for providing cost-effective real-time safety assurance and operation efficiency of structural platforms across multiple industries. This technology has the potential to optimize operational efficiency while maximizing the reliability of railway systems for the transportation industry into the 21st Century.

Therefore, the theme of the 2nd IWSHM-RS aims at "Real-time safety assurance and life-time operation efficiency." The Workshop invites researchers from international academia, renowned experts in railway, civil and aviation applications, and delegates from Chinese railway operators, research institutes, rolling stock manufacturers and universities to share recent development and advancements in SHM technology with emphasis on safety and reliability for railway systems. Owing to your expertise and reputation, you are cordially invited to submit your abstract for participating in the Workshop. The Workshop will feature reviews of current SHM advancements and maturation as well as its perspectives on the impact of the railway industry.

The Workshop will assess and evaluate state-of-the-art SHM technologies that are particularly applicable for railway applications, especially more mature sensor network-based techniques, and discuss and identify key emerging technical breakthroughs and challenges. Roadmaps for implementation and international standardization of SHM technology for railway industry will be particularly emphasized. The Workshop is also intended to promote communication exchange and cross-fertilization between multiple disciplines.

The Organizing Committee will set up a review panel and secretariat office to collect and review the papers. Best papers will be selected for prizes and gifts at the Workshop. World-renown technical experts and the awardees for the best papers will be invited for keynote/special presentations. Plenary





discussions on the future direction of SHM and potential applications of SHM to the railway industry will also be organized.

Collaborating with Stanford University, the Organizing committee will publish a proceeding of selected papers with the EI index and some papers will be published in Chinese academic periodicals.

Honorary Chairman

Chunfang Lu	President, China Railway Society, Academician of Chinese Academy of Engineering.
Huawu He	Special technical advisor for General Manager of China Railway, Vice President of China Association for Science and Technology, Academician of Chinese Academy of Engineering.
Yongcai Sun	Academician of Chinese Academy of Engineering. Executive Director, General Manager and Vice Party Secretary of CRRC Co., Ltd., Professor-level Senior Engineer.
Peter Cawley	Professor of Imperial College London, Fellow of the Royal Academy of Engineering and of the Royal Society.

Chairman

Fuhai Ma	Vice President and Secretary-general of China Railway Society.
Jun Wang	Vice President, CRRC Co.,Ltd.
Executive Chairman	
Sansan Ding	Vice Chief Engineer of CRRC Qingdao Sifang Co.,Ltd.
Fu-Kuo Chang	Professor, Department of Aeronautics and Astronautics, Stanford University.

Major Topics

1. Applications: Manufacturing/ Sustainability/ Design/ Intelligent Structures
 - Rolling stock: high-speed train, urban transit vehicles, freight wagons, etc.
 - Civil infrastructure: high-speed railway, freight railway, urban railway and subway railway, etc.
2. Sensors/ Actuators
 - Novel sensors, sensor networks, sensors for extreme environments, fiber optics, piezoelectric, magneto-electric sensors, CNT sensors, micro/nano-sensors, etc.
3. Sensor Networks/ System Integration
 - Bio-inspired sensor networks, remote and wireless communication, self-diagnostic networks, self-repairing and fault-tolerance networks, advanced manufacturing for structures with built-in sensors, hardware/software integration, durability/reliability of sensors and sensor network systems, etc.
4. Multifunctional Materials and Structures
 - Self-sensing materials, energy harvesting and storage, structures with state awareness



5. Signal Processing/ Monitoring/ Diagnostics

- Advanced signal processing, statistical signal processing, data mining, , decision fusion, data-driven approaches such as CNN (Convolution Neural Net), RNN (Reinforced Neural Net), Generative Adversarial network (GAN), AI-compensation methods, etc.

6. Prognostics/ Health Management/ Condition-based Maintenance+

- Quality control manufacturing, life prediction, integrated structural health management, SHM-based condition assessment of critical structures, etc.

7. Modeling/ Simulations/ SHM-based Design+

- Global-local analyses, modeling of sensor/structural responses, manufacturing with sensor data, multi-objective design optimization, SHM-based design, etc.

8. Implementation/ Validation/ Certification

- Quantification techniques, probability of detection (POD), reliability methods, validation/certification processes, etc.

9. SHM "big data" analytics and services.

10. Standard for SHM engineering application.

Key Dates

Call for papers	February 1	2018
Abstract Submission Due	May 31	2018
Notification of Abstract Acceptance	June 5	2018
Final Paper Submission Deadline	July 1	2018
Workshop	October17-19	2018

Workshop Venue: Hyatt Regency Qingdao

Workshop Address: No.88 Donghai East Road, Laoshan District, Qingdao, Shandong Province

Workshop Official Website: www.iwshm-rs2018.com

Facebook link: <https://www.facebook.com/IWSHM-RS-2015143255406266/>

Twitter link: http://twitter.com/IWSHM_RS

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