



The 12th World Congress on Railway Research, WCRR 2019 held in October in Tokyo

The Railway Technical Research Institute will host The 12th World Congress on Railway Research, WCRR 2019, from October 28 to November 1 this year at the Tokyo International Forum under the theme “Railway Research to Enhance the Customer Experience”.

【12th World Congress on Railway Research, WCRR 2019】

WCRR was established for the purpose of providing an overview of the world's development of railway technologies and discussing future directions to be taken by the railway sector. This is the world's largest international congress on railway research, proudly unprecedented in the sense that railway researchers and engineers gather together with managers and executives of railway operators in one congress.

This is the second WCRR congress held in Japan following the WCRR'99 which was 20 years ago. 500 participants from 30 countries and 500 from Japan are expected to join WCRR2019.

【Theme: Railway Research to Enhance the Customer Experience】

Although economic and social circumstances under which railways are doing business differ greatly from region to region or from country to country, it is common for all railways that their important role is to further deepen ties among people by realizing safe and comfortable mobility of people as well as secure and efficient transportation of goods. Providing railway customers with quality experience by fulfilling this role is what railway businesses should aim to achieve and will lead to the raison d'être of railways. In order to enhance the value of railways at the global level, the railways need to keep providing high-quality and reasonably-priced customer services, while maintaining high standards of safety and excellent environmental performance. Innovation which will be brought about by technological breakthroughs will be indispensable, and the role of research and development for this purpose is exactly the main agenda of the entire congress.

【Features of WCRR2019】

WCRR congresses have covered and focused on a broader range of research fields such as human factors, railway business management and transport economy as well as specific railway technologies regarding vehicles, track, overhead lines, signaling and communications, structures, train operation and environmental measures. The features of WCRR2019 based on the policy of WCRR are shown below.

- (1) For the purpose of providing railway company executive persons and different fields of researchers and engineers the opportunity to share information, WCRR 2019 provides Plenary Sessions, Organized Sessions, an Exhibition and a variety of Social Events as well as Oral and Interactive Poster Sessions for ordinary paper presentations.
- (2) The Plenary Sessions will take the form of panel discussion (Table 1). Having an eye on the optimum form of future railway systems, each participant will discuss the direction that railway research and development is to take, technical fields to be focused on and desirable way of international cooperation from each point of view. Through these discussions, WCRR aims to highlight the roles of railway research and development to explore the theme of this congress, enhancing the customer experience.
- (3) Organized Sessions will be prepared for specific topics attracting a high level of interest in many countries. At the Organized Sessions, in-depth discussions will be made under the leadership of chairpersons who are leading experts of each field. Interdisciplinary topics such as “horizon scanning” and “global certification” have been chosen as well as the state-of-the-art hot-topic technologies including “autonomous driving” and “preventive maintenance with digital technologies”.
- (4) Interactive Poster Sessions combining short presentations and poster presentations will be provided as opportunities for effective publishing and active information sharing by paper authors.
- (5) Due to the surging interest in the application of digital technologies to railway maintenance, 51 papers dealing with condition-based maintenance (CBM) have been accepted for WCRR 2019. To accommodate these presentations, one Organized Session and 6 Oral Sessions have been prepared for the topic of CBM.
- (6) WCRR 2019 will be providing 11 Technical Visit courses covering a wide variety of fields including vehicles, facilities, operation and human development. Thanks to the cooperation by JR companies, Japan Railway Construction, Transport and Technology Agency, Tokyo Metro and other railway-related companies, these courses will provide participants good opportunities to see the technologies that support the high level of safety, efficiency, convenience and environmental performance of Japanese railways.

【Outline of the congress】

1. Host: Railway Technical Research Institute

2. Special supporting organizations

Ministry of Land, Infrastructure, Transport and Tourism

Tokyo Metropolitan Government

3. Supporting organizations:

**Embassy of Italy in Japan, British Embassy Tokyo, German Embassy Tokyo,
Embassy of France in Japan, Austrian Embassy Tokyo, Embassy of the People's
Republic of China in Japan**

Institute of Electrical Engineers of Japan (IEEJ), Japan Society of Mechanical Engineers (JSME), Japan Society of Civil Engineers (JSCE), Japan Railway Technical Services (JARTS), Société Franco-Japonaise des Techniques Industrielles (SFJTI), Japan Railway Engineers Association (JREA), Japan Overseas Railway System Association (JORSA), Japan Association of Rolling Stock Industries (JARi), Japan Subway Association, Japan Private Railway Association

4. Congress period: October 28 - November 1, 2019

5. Sessions and events:

- Plenary Session
3 Plenary Sessions of panel-discussion style will be provided as described in Table 1.
- Paper presentations
Total 361 paper presentations
 - 10 Organized Sessions (Table 2, 43 presentations)
 - 40 Oral Sessions (170 presentations)
 - 20 Interactive Poster Sessions (148 presentations)
- Technical Visits: 11 courses
- Exhibition: technical exhibition by sponsoring companies

6. Venue: Tokyo International Forum (Marunouchi, Chiyoda-ku, Tokyo)

Table 1: Plenary Sessions

No.	Title	Moderator and panelist
1	The Role of Railway Operators in Enhancing the Customer Experience	<p>Moderator Prof. Anson Jack : Professor, University of Birmingham</p> <p>Panelists Mr. Masaki Ogata, Vice Chairman JR East Mr. Shun-ichi Kosuge, Executive Vice President, JR Central Mr. Pierre Izard, Deputy CEO - CTO, SNCF Mr. Rolf Härdi, CTO, DB AG Mr. Marco Caposciutti, CTO, Trenitalia AAR (panelist TBD)</p>
2	Contribution of Railway Suppliers to Elevating the Value of Railways	<p>Moderator Mr. Nick Kingsley, Managing Editor, Railway Gazette International</p> <p>Panelist Mr. Jay Monaco, Vice President Global Engineering, Amsted Rail Mr. Jürgen Schlaht, Head of Innovation Management, Siemens Mobility Mr. Takao Nishiyama, Executive Vice President, J-TREC CRRC (panelist TBD)</p>
3	Research and Development for Future Railways	<p>Moderator Prof. Roderick Smith : Emeritus Professor, Imperial Collage London</p> <p>Panelist Dr. Norimichi Kumagai, President, RTRI Mr. François Davenne, Director General, UIC Ms. Luisa Moio, Director of Research and Development, RRSB Ms. Carole Desnost, CIO, SNCF Mr. Carlo Borghini, Executive Director, Shift2Rail, China Academy of Railway Sciences (panelist TBD)</p>

Table 2: Organized Sessions

No.	Session title	Chairperson
1	Horizon Scanning for the Railways: An International Collaboration Perspective	Mr. Olivier Marteaux, RSSB
2	Decision-Aid for Real-Time Railway Operation Control	Dr. David De Almeida, SNCF
3	Autonomous Trains on Main Lines	Mr. Rolf Härdi, DB AG Mr. Ralf Marxen, DB AG
4	Global Certification for Innovative Product Development	Ms. Lisa Stabler, TTCI
5	On-Board Monitoring for Vehicle/Infrastructure Diagnostics and CBM	Prof. Giorgio Diana, Polytechnic of Milan
6	Integration of On-Board and Wayside Measurements with Virtual Methods towards Safer, More Cost-Effective, Risk-Conscious and Innovation-Spurring Assessment Methods for Running-Dynamics	Prof. Gabriele Malavasi, Sapienza University of Rome
7	Digital Technologies for Predictive Maintenance	Mr. Valéry Versailles, SNCF
8	Maglev and Other Fixed Guideway Transport, Part I & Part II	Dr. Ken Nagashima, RTRI
9	Global Vision for Railway Development	Prof. Boris Lapidus, UIC IRRB Mr. Jerzy Wisniewski, UIC IRRB Mr. Dennis Schut, UIC IRRB
10	From Research to Benefits: How to Accelerate the Innovation Process	Ms. Luisa Moio, RSSB Dr. Corinne Talotte, SNCF