



## RTRI Hosts WCRR 2019

**The Railway Technical Research Institute held 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”.**

WCRR is an international congress organized by the WCRR Organizing Committee composed of Union International des Chemins de fer (UIC), Société Nationale des Chemins de fer Français (SNCF), Deutsche Bahn AG (DB AG), Trenitalia, Rail Safety and Standards Board (RSSB), Transportation Technology Center, Inc. (TTCI) and RTRI.

WCRR 2019, the 12th congress of WCRR, was held for the second time in Japan, 20 years since 1999. Total 993 people, 424 from 37 countries and 569 from Japan, participated in the congress. Under the congress theme “Railway Research to Enhance the Customer Experience”, three plenary sessions, 10 organized sessions, and 60 oral and interactive poster sessions covering eight research fields were provided. In particular, the organized sessions were included in the congress program for the first time. They are intended to encourage in-depth discussions on the world’s hottest topics and characterized by the unity among presentation topics and flexible styles of presentations. 44 presentations (10 from Japan) were made at the organized sessions under the leadership of the chairpersons who are outstanding experts in each field. At the oral and interactive poster sessions, 167 oral presentations (44 from Japan) and 142 (59 from Japan) interactive poster presentations were made. Each session theme is as follows:

① Plenary sessions

1. The Role of Railway Operators in Enhancing the Customer Experience
2. Contribution of Railway Suppliers to Elevating the Value of Railways
3. Research and Development for Future Railways

② Organized sessions

- Horizon Scanning for the Railways: An International Collaboration Perspective
- Decision-Aid for Real-Time Railway Operation Control
- Autonomous Trains on Main Lines
- Global Certification for Innovative Product Development
- On-Board Monitoring for Vehicle/Infrastructure Diagnostics and CBM
- 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
- Digital Technologies for Predictive Maintenance
- Maglev Systems
- Global Vision for Railway Development
- From Research to Benefits: How to Accelerate the Innovation Process

### ③ Oral and interactive poster sessions

- Improvement of Service Quality, Speed, Time to Destination, and Functionality
- Economics, Policy and Planning
- Sustainability
- Safety and Natural Hazard Management
- Rolling Stock
- Infrastructure
- Railway System Interface
- Maglev and New Transport Systems

An exhibition on railway technologies was also held.

126 companies and organizations supported WCRR 2019 as sponsors.

## [Congress schedule and outline]

### **October 28**

WCRR 2019 was started with the welcome reception

### **October 29**

Opening remarks

Dr. Ikuo Watanabe, Chair of WCRR OGC

Welcome by RTRI

Dr. Norimichi Kumagai, President of RTRI

Greetings

Mr. Nobuhide Minorikawa, State Minister of Land, Infrastructure, Transport and Tourism

Mr. Takashi Nakajima, Director, Bureau of Urban Development, Tokyo Metropolitan  
Government

Prof. Gianluigi Castelli, Chairman of UIC, Chairman of FS Group

### **Plenary session 1:**

#### **The Role of Railway Operators in Enhancing the Customer Experience (Moderator: Professor Anson Jack, University of Birmingham)**

From Japan, Mr. Masaki Ogata, Vice Chairman of JR East and Mr. Shun-ichi Kosuge, Executive Vice President of JR Central joined the discussion.

Mr. Ogata talked about “MaaS” (Mobility as a Service) system that JR East is building and pointed out open innovation, collaboration among operators and the first and last mile solution as the three key factors to realize “MaaS”. Mr. Ogata also encouraged the researchers attending to have a vision for the future when starting a development project.

Mr. Kosuge introduced the technical achievement by the mass high-speed transportation system, Shinkansen, and explained the progress in the construction of the superconducting Maglev line. He also stressed the necessity of more advanced and efficient operation and maintenance systems for the future.

## **October 30**

### **Plenary session 2:**

#### **Contribution of Railway Suppliers to Elevating the Value of Railways (Moderator: Mr. Nick Kingsley, Managing Editor of Railway Gazette International)**

From Japan, Mr. Takao Nishiyama, President of the Japan Transport Engineering Company (J-TREC) joined the discussion.

Mr. Nishiyama said that, at J-TREC, the life-cycle cost has been reduced by thoroughly sharing platforms and the technologies and know-how of their parent company, JR East, have been integrated into their production systems. He referred as well to the importance of keeping good relationships with affiliated companies.

### **Gala dinner**

About 800 people attended the gala dinner in the evening, where Mr. Kazuyosi Akaba, Minister of the Land, Infrastructure, Transport and Tourism, Dr. Eisuke Masada, Chairman of RTRI and other guests gave welcome greetings.

## **October 31**

### **Plenary session 3:**

#### **Research and Development for Future Railways (Moderator: Emeritus Professor Roderick Smith, Imperial College London)**

From Japan, President Kumagai of RTRI joined the discussion and stated the following views:

- Digital technologies contributing to corporate profits are important.
- It is necessary to ensure sufficient research and development budget and produce quality outcomes.
- The development of condition-based maintenance technologies is a high-priority task for utilizing aging railway asset.
- We need to contribute to the society, having awareness that railways are a key player in the entire mobility.

### **Closing ceremony**

The best paper awards and the young researcher award were given to an outstanding paper in each field. From among Japanese researchers, Mr. Hiroyuki Nakajima of JR East and Mr. Hirotake Noguchi of Tokyo Metro won the awards in the fields “Rolling Stock, Maglev and New Transport Systems” and “Infrastructure” respectively.

## **November 1**

### **Technical visits**

Eleven courses of technical visits to railway related facilities and construction sites were provided and the participants joined a tour of their preference. The technical visits included two courses to see the facilities of RTRI, one to visit RTRI and Railway Information Systems Co., Ltd. in Kunitachi and the other to RTRI's Wind Tunnel Technical Center in Maibara and the Kyoto Railway Museum. 53 and 26 people joined the tours respectively.

### **[Next WCRR]**

The next WCRR will be held in Birmingham, UK, in June 2022. At the closing ceremony, WCRR 2019 Organizing Committee Chairperson, Executive Vice President Watanabe of RTRI handed over the WCRR plaque to the next chairperson Ms. Luisa Moisio of RSSB, UK, and Professor Anson Jack of University of Birmingham.



Minister of the Land, Infrastructure, Transport and Tourism, Mr Kazuyoshi Akaba at the gala dinner



State Minister of Land, Infrastructure, Transport and Tourism, Mr. Nobuhide Minorikawa at the opening ceremony



UIC Chairman Prof. Gianluigi Castelli at the opening ceremony



Professor Anson Jack of University of Birmingham moderating the plenary session 1



Vice Chairman of JR East Mr. Masaki Ogata at Plenary Session 1



Executive Vice President of JR Central Mr. Shun-ichi Kosuge at Plenary Session 1



Managing Editor of Railway Gazette International Mr. Nick Kingsley moderating the Plenary Session 2



J-TREC President Mr. Takao Nishiyama  
at the Plenary Session 2



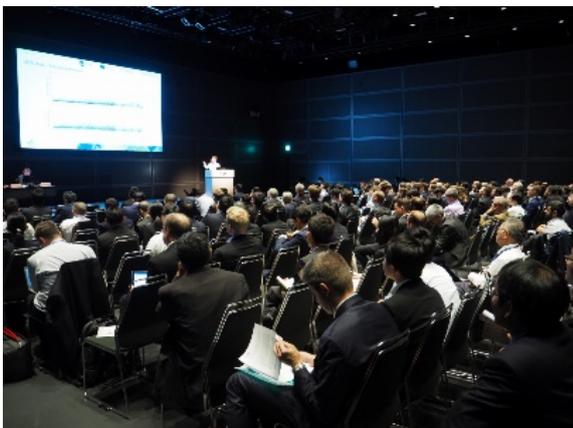
Emeritus Prof. Roderick Smith of Imperial College  
London moderating the Plenary Session 3



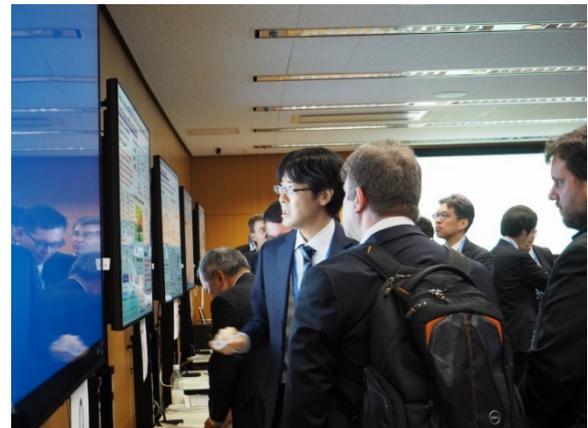
RTRI President Mr. Norimichi Kumagai  
at Plenary Session 3



Organized Session

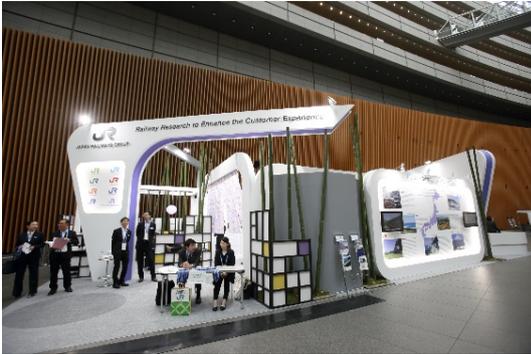


Oral session

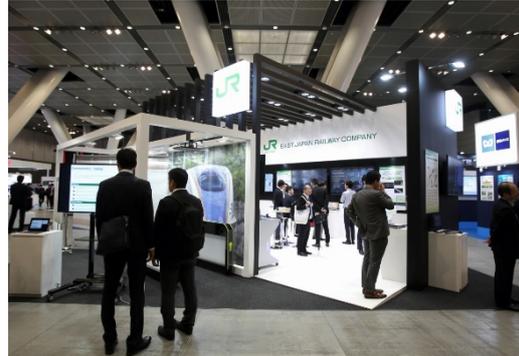


Interactive poster session

## Exhibition with 126 domestic and overseas exhibitors



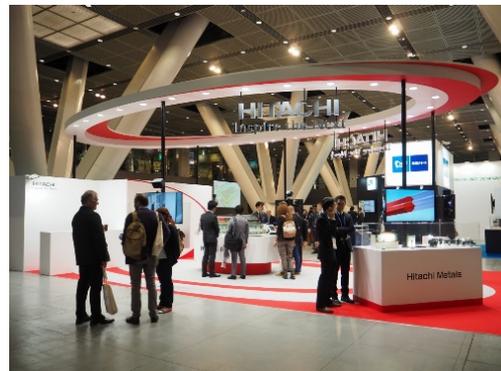
Exhibition booth by 8 JR group companies



Exhibition booth by JR East



Exhibition booth by Shift2Rail Joint Undertaking



Exhibition booth by Hitachi, Ltd.

## Technical visits



Participants on board the fuel cell hybrid powered test vehicle at RTRI



Participants listening to the explanation of the railway seat reservation system "MARS" at JR Systems

## Closing Ceremony



Dr. Matthias Landgraf of Graz University of Technology (left) wins the best paper award



WCRR 2019 Organizing Committee Chair Watanabe delivers closing remarks



WCRR2019 Organizing and Executive Committee members



WCRR 2019 Organizing Committee Chair Watanabe hands over the WCRR plaque to the representatives of UK, the host country of WCRR2022