12th World Congress on Railway Research
WCRR 2019

October 28 – November 1, 2019
Tokyo International Forum, **Tokyo, JAPAN**

Railway Research to Enhance the Customer Experience

Call for Papers

for the

12th World Congress on Railway Research

WCRR 2019

http://wcrr2019.org

Organizing and Executive Committee Organizations:

ASSOCIATION OF AMERICAN RAILROADS

TTCI TRANSPORTATION TECHNOLOGY CENTER, INC.

DB

RSSB

JR Railway Technical Research Institute

SNCF

TRENITALIA GRUPPO FERROVIE DELLO STATO ITALIANE

UIC INTERNATIONAL UNION OF RAILWAYS

Hosted by:

JR Railway Technical Research Institute

Welcome

Dear Madam and Sir,

On behalf of the WCRR Organizing Committee, I am honored to invite you to the 12th World Congress on Railway Research (WCRR 2019) that will take place in Tokyo, Japan, from October 28 to November 1, 2019 at the venue called Tokyo International Forum.

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 railway operators. 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.

For some countries, ensuring the competitiveness of the railways over road and air transport is imperative, while in others, boosting railway transport capacity is still the first priority. To continue to be chosen as a transport mode in the future, the railways need to provide high quality customer experience based on novel technologies for economically-efficient operation, while maintaining high standards of safety and excellent environmental performance. Breakthroughs in research and development will be indispensable, and sometimes radical innovation to break out of the barriers of conventional railway systems might be necessary.

Therefore, at WCRR 2019, we would like to provide the time and place where railway delegates from around the world are able to share their views regarding the roles that research and development are expected to play in order to further elevate the values of railways, while railway engineers and experts are able to share information and expertise. Your participation in all possible forms will be highly appreciated, to achieve these goals.

In Japan, we have been steadily promoting the development of urban transit systems which will meet the demands of densely-populated urban areas, and expanding the Shinkansen network which will have a tremendous impact in revitalizing the Japanese local economy. I am expecting that, if you come to Japan, you can sense the impacts that the railways have had and are still having upon the Japanese society and economy, and experience how vital a role railways are playing in this country.

In the autumn of 2019 when we host WCRR, the Rugby World Cup will also come to Japan, and will be followed the next year in 2020 by the Tokyo Olympic Games. So I firmly believe that in the year 2019, you will be able to experience a highly-charged, vibrant metropolis of Tokyo.

I am very much looking forward to welcoming you in Tokyo in 2019.

Ikuo Watanabe
Chair, Organizing Committee of WCRR 2019
Executive Director, Railway Technical Research Institute, Tokyo, Japan

WCRR 2019 Call for Papers

CONGRESS OVERVIEW

Congress name: The 12th World Congress on Railway Research (WCRR 2019)
Dates: October 28 (Monday) to November 1 (Friday), 2019
Venue: Tokyo International Forum (3-5-1 Marunouchi, Chiyoda-ku, Tokyo 100-0005)
https://www.t-i-forum.co.jp/en/
Host organization: Railway Technical Research Institute (RTRI, Japan)
Organizations of the WCRR 2019 Organizing and Executive Committees:

- Union Internationale des Chemins de fer (UIC)
- Transportation Technology Center, Inc. (TTCI),
  a subsidiary of the Association of American Railroads (AAR, U.S.A.)
- Rail Safety and Standards Board (RSSB, U.K.)
- Société Nationale des Chemins de fer Français (SNCF, France)
- Deutsche Bahn AG (DB, Germany)
- Trenitalia, Gruppo Ferrovie dello Stato Italiane (FS, Italy)
- Railway Technical Research Institute (RTRI, Japan)

CONGRESS THEME

The WCRR 2019 Organizing Committee is calling for papers to address the Congress Theme:

Railway research to enhance the customer experience

CONGRESS PROGRAM

The Congress will span five days, starting with the first day for registration and a welcome reception, then three days of presentation sessions and exhibition booths, followed by one day of technical visits. Each of the three days of sessions will include a plenary session, where keynote speakers will provide strategic views of railway research and the latest innovations in the global rail industry, as well as parallel sessions of Oral and Interactive Poster Presentations.

SESSION TOPICS

For WCRR 2019, there will be 8 Session Topics to which the papers will be allocated. Each Topic has a number of Sub-Topics (details on page 5) upon which researchers may base their paper. The Topics are:

1. Improvement of Service Quality, Speed, Time to Destination, and Functionality
2. Economics, Policy and Planning
3. Sustainability
4. Safety and Natural Hazard Management
5. Rolling Stock
6. Infrastructure
7. Railway System Interface
8. Maglev and New Transport Systems

Abstracts

ABSTRACT SUBMISSION PROCESS

Abstracts must be submitted through the official WCRR 2019 website using the on-line conference management system that can be accessed in the website (**http://wcrr2019.org**). **No other means of submission will be accepted.**

Click on the "Call for Papers" link to access the on-line conference management system. **Please download and use the Abstract template** available on this website in Microsoft Word file format. After writing the Abstract, you will need to convert the Abstract Word file into a PDF file. Then click on and access the Abstract submission form in which you will fill in Abstract-related information and author/co-author information, and **upload both** the original **Word file and** the converted **PDF file** of the Abstract on this on-line Abstract submission form.

THE DEADLINE FOR ABSTRACT SUBMISSION IS AUGUST 10, 2018.

TYPES OF PRESENTATIONS: ORAL PRESENTATIONS AND INTERACTIVE POSTER PRESENTATIONS

There will be two types of presentations at WCRR 2019: Oral Presentations and Interactive Poster Presentations. For both types, the presenters must speak in presentations in front of an audience. Authors of Abstracts will be asked about their preferences on these two types of presentations. The authors' preferences for types of presentations will not affect the chances of their Abstracts being selected, and **all selected papers will be treated as equally important** in the presentation sessions and Congress Proceedings, differing only in the format of the presentation sessions (in other words, Oral Presentation papers will NOT be considered more important than Interactive Poster Presentation papers). Please consider the following characteristics of the two types of presentations, to decide on your preference. **Please note that the Congress organizers will make the final decision on the type of presentation to be assigned, which may not be able to accommodate your preference.**

Oral Presentations

Appropriate contents of papers for Oral Presentations may include (but are not limited to) issues of interest in a wide range of specializations and fields of research and development, leading to brief but important discussions on questions of common interest. The presentation time for each presenter in Oral Sessions will be about 15 minutes, followed by about 5 minutes for questions and discussions.

Interactive Poster Presentations

Appropriate contents of papers for Interactive Poster Presentations may include (but are not limited to) technical details and issues focused on specific fields of research and development, leading to longer detailed discussions by smaller numbers of participants with common interests. Each poster presenter will be required to make a short presentation of under 5 minutes, then all the presenters will move to their respective posters for discussions.

Optional Demonstration Material for Interactive Poster Presentations

For Interactive Poster Presentations, as an option, if you wish, you can also bring demonstration material to help explain your work, such as for "proof of concept" of the research. The demonstration material, for example, can be a notebook computer, tablet device, experiment sample, or model/mock-up. Specifications of the demonstration material will be announced by around the date of confirmation of accepted Abstracts.

SESSION TOPICS AND SUB-TOPICS

When you submit your Abstract, please identify the Session Topics and appropriate Sub-Topics that best categorize your Abstract select 1st, 2nd, and 3rd choices). Over **65** Sub-Topics have already been identified so far as follows:

1. Improvement of Service Quality, Speed, Time to Destination, and Functionality
1.1. Attracting customers by understanding their needs and behaviors
1.2. Operation management, train delay management
1.3. Comfort
1.4. Transport quality
1.5. High speed railway
1.6. Passenger flow, mobility from door to door
1.7. Passenger information and ticketing (onboard telematics, multimedia systems)
1.8. Door-to-door intermodal freight/logistics
1.9. Freight tracking and control, IT

2. Economics, Policy and Planning
2.1. Open market: Business trends, new players and models, new opportunities
2.2. Investments and economic efficiency
2.3. Infrastructure financing, ownership, and public/private investment
2.4. Transportation planning, including data and predictive analytics
2.5. Improving accuracy of demand forecasting, including data and predictive analytics
2.6. Wayside revitalization along railway lines
2.7. Capacity management and timetabling, including data and predictive analytics

3. Sustainability
3.1. More environmentally friendly railways
3.2. Low/zero carbon emission railways, carbon footprint
3.3. Life-cycle assessment (LCA)
3.4. Energy-conserving operation and sustainability, energy storage technology
3.5. Noise/vibration countermeasures
3.6. Low-cost operation, highly-competitive railways
3.7. Demographic issues: Its impact and solutions
3.8. Human resources, work force development and training

4. Safety and Natural Hazard Management
4.1. Safety assessment/evaluation
4.2. Security, including cyber security
4.3. Level crossings
4.4. Train operation safety, driver and crew, human factors
4.5. Disasters and countermeasures/recovery
4.6. Derailment/capsizing
4.7. Infrastructure resilience in extreme events
4.8. Passenger safety
4.9. Hazardous material freight rail vehicle safety and security monitoring systems
4.10. Unmanned aerial vehicle technology in inspecting hazards

5. Rolling Stock
5.1. Rolling stock design for passenger rail
5.2. Rolling stock design for freight rail
5.3. Rolling stock components/subsystems
5.4. Brake performance
5.5. Rolling stock maintenance
5.6. Condition-based maintenance, condition monitoring, inspection and detection, including data and predictive analytics
5.7. Assessment/evaluation/examination
5.8. Asset management for rolling stock
5.9. Heavy haul; faster, heavier, longer freight trains
5.10. Freight onboard monitoring and control

6. Infrastructure
6.1. Construction of new lines
6.2. Structures (bridges, tunnels, stations)
6.3. Materials and track components
6.4. Electric power/catenary facilities
6.5. Condition-based maintenance, condition monitoring, inspection and detection, unmanned aerial vehicle technology in maintenance, including data and predictive analytics
6.6. Rail/track/infrastructure maintenance
6.7. Track maintenance and civil engineering
6.8. Asset management for infrastructure
6.9. Freight/logistics dry port; transfer technologies in intermodal transport

7. Railway System Interface
7.1. Rail/wheel (vehicle-track) interaction
7.2. Rolling stock/pantograph-catenary interaction
7.3. Signaling and communication systems
7.4. Electromagnetic compatibility
7.5. Wayside train monitoring and train detection
7.6. Test, homologation, and cross-acceptance
7.7. Global certification for innovative product development
7.8. Automated/autonomous operation

8. Maglev and New Transport Systems
8.1. Maglev and other fixed guideway transport
8.2. Automated guided vehicles, monorails
8.3. Construction
8.4. Other new transport systems

REQUIRED CONTENTS OF ABSTRACTS

In the Abstract submission section of the on-line conference management system, you will be asked to describe the content of your research by writing on **ALL** of the following items, as is indicated in the template file that you download:

1. The link with your 1st choice of Topic and Sub-Topic
2. The reason for the research
3. The methodology
4. Results or expected results
5. What is new about the research?
6. Potential for implementation
7. Impact on railway business
8. Potential for international collaboration

Figures and Equations

- Figure(s) are highly recommended to be included (though not required), to help explain/visualize your ideas (maximum 2 figures). The figures can be graphs, tables, photos, illustrations or anything else that will help the reader understand your research.
- Equations are not expected or required, but may be included if needed (maximum 3 equations).

Abstract text length

The total length of the Abstract is the sum of the number of words of all the paragraphs of items 1 to 8 described above, and this total must be a minimum of 800 words and a maximum of 1200 words (words in the figures, tables, and equations, including captions, labels, and legends will not be counted towards this total), and must be written in English. The text length of **EACH** of items 1 to 8 should be a minimum of 1 complete sentence, and a maximum of 500 words.

Extent of content originality

Abstracts that have been submitted recently to other congresses will not be accepted. If you are submitting a paper on a subject that you have presented at previous WCRR congresses, then the paper must focus on the new developments since then. Commercial papers (i.e. advertising a product) will not be accepted so please emphasize the research content in your Abstract.

Copyright

At the time of submitting your full paper, you will be asked to also agree to a copyright transfer statement to transfer publication and other rights to the Congress organizers. Details will be available on-line at a later date.

Main criteria for Abstract selection

Abstracts will mainly be assessed using the following criteria which will have weightings attached.

A) **Customer focus** - What is the impact of this research on railway customer experience?
B) **Quality of research** - Is this research technically sound? Is the method used clearly stated and applicable?
C) **Innovation and scientific contribution** - Is this research new/novel or has it been done before by someone else (or by the author)?
D) **Pathway to implementation** - Is the path leading to eventual implementation apparent? Could the results be practically implemented?
E) **Collaboration** - Does the research lend itself to international collaboration?
F) **Relevance** - Does the paper clearly identify the Topics and the Sub-Topics upon which it is based? Is the content relevant?
G) **[For Oral Presentations] Type of audience targeted** – Would the research content be of interest to a somewhat larger diverse audience and benefit from questions and comments from researchers of various fields?
H) **[For Interactive Poster Presentations] Type of audience targeted** - Would the research content trigger interactive discussions on site with a small number of individuals who wish to exchange many ideas on detailed/specific issues?

Other considerations for Abstract selection

Other considerations that will be used to determine if an Abstract is suitable to progress to full paper are:

I) Does the paper have a logical structure?
J) Is it well written and are the results and conclusions clear and easy to understand?

By submitting an Abstract, it will be expected that you have the authorization of your organization's endorsement of writing a full paper and presenting it at WCRR 2019, if the Abstract is selected in the review process.

Requirements after Abstract review

If your Abstract is accepted as a paper for presentation, you will be expected to submit a full paper and to attend the Congress to present it, *regardless of whether it is an Oral or Interactive Poster Presentation*. In other words, if your Abstract is selected as an Interactive Poster Presentation, you will also be expected to submit a full paper and attend the conference to present your Poster in a session (with a talk considerably shorter than the Oral Presentations).

Presenters of papers must actually attend the Congress, and must speak on and present their papers in person, for Oral Presentations as well as Interactive Poster Presentations. To do this, the presenters must also register for the Congress by on-line registration. Failure of the presenter to register for, attend, and speak/present the paper in person in the Congress may result in the paper being excluded from being published in the Congress Proceedings.

WCRR 2019 Call for Papers Timeline:

Call for Abstracts opening:
May 7, 2018
Deadline for Abstract submission:
August 10, 2018
Confirmation of accepted Abstracts:
By February 8, 2019
Date for submission of full papers to be provided for review:
May 10, 2019
Deadline for submission of full and final paper:
August 31, 2019

WCRR 2019 Congress Proceedings to be accessible on-line by SPARK
All full papers accepted for WCRR 2019 will become accessible by SPARK, the designated knowledge sharing portal for the Congress Proceedings.

SPARK

SPARK is a free, **interactive web tool for the rail industry**. SPARK, provided by the RSSB, gives you access to a range of publications, provides information on research projects and initiatives and gives pointers to test facilities, centers of expertise, and data sources. Materials are uploaded in SPARK from a wide variety of sources to give you access to the combined wisdom of organizations from across the globe.

WCRR 2019 PRELIMINARY SCHEDULE

October 28 (Monday)	October 29 (Tuesday)	October 30 (Wednesday)	October 31 (Thursday)	November 1 (Friday)
	Opening Ceremony	Oral & Interactive Poster Sessions	Oral & Interactive Poster Sessions	
	Plenary Session 1	Coffee Break	Coffee Break	
	Coffee Break	Oral & Interactive Poster Sessions	Oral & Interactive Poster Sessions	
	Oral & Interactive Poster Sessions	Oral & Interactive Poster Sessions	Oral & Interactive Poster Sessions	Technical Visits
	Lunch	Lunch	Lunch	
Congress Registration	Oral & Interactive Poster Sessions	Plenary Session 2	Plenary Session 3	
	Coffee Break	Coffee Break	Closing Ceremony	
	Oral & Interactive Poster Sessions	Oral & Interactive Poster Sessions		
Welcome Reception	Tokyo Bay Cruise	Gala Dinner		

Exhibitions

For questions about abstracts/papers, please contact: wcrr2019-paper@issjp.com
For other general questions about WCRR, please contact: wcrr2019@issjp.com