Call for Papers for the 11th World Congress on Railway Research 2016

www.wcrr2016.org
Dear Madam and Sir,

On behalf of the WCRR Organizing Committee, I am honoured to invite you to the 11th World Congress on Railway Research that will take place in Milan, Italy, from 29 May to 2 June 2016 at Stella Polare Fiera Milano.

This conference presents an opportunity for the international community of railway companies, researchers and other interested stakeholders to come together to share knowledge and experiences. Railway research and innovation, that involves operators, infrastructure managers and industry planners, relates not just to technical areas, but pervades all processes needed to build and offer a higher-capacity, better-performing and more cost-effective railway service to customers.

This is the aim of this WCRR edition with its conference theme Research and Innovation from Today Towards 2050. This congress will encourage all railway stakeholders to show and share how they innovate in order to deliver a better-performing, more sustainable railway that is attractive to new and existing customers in both the near and distant future.

Milan, a world tourist and business destination at the heart of Europe, together with the WCRR 2016 organizing team and I are pleased to welcome you in 2016!

Marco Caposciutti  
Chair, Organizing Committee of WCRR 2016  
Director, Technical Direction TRENITALIA
WCRR 2016 Call for Papers

CONGRESS THEME
WCRR 2016 call for papers to address congress theme:

RESEARCH AND INNOVATION FROM TODAY TOWARDS 2050

WCRR 2016 will provide a great opportunity for you to present your research and your ultimate innovation to a global rail industry.

CONGRESS PROGRAMME
The congress is developed over three days, each of which will start with a plenary session where keynote speakers will provide a strategic view of railway research and the latest innovations in the global rail industry.

Following this, the congress presents two main sessions – Vision & Future and Today's Research – where papers will be allocated.

A section of exhibition area will be available for poster presentation and for Proof of Concept.

THEMES AND TOPICS

Vision & Future
The sessions will present papers dealing with long term and far future applications, covering proposals and studies concerning what railway transportation and mobility will be towards 2050. Innovative ideas on transport solutions dealing with future railway challenges covering eight main themes will be hosted in this session. These papers in this session should stem from creative and visionary thinking.

Today's Research
The sessions will present papers dealing with near future applications, covering ongoing research and innovative solutions developed to improve today's railway transport and mobility within 49 topics. Both applied and theoretical research performed by all mobility stakeholders is welcome in this session and should mainly concern all specific topics enlisted and outlined hereby.
VISON & FUTURE
Overall 8 themes have already been identified as follow

1 **Rolling stock**
   All about rolling stock, but just only rolling stock and related trainborne equipment, mass and energy efficient low Life Cycle Cost (LCC) vehicles, apparatus and subsystems. Dealing mainly with performance, LCC, technology and manufacturing (e.g. structures, traction system, control system, components, onboard diagnosis, train dynamics).

2 **Infrastructure**
   All about infrastructure, but just only infrastructure and related ground equipment, apparatus and subsystems. Dealing mainly with performance, LCC, technology and manufacturing (e.g. track components, power supply systems, station buildings, bridges, tunnels, monitoring and detection, contact wire, ballast and sleepers, switches, network control).

3 **Railway system**
   All about systems and subsystems sharing both rolling stock and infrastructure. Dealing mainly with performance, technology and manufacturing at interfaces between rolling stock and infrastructure (e.g. alternative concept train system, signalling systems, pantograph-catenary interaction, rail-wheel contact, traffic management systems, timetables, capacity assignment, interoperability).

4 **Passenger mobility from door to door**
   All about passenger transportation. Dealing mainly with activities, services and processes meeting the travellers' needs (e.g. mobility demand, forecasting and intermodal development, ticketing, advertising, pricing, onboard and station services, security, service models, comfort, traveller information and consumer application).

5 **Freight logistics**
   All about freight transportation, dealing mainly with the development of customer driven rail freight services (e.g. integration of rail freight services within the shippers overall logistics, mobility demand forecasting, intermodal development, advertising, pricing, service model, terminal services, good security, capacity, door to door logistics). A special focus on the improvement of equipment defect detection and control: early defect detection greatly reduces the likelihood of equipment failure and helps prevent derailments.

6 **Sustainability**
   All about railway transport sustainability with respect to other transportation systems. Railway system interaction with surrounding environment and with environment itself (e.g. noise and vibration, waste and pollution, sustainable consumption and production, air pollutant emission and biodiversity, energy saving and management, electromagnetic compatibility).

7 **Economics and policy**
   All about economics, financing, investments, project management and railway policies (e.g. infrastructure and rolling stock financing, pricing, ownership and public private investment, economics of alternative energy, encouraging investment, business trends and drivers for investing in urban and long haul services).

8 **Operations and safety**
   All about human resources, workforce and their related processes and railway system safety topic. Dealing mainly with driving, maintenance, manufacturing, logistic, organizational activities and processes and safety rules and provisions (e.g. maintenance procedures, drivers and working shifts, logistic chain and spare parts distribution, human resource performance and management, training, safety management and improvement, health issues).
TODAY’S RESEARCH
Overall 49 topics have already been identified as follow

1 Rolling stock
- Rolling stock design for passenger
- Rolling stock design for freight
- Rolling stock components and subsystems
- Train Equipment Control Management System
- Flexible trains suitable for future unknown customer needs
- Rolling stock onboard and remote diagnosis

2 Infrastructure
- Structures (bridges, tunnel, station buildings)
- Materials and track components
- Design of power supply systems and catenaries
- Infrastructure condition monitoring, inspection and detection technologies
- Reliability and availability of infrastructure
- Infrastructure resilience in extreme events

3 Railway system
- Vehicle-track interaction
- Pantograph-catenary interaction
- Electromagnetic compatibility
- Signalling and communication systems
- Wayside train monitoring and train detection
- Test, homologation and cross-acceptance

4 Passenger mobility from door to door
- Information, planning and ticketing (onboard telematics, multimedia systems and services)
- Multimodal cooperation with mobility partners (e.g. car sharing, urban transport)
- Mobility management and spatial planning
- Passenger flow management, facilities and services (railway station, on board)
- Attracting customers (by understanding customer needs and behaviour)
- Comfort level for all journeys

5 Freight logistics
- Faster, heavier and longer trains
- Door to door intermodal freight transports and logistics
- Transfer technologies in intermodal transport
- Onboard monitoring and control systems
- Hazardous material rail vehicle safety and security monitoring systems
- Transcontinental trains

6 Sustainability
- Power supply technologies
- Energy efficiency and management (eco driving, braking regeneration, alternative energy sources, storage)
- Reducing emissions
- A more environmental friendly railway
- Noise and vibrations

7 Economics and policy
- Economic efficiency
- Encouraging investments
- Improving the accuracy of demand forecasting
- Open market: business trends, new players and models
- Infrastructure financing, pricing, ownership and public/private investments
- System effects by fewer customers

8 Operation and safety
- Capacity management and route conception, timetabling and traffic management
- Rolling stock maintenance
- Infrastructure maintenance
- Maintenance cost reductions through a whole-system approach and condition-based maintenance
- Asset management
- Safety and security risks management systems
- Railway level crossing safety
- Human and process performances and demographic challenges in workforce
**ABSTRACT SUBMISSION PROCESS**

Abstracts must be submitted through the online congress management system. No other means of submission will be accepted. The system can be accessed through the main WCRR 2016 website www.wcrr2016.org. Click on the call for papers link to go to the online abstract submission page. You will need to register for submission. The registration will allow you to create your personal account where all your abstracts will be at your disposal for any additional update until the abstract is sent.

**THE DEADLINE FOR ABSTRACT SUBMISSION IS 30 APRIL 2015**

When you submit your abstract, please identify the theme and appropriate topic that best categorises your abstract. The abstract must be a maximum of 2500 characters and must be written in English.

**Describe the content of your research, including**

- reason for the research
- link to chosen theme
- methodology
- expected results
- potential for implementation
- impact on railway business
- novelty of the research
- potential for international collaboration

Abstracts that have been recently presented 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 emphasise the research content in your abstract.

If you want to present your innovative idea on transport solutions dealing with future railway challenges towards 2050, submit your abstract in the “Vision and Future” session, identifying the appropriate theme. Abstracts covering ongoing research and innovations developed for today’s railway transport and mobility improvement should be submitted in the “Today’s Research” session, identifying the appropriate topic. You will then have the opportunity to choose between presenting a paper or practical demonstrator as a Proof of Concept.

**What is a Proof of Concept?**

A Proof of Concept (POC) is a demonstration of the feasibility of an innovative concept using, for example, physical mock-ups or videos showing the simulation of the results. A POC can be associated with a short PowerPoint presentation explaining the main theoretical principles and expected achievements. POCs demonstrate in a practical way how to implement key principles to deliver useful performances, functions and services.
Abstracts will be assessed using the following criteria depending on your abstract identification at the submission:

**Direct customer focus**
- What is the impact of this research on railway mobility?
- Will this research make rail travel more attractive to new and/or existing customers?

**Railway system focus**
- Will this research lead to a higher-capacity, better performing, more cost-effective and more sustainable railway?

**Quality and research**
- Is this research technically sound?
- Is the methodology used clearly stated and applicable?

**Innovation and scientific contribution**
- Is this research novel?

**Collaboration**
- Does the research demonstrate that it is the product of cooperation?

**Relevance**
- Does the paper clearly identify the theme and subtheme upon which it is based?
- Is the content relevant in relation to the selected theme and topic?

Other considerations that will be used to determine if an abstract is suitable to progress to a full paper are:
- Is the paper authorised by the author’s organisation?
- Is the abstract well written and clear and logically structured?
- Are the methods, results and conclusions clear and easy to understand?

After the abstract assessment, your abstract may be accepted as a paper for oral presentation or selected for poster presentation. In both cases, you are required to submit a full paper on the online conference management system.

Guidelines for preparing the full paper will be provided in the acceptance email and will be available on the congress website.

Speakers must be signed up to attend the congress in order to speak or to deliver their poster paper.

---

**CONGRESS PROCEEDINGS**

The designated knowledge sharing portal for congress proceeding is SPARK.

SPARK is a free, interactive web tool for the rail industry. SPARK gives you access to a range of publications, provides information on research projects and initiatives, and gives pointers to test facilities, centres 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.
### PRELIMINARY AGENDA

<table>
<thead>
<tr>
<th>SUNDAY, MAY 29</th>
<th>MONDAY, MAY 30</th>
<th>TUESDAY, MAY 31</th>
<th>WEDNESDAY, JUNE 1</th>
<th>THURSDAY, JUNE 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>OPENING CEREMONY</td>
<td>PLENARY 2</td>
<td>PLENARY 3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PLENARY 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>COFFEE BREAK / POSTERS</td>
<td></td>
<td></td>
<td>TECHNICAL VISITS</td>
</tr>
<tr>
<td>VISION &amp; FUTURE</td>
<td>VISION &amp; FUTURE</td>
<td>TODAY'S RESEARCH</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>LUNCH</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TODAY'S RESEARCH</td>
<td>TODAY'S RESEARCH</td>
<td>TODAY'S RESEARCH</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>COFFEE BREAK / POSTERS</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TODAY'S RESEARCH</td>
<td>TODAY'S RESEARCH</td>
<td>CLOSING CEREMONY</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>GALA DINNER</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>OPENING PRE-REGISTRATION</td>
<td>WELCOME RECEPTION</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### FOUNDING MEMBERS

- [ASSOCIATION OF AMERICAN RAILROADS](#)
- [TRENITALIA](#)
- [DB Mobility Networks Logistics](#)
- [RSSB](#)
- [Railway Technical Research Institute](#)
- [SNCF](#)
- [GRUPPO FERROVIÈ SGOLO STATO ITALIANE](#)
- [INTERNATIONAL UNION OF RAILWAYS](#)
## WCRR 2016 CALL FOR PAPERS TIMELINE

<table>
<thead>
<tr>
<th>Event</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Call for abstracts opening</td>
<td>31 January 2015</td>
</tr>
<tr>
<td>Deadline for abstract submission</td>
<td>30 April 2015</td>
</tr>
<tr>
<td>Confirmation of accepted abstracts</td>
<td>31 October 2015</td>
</tr>
<tr>
<td>Deadline for submission of full papers to be provided for review</td>
<td>31 January 2016</td>
</tr>
</tbody>
</table>

## KEY DATES FOR THE WCRR 2016 WORLD CONGRESS

<table>
<thead>
<tr>
<th>Event</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Opening of online registration and hotel booking</td>
<td>31 May 2015</td>
</tr>
<tr>
<td>Sponsorship packages and exhibition space booking deadline</td>
<td>30 November 2015</td>
</tr>
<tr>
<td>Deadline for registration at preferential rates</td>
<td>1 February 2016</td>
</tr>
<tr>
<td>WCRR 2016 Welcome Reception</td>
<td>29 May 2016</td>
</tr>
<tr>
<td>Opening Ceremony, commencement of the congress and exhibition</td>
<td>30 May 2016</td>
</tr>
<tr>
<td>Continuation of the congress programme</td>
<td>30 May 2016</td>
</tr>
<tr>
<td>WCRR 2016 Gala Dinner</td>
<td>31 May 2016</td>
</tr>
<tr>
<td>Final day of the WCRR 2016 Congress with Closing Ceremony</td>
<td>1 June 2016</td>
</tr>
<tr>
<td>Technical visits</td>
<td>2 June 2016</td>
</tr>
</tbody>
</table>

## ORGANISING SECRETARIAT

EGA

Viale Tiziano 19 - 00196 Rome Tel. +39 06 328121 Fax +39 06 3222006 www.ega.it

If you have any questions, please contact the Organising Secretariat at papers@wcrr2016.org