

# **International Journal of Railway Technology**

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**RRUKA: Rail Research UK Association**



The International Journal of Railway Technology (IJRT) is an international journal dedicated to research, development and application in the scope of railway systems. The aim of the Journal is to provide an international platform for researchers and experts to promote, disseminate and discuss the recent developments and advances in the field of railway technology. Furthermore, this publication aims to encourage interaction and collaboration between universities, research centers, railway operators and industry in order to identify problems, propose solutions and indicate directions for future research. The Journal publishes original papers that cover, but are not limited to, the following topics:

- **Rolling Stock:** Design, manufacture and maintenance; Modelling and simulation; High speed trains, light railways and freight capacity; Performance and optimisation; Aerodynamics and crosswind; Noise, vibration and comfort; Safety, security and reliability; Ergonomics and interior design.
- **Infrastructure:** Bridges, tunnels and transition zones; Track design, construction and maintenance; Interaction of vehicles with the infrastructure and the environment; Foundations; Track monitoring; Trackbeds: sleepers and ties; Geotechnical aspects: earthworks, embankments, stabilisation; Technologies for track defects detection.
- **Energy and Environment:** Re-use of kinetic energy; Energy sources and smart grids; Hybrid traction and power trains; Sustainable rail transport.
- **Signalling and Communication:** ERTMS - European Rail Traffic Management System; ITS - Information and Technology Systems.
- **Operations** Traffic management; Interoperability; Intermodal solutions.
- **Strategies and Economics:** Standards and regulations; Capacity and cost; Track access charges; Future trends in railway engineering.

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# Editorial

This special edition of the International Journal of Railway Technology (IJRT) is produced in conjunction with the Rail Research UK Association (RRUKA) and presents four papers selected from those presented at the 5th annual RRUKA conference held in London in November 2016.

RRUKA is a partnership between the UK railway industry and UK universities. Established in 2010, RRUKA aims to encourage university-based railway research and seeks to form collaborative relationships between academia and the railway industry, with wide participation across the university and railway industry sectors.

The conference showcased the activities of some of the RRUKA members, who presented their latest work both in the plenary speaking sessions, and also in the Blue Sky Village, where industry and academic colleagues exchanged ideas and concepts for the next generation of cutting-edge solutions.

The first paper looks at passenger interactions at platform train interface (PTI), a complex space which presents different risks and hazards for passengers. It proposes a new framework to help designers and planners to identify the degree of interaction in the boarding and alighting process.

The second paper uses two case studies (Train Protection Warning System (TPWS) and Global Systems for Mobiles - Railways (GSM-R) to identify ways to overcome barriers to implementation, which seem to constitute an inherent issue for rail research. The paper suggests that a more collaborative approach earlier in the research cycle could reduce risks and resistance.

The third paper presents ongoing research into on-board and lineside condition monitoring systems for high speed lines by looking at four recent condition monitoring projects carried out by the Birmingham Centre for Railway and Education. The paper demonstrates that condition monitoring would reduce the cost of maintenance by reducing urgent and costly unplanned interventions, and it would also contribute towards the ongoing commitment of a more data-driven railway.

The final paper describes the authors' investigation into deploying durable, low cost electric flywheel technology on rail vehicles, which seems to be able to provide substantial fuel savings in response to the need to find power alternatives for non-

electrified lines.

We hope that you find the papers of value. More information on the association and how you can engage can be found on our website [www.rruka.org.uk](http://www.rruka.org.uk).

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