



European workshop of the EU Shift2Rail project MOVINGRAIL

## How will the future of railways look like?

Development and evolutions of moving-block train operations

May 23<sup>rd</sup> 2019

Imperial Hotel

61-66 Russel Square, Bloomsbury

London, UK

*Workshop programme &  
practical information*



An event co-organised by:



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On behalf of the H2020 Shift2Rail funded project MOVINGRAIL you are invited to the:

## European workshop on train-centric railway signalling systems

### How will the railways of the future look like?

#### Developments and evolutions of moving-block train operations

#### When & where

**Thursday, May the 23<sup>rd</sup>, 2019**

Imperial Hotel, 61-66 Russel Square, Bloomsbury, WC1B 5BB, London, UK

#### Who can attend

This is a public event open to professionals from all across Europe's railway industry and academia, as well as to whoever is interested into how European railways will be evolving in the next future

#### Be Up-to-date

The workshop will introduce key innovations in the field of train-centric railway signalling systems which will be delivered by the EU Shift2Rail-funded project MOVINGRAIL on:

- **Scenarios and market potentials of Virtual Coupling train operations**
- **Testing methods for moving-block signalling system**

It will offer an excellent opportunity to hear about the latest developments and the plans that the European railway community has made to achieve an improved digital railway system.

#### Be Involved

More importantly, **round tables** and **interactive survey sessions** will provide a concrete chance to any of you (subject matter experts and simple end-users), to express, in a direct link with the EU, your opinions about technologies and strategies set for the European railways of the future.

#### Be with us

**Join us! It will be a fantastic occasion to give your contribution to shape the future of the railways and of course to boost networking.**

#### Register on line at:

<https://forms.gle/dbNLp4SKt5CVaBKM8>

Registration is mandatory and free of charge, however only a limited number of participants can be welcomed on a first-come-first-served basis

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## Workshop Programme

The workshop is organised in two sessions:

- A **morning session** (from 10:00 to 13:00) **will be open to anyone who like to attend** and not just to invited railway experts, and provide an overview on the MOVINGRAIL project as well as operational scenarios for the new concept of Virtual Coupling where trains will move as platoons of automated cars on the highway.
- An **afternoon session** (from 14:00 to 16:00) **will only be open to invited railway professionals** from the industry and academia and will regard state-of-the-art techniques, methods and strategies for testing ETCS Level 3 and moving-block signalling components.

### Morning session 10:00 – 13:00 (open to anyone)

10:00 – 10:30

Welcome & Registration

10:30 – 11:00

The MOVINGRAIL project: a general overview

Prof. R. Goverde,  
TU Delft

11:00 – 11:30

Trains like autonomous cars on the highway:  
the concept of Virtual Coupling

Dr. Ing. E. Quaglietta,  
TU Delft

11:30 – 12:00

Market potentials and operational scenarios  
for Virtual Coupling

Dr. Ing. E. Quaglietta  
Ing. J. Aoun  
TU Delft

12:00 - 13:00

Interactive survey session on Virtual Coupling

Ing. J. Aoun  
TU Delft

### Lunch break 13:00 – 14:00

### Afternoon session 14:00 – 16:30 (railway experts only)

14:00 – 14:30

A railway with no more signals: concept and  
developments of Moving Block signalling

Prof. C. Roberts,  
Birmingham University

14:30 – 15:30

Interactive survey session on state-of-the-art  
ETCS Level 3 and moving-block testing

Dr. L. Chen,  
Dr. M. Blumenfeld  
Dr. G. Nicholson  
Birmingham University

15:30 – 16:00

Wrap up & conclusions

Prof. R. Goverde,  
TU Delft

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### Speakers



**Prof. Dr. Rob Goverde**

Prof. Dr. Rob Goverde is Full Professor of Railway Traffic Operations & Management at T&P. He is also the head of the Railway Systems cluster of the TU Delft Transport Institute. Goverde has an MSc in Mathematics from Utrecht University, a Professional Doctorate in Engineering (PDEng) in Mathematical Modelling and Decision Support from TUD, and a PhD in Railway Operations from TU Delft. He is author of more than 50 papers and book chapters on railway capacity assessment, timetable optimisation, railway traffic management, train control, safety and signalling, and railway simulation. Rob is Member of the Institution of Railway Signal Engineers (IRSE).



**Dr. Ing. Egidio Quaglietta**

Egidio is Assistant Professor in Railway Traffic Management at TU Delft. He has been intensively working in the field of railway signalling since his PhD research in simulation-based signalling optimisation with Ansaldo STS and the University of Naples, Federico II. He worked as a researcher for the EU FP7 funded project ON-TIME developing, integrating and testing real-time railway rescheduling algorithms. Egidio worked as Senior Engineer at Network Rail and involved in the UK national programme "Digital Railway" to support business analysis for ETCS Level 2 and 3 and managing requirements for digital built infrastructures. He also led the work stream on "Operations for Enhanced Capacity" for the EU funded project Capacity for Rail (C4R). Egidio is a member of the Institution of Railway Signal Engineers (IRSE).



**Ing. Joelle Aoun**

Joelle is a PhD candidate at the TU Delft Digital Rail Traffic Lab, mainly working on multi-criteria impact assessment and market potentials of train-centric signalling systems with a particular focus on Virtual Coupling. Joelle holds a civil engineering degree from the Holy Spirit University of Kaslik (Lebanon) and has worked on several projects tackling operational and safety performance investigation of skew super-elevation runoff in Greece as well as feasibility studies for sky-ways and multi-modal integration of public transport systems in Lebanon.



**Prof. Clive Roberts**

Prof. Roberts is Director of the University's Birmingham Centre for Railway Research and Education, which has over 130 researchers. He has a BEng with First Class Honours in Electronic and Electrical Engineering from the University of Wales, College of Cardiff, and a PhD from the University of Birmingham on Methods for fault detection and diagnosis of railway actuators. He works extensively with the railway industry and academia in Britain and overseas. He leads a broad portfolio of research aimed at improving the performance of railway systems. His main research interests lie in the areas of traffic management, power system design and energy efficiency, condition monitoring, and overall system integration. He is a Visiting Professor at Heriot Watt University, Beijing Jiaotong University and Universiti Tun Hussein Onn (Malaysia). Clive is a Fellow of the Institution of Railway Signalling Engineers.

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**Dr. Lei Chen**

Lei is lecturer at The University of Birmingham and leader of the Railway Control and Simulation Group at Birmingham Centre for Railway Research and Education. He has a BEng with First Class from Beijing Jiaotong University, China, and a PhD in Civil Engineering from the University of Birmingham. He was awarded the IMechE W.A. Agnew Meritorious/C.N. Goodall Award in 2010 and has worked for many railway research projects in the area of railway traffic management, train control and simulation, including DEDOTS (RSSB), ONTIME (EU) and Capacity4Rail (EU). Lei has more than 40 peer-reviewed articles and acts as associate editor for IEEE ITS Magazines. He works extensively with the railway industry in the UK and overseas including Europe, China and the US.



**Dr. Marcelo Blumenfeld**

Marcelo is Industrial Fellow for Introducing Innovation at the Birmingham Centre for Railway Research and Education, working with R&D projects on innovation introduction and management, and the implementation of new technologies in future railway systems. He is also a member of the Innovation Management Special Interest Group at the Institute of Engineering and Technology. He is involved in projects regarding new methodologies for radical change in complex urban systems, horizon scanning, and normative scenario building strategies. A former TED speaker at the University of Leeds, Marcelo holds an MSc in Transport Planning with a background in Industrial Design, and has since published various articles on the future of sustainable mobility and radically innovative transport systems.



**Dr. Gemma Nicholson**

Gemma Nicholson is currently a Research Fellow in the Birmingham Centre for Railway Research and Education. Her background is in mathematics and its application to a range of applied research problems. Gemma has worked on a number of railway projects using modelling, simulation and analysis techniques, with a particular interest in the performance evaluation of railway operations.