

**IAROR**  
**International Association of Railway Operations Research**

*Call for Papers*

**3rd International Seminar on  
Railway Operations Modelling and Analysis**  
*Engineering and Optimisation Approaches*

**ETH Zurich, Switzerland**  
**February 11 – 13, 2009**

**AIMS OF IAROR**

IAROR was founded in 2005 and has currently 116 members. IAROR combines the expertise of academic and professional railway research with the aim of enhancing the quality of service for railway passengers and customers, improving the effectiveness and efficiency of capacity management, timetabling, traffic management and ensuring the safety of railway operations. IAROR stimulates innovative theoretical approaches, high-tech concepts, new technological developments and dynamic decision support systems that contribute to a higher flexibility, performance and punctuality of trains operating on single or dedicated lines and in heterogeneous networks. IAROR contributes to the development of new international standards for railway capacity and traffic management by integration of the state-of-the-art from different scientific disciplines as engineering, mathematics, physics, economics and computer science. IAROR aims at becoming the Network of Excellence in the field of railway operations research and an acknowledged advisor to governments, railway infrastructure managers, train operating companies and the industrial suppliers with regard to the development and evaluation of research programs, innovation strategies, directives and norms for railway operations.

**AIM AND SCIENTIFIC ISSUES**

The 3<sup>rd</sup> International Seminar on Railway Operations Modelling and Analysis will contribute to interdisciplinary diffusion in the railway operations research area through the discussion of analytical, combinatorial and simulation approaches and project results by engineers, mathematicians, economists and computer scientists. The following research questions focussing on high quality railway timetabling, efficient and reliable operations of infrastructure and trains will be tackled during the Seminar, among others:

- How to model capacity and robustness in saturated railway networks?
- Which is the impact of network timetable stability on punctuality?
- How to investigate systematically the generation mechanisms of timetable perturbations?
- Which is the optimal size, temporal and spatial distribution of timetable margins?
- How punctuality standards can be implemented in capacity estimation models?
- Which approaches are suitable for analysis and modelling of the distribution of running, boarding/alighting and dwell times?
- What is the impact of interoperability requirements (e.g. STI) and traffic control systems (e.g. ERTMS) on capacity and reliability?
- Which objectives and constraints are suitable to optimise network timetables?
- How to estimate optimal values for track occupancy, frequency and level-of-service?
- Which methods are useful to evaluate timetable quality and operations performance?

- How to integrate capacity modelling / methods for lines and stations?
- Which methods exist to optimize signalling and train control systems performances in case of heterogeneous traffic?
- How can the efficiency of rescheduling measures in networks be estimated?
- How to model the optimal allocation of rolling stock and rotation of train crews in planning and during incident management?
- Which is the impact of punctuality, comfort and information on customer satisfaction?
- Are stochastic analytical and simulation models sufficiently validated?
- How to implement dispatching options in rescheduling models?
- How to use rescheduling and other methods to reduce energy consumption?
- What are promising methods to improve the production accuracy?

## KEYNOTES

Leading railway scientists and project directors from different disciplines and countries will be invited and give a talk on challenging topics.

## ORGANIZATION

The 3<sup>rd</sup> International Seminar on Railway Operations Modelling and Analysis will be held at ETH Zurich from 11 – 13 February 2009. The organizing committee consists of:

- I.A. Hansen (Delft University of Technology)
- E. Wendler (RWTH Aachen University)
- U. Weidmann and M. Lüthi (ETH Zurich)
- J. Rodriguez (INRETS Villeneuve d'Ascq)
- S. Ricci (University La Sapienza Rome)
- L. Kroon (Erasmus University Rotterdam).

## ABSTRACT AND PAPER SUBMISSION

Prospective presenters of contributed papers should submit an extended abstract of maximal 1000 words until **June 15, 2008**. Abstracts can be uploaded on the conference homepage: <http://www.ivt.ethz.ch/news/railzurich2009>. The abstracts will be reviewed by the members of the organizing committee and the authors of selected papers will be notified until July 31, 2008. Draft papers of a maximum length of 20 pages will need to be submitted by **November 1, 2008** in accordance to the format described in the Authors section at the seminar website [www.iaror.org/seminars.htm](http://www.iaror.org/seminars.htm). The papers will be reviewed by independent experts from at least two countries. The accepted final papers will be distributed to all participants at the beginning of the seminar by CD-ROM. Professionals and researchers from the railway industry are also encouraged to present practical studies and open research issues for discussion during the Seminar. The presentation files of the talks will be made available after the seminar on the IAROR-website.

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## YOUNG RAILWAY OPERATIONS RESEARCH AWARD

Excellent papers on innovative research carried out and presented by participants not older than 35 years are eligible for the YOUNG RAILWAY OPERATIONS RESEARCH AWARD sponsored by the Board of IAROR. The Award is worth €2,500. The winner will be announced during the Seminar.

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## **REGISTRATION**

Academics and professionals working on similar topics as listed above are cordially invited to pre-register for participation via the website <http://www.ivt.ethz.ch/news/railzurich2009>. The seminar fee for researchers from academic institutes is € 250, while it is € 500 for employees from private companies. The fee is to be paid after confirmation of registration before January 15, 2009.

## **DEADLINES**

Pre-registration and abstracts:	June 15, 2008
Acceptance notification:	July 31, 2008
Paper and presentation submission:	November 1, 2008
Registration and payment:	January 15, 2009

## **INFORMATION**

More information about the seminar is available on <http://www.ivt.ethz.ch/news/railzurich2009> or by email to [iaror@ivt.baug.ethz.ch](mailto:iaror@ivt.baug.ethz.ch).