



Transport Engineering Titles



JUST PUBLISHED

Safety and Security in Railway Engineering

Edited By: G. SCIUTTO, Universita di Genova, Italy

There is a notable lack of agreement regarding the safety approaches adopted by different transportation modes, while the sudden increased demands for security for both freight and passengers requires a more uniform methodological approach.

Each transport mode has, over time, developed its own safety rules. The unprecedented and apparently irreversible growth of terrorist activities has affected all transport systems. It is virtually impossible to think of new infrastructure projects without taking these parameters into consideration. (This led to the EU Commission's recent approval of the European Directive 2008/114/EC "on the identification and designation of European critical infrastructures and the assessment of the need to improve their protection.")

Measures to be taken relating to security are dependent on the users, and if properly handled may help reduce global transport costs and increase the efficiency of the operators. Competing networks can provide information about freight and passenger movements leading to the optimisation of the entire supply chain.

This volume collects the most significant papers on safety and security that various authors have submitted in conferences organised by the Wessex Institute of Technology. The international contributors, from North America, Asia, Europe, Africa, the Pacific, and the Middle East, present the state of the art in research on these areas.

ISBN-13: 978-1-84564-496-3
e-ISBN: 978-1-84564-497-0
Published 2010 / \$118.00 / 160pp

JUST PUBLISHED

Power Supply, Energy Management and Catenary Problems

Edited By: E. PILO, Pontifical Comillas University of Madrid, Spain

In recent years, energy efficiency has become a crucial concern for every transportation mode, but it is in electrified railways where energy savings have shown a bigger potential due to (i) regenerative braking, that allows converting kinetic energy into electric power, and (ii) vehicle interconnection, that allows other trains to use regenerated power. Power supply and energy management will continue to develop in the future.

This book gathers under a single cover several papers published in the Computers in Railways series (IX, X and XI) and focuses on power supply and energy management. Some of the discussed themes are: modelling, simulation and optimisation of AC and DC infrastructure, analysis of rolling stock consumption, and innovative approaches in power supply operation.

This book will be invaluable to management consultants, engineers, planners, designers, manufacturers, operators and IT specialists who need to keep abreast of the latest developments in the field.

ISBN-13: 978-1-84564-498-7
e-ISBN: 978-1-84564-499-4
Published 2010 / \$170.00 / 208pp

NEW TITLE

Timetable, Planning and Information Quality

Edited By: I. HANSEN, Delft University of Technology, The Netherlands

The book comprises a number of research papers presented at several Computers in Railways Conferences. It has been compiled by Ingo A. Hansen, President of the International Association of Railway Operations Research (IAROR) and contains selected papers originating from different countries, such as Denmark, France, Germany, Japan, Italy, Netherlands, Sweden and Switzerland.

The papers give an overview of the current state-of-the-art analytical approaches, methods and simulation tools for the modelling and analysis of network timetables, the distribution of train delays and real-time rescheduling of perturbed operations. The topics include railway capacity estimation according to the UIC norm 406, train punctuality analysis based on standard track occupation and clearance data, and boarding, alighting and distribution of passengers along suburban trains, as well as fast recognition and resolution of conflicts between train movements in case of disturbances by means of real-time speed adaptation, re-ordering or re-routing.

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E-ISBN: 978-1-84564-501-4
Published 2010 / \$170.00 / 224pp

JUST PUBLISHED

Advanced Train Control Systems

Edited By: B. NING, Beijing Jiaotong University, China

Advanced Train Control Systems are playing an important role in improving the efficiency and safety of train operation, acting as their "brains and nerves." ATCS needs highly reliable and safe systems using complex computer tools. Normally, these systems consist of the four parts: the central control system; the station control systems and wayside systems; the on-board control systems and the communication network including mobile communication. From the point of view of the whole life cycle, an Advanced Train Control System includes design and development, re-design for a special line application, simulation verification and test, plus safety assessment of the system and subsystems. The book comprises a number of research papers presented at several Computers in Railways Conferences.

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e-ISBN: 978-1-84564-495-6
Published 2010 / \$134.00 / 176pp

JUST PUBLISHED

Computers in Railways XII Computer System Design and Operation in Railway and other Transit Systems

Edited By: B. NING, Beijing Jiaotong University, China and C.A. BREBBIA, Wessex Institute of Technology, UK; Co-Editor: N. TOMII, Railway Technical Research Institute, Japan

The 12th International Conference on Computer System Design and Operation in Railway and other Transit Systems covered updates on the use of computer-based techniques, promoting their general awareness throughout the business management, design, manufacture and operation of railways and other advanced passenger, freight and transit systems. This book collects the papers presented at the conference.

Rail transport has many advantages over other systems in terms of capacity, punctuality, weather resistance, savings in fuel and land, and fairly low pollution. It is a low-carbon emission transport mode and ought to be the backbone of any regional and city comprehensive travel system. Many countries have recently become interested in using high speed railways, resulting in up to now, more than 10,000 km of high speed track in the world. By 2020, the total length of high speed railways will reach 16,000 km in China alone.

ISBN-13: 978-1-984564-468-0
e-ISBN: 978-1-84564-469-7
Published 2010 / \$778.00 / 1024pp



JUST PUBLISHED

Development of Regional Airports

Theoretical Analyses and Case Studies

Edited By: M.N. POSTORINO, University of Reggio Calabria, Italy

In many countries, great attention is devoted to the development of regional airports, both to face the congestion situation at the main hubs and to help the economic development of some decentralized areas. In this context many actors can play an important role, such as airport planners, air companies (including low-cost companies) and users (passengers and/or freight), in producing important demand levels at airports thanks to their travel choices. More studies all over the world concern the analysis of airport systems in order to verify the role of each airport and the effects on the main, congested hub(s). Particularly, an efficient use of resources suggests considering the role of existing regional airports before starting the building of new airports.

In this light, this book gives an overview of the main topics concerning the different aspects of the potential development of regional airports. In particular it covers the economic aspects, the role of low-cost companies, the air demand modelling, the airport, airline and access mode choices, the relationships between hub capacity constraints and regional airports growth, together with an overview of the main tendencies, strategies and policies that have been started in EU and Asia. Examples of different airports throughout the world are presented as test cases with respect to the various aspects.

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e-ISBN: 978-1-84564-385-0
Published 2010 / \$146.00 / 192pp

JUST PUBLISHED

Urban Transport XVI

Urban Transport and the Environment in the 21st Century

Edited By: A. PRATELLI, University of Pisa, Italy and C.A. BREBBIA, Wessex Institute of Technology, UK

This international conference on Urban Transport and the Environment has successfully been reconvened annually for the last sixteen years. It has always attracted a wide international spread of delegates and is well established as the premier annual event of its type.

The continuing requirement for better urban transport systems in general and the need for a healthier environment has led to an increased level of research around the world. This is reflected in the proceedings of this well-established meeting which demonstrates the steady growth and research into urban transport systems.

The variety of topics covered by this conference is of primary importance for analysing the complex interaction of the urban transport environment and for establishing action strategies for transport and traffic problems. Transportation in cities with its related environmental and social concerns is a topic of the utmost importance for urban authorities and central governments around the world. Urban Transport systems require considerable studies to safeguard their operational use, maintenance and safety. They produce significant environmental impacts and can enhance or degrade the quality of life in urban centres.

The emphasis is to seek transportation systems that minimize any ecological and environmental impact, are sustainable and help to improve the socio-economic fabric of the city. Another area of concern addressed by the conference is that of public safety and security, seeking ways to protect passengers while retaining the efficiency of the systems.

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Published 2010 / \$278.00 / 368pp

RECENT

Urban Transport XV

Urban Transport and the Environment in the 21st Century

Edited By: C.A. BREBBIA, Wessex Institute of Technology, UK

Transportation in cities with its related environmental and social concerns is a topic of priority for urban authorities and central government organisations around the world. Urban Transport systems require considerable studies to safeguard their operational use, maintenance and safety.

The book contains the proceedings of a recent conference on the subject. The variety of topics covered by the conference is of primary importance for analysing the complex interaction of the urban transport environment and for establishing action strategies for transport and traffic problems.

ISBN-13: 978-1-84564-190-0
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How to Make Two-Lane Rural Roads Safer

R. LAMM, A. BECK and T. RUSCHER, University of Karlsruhe, Germany, T. MAILAENDER, Mailaender Ingenieur Consult GmbH, Karlsruhe, Germany, S. CAFISO and G. La CAVA, University of Catania, Italy

When accidents happen, drivers are blamed for the mishap. When drivers consistently fail at certain locations, it then becomes obvious that the problem lies not with them, but with the geometry of the road itself. Because accidents are not evenly distributed throughout the road network, locations with high accident rates are a clear indication that there are other factors involved, besides driver error, which are characterized by the road itself.

In most countries, two-lane rural roads make up about 90 percent of rural networks and they account for over 60 percent of highway fatalities worldwide, approximately 500,000 people per year.

The methodology described in this book will support the achievement of quantified measures of 1) design consistency, 2) operating speed consistency, and 3) driving dynamic consistency. The safety criteria are then combined into an overall safety module for a simplified general overview of the safety evaluation process. The authors also encourage the coordination of safety concerns with important economic, environmental and aesthetic considerations.

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