Programme

The
Second International Conference on
Railway Technology:
Research, Development and Maintenance

Conference Editor & Chairman:
Professor J. Pombo

8-11 April 2014
Ajaccio - Corsica - France

organised by
Civil-Comp Press

Conference timetable

Day 0: Tuesday 8 April 2014
15.00-19.00: Conference Office opens Fred Scamaroni Room
17.00-18.15: Opening Plenary Session in Auditorium Pascal Paoli
18.30: Drinks Reception in Restaurant (second floor)

Day 1: Wednesday 9 April 2014
08.15-17.00: Conference Office opens Fred Scamaroni Room
09.00-10.30: Parallel sessions
10.30-11.00: Coffee / Tea on the Terrasse
11.00-12.30: Parallel sessions
12.30-13.45: Lunch (admission by ticket only) in the Restaurant (second floor)
14.00-15.30: Parallel sessions
15.30-16.00: Coffee / Tea on the Terrasse
16.00-18.00: Parallel sessions

Day 2: Thursday 10 April 2014
08.15-17.00: Conference Office opens Fred Scamaroni Room
09.00-10.30: Parallel sessions
10.30-11.00: Coffee / Tea on the Terrasse
11.00-12.30: Parallel sessions
12.30-13.45: Lunch (admission by ticket only) in the Restaurant (second floor)
14.00-15.30: Parallel sessions
15.30-16.00: Coffee / Tea on the Terrasse
16.00-18.00: Parallel sessions
19.45 for 20.15: Conference Dinner (see details on ticket)

Day 3: Friday 11 April 2014
08.30-16.00: Conference Office opens Fred Scamaroni Room
09.15-10.30: Parallel sessions
10.30-11.00: Coffee / Tea on the Terrasse
11.00-12.30: Parallel sessions
12.30-13.45: Lunch (admission by ticket only) in the Restaurant (second floor)
14.00-15.30: Parallel sessions
15.30-16.00: Coffee / Tea on the Terrasse
Opening Plenary Session

17.00-18.15:

Conference Chairman and Editor:

Professor J. Pombo
IDMEC/IST - University of Lisbon &
ISEL - Lisbon Polytechnic Institute
Portugal

Invited Opening Lecture

Modernisation of Rail Tracks for Higher Speeds and Greater Freight
Professor B. Indraratna
Centre for Geomechanics and Railway Engineering, and
ARC Centre of Excellence for Geotechnical Science and Engineering
University of Wollongong, Australia
Published in International Journal of Railway Technology
Volume 2, Issue 3, Pages 1-20, 2013, doi:10.4203/ijrt.2.3.1

18.30: Drinks reception
Computational Technology Resources

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A note for authors presenting papers and chairmen

All authors should meet at the front of the meeting room for their session at least 10 minutes before the session starts. Each contributed paper has been allocated 15 minutes for presentation and questions. Chairmen should indicate when 10 minutes have passed and again after 12 minutes that the presenter should immediately finish. Three minutes are available for questions and comments.

Invited lectures have been allocated 30 minutes in total, of which 5 minutes may be used for questions.

Authors are kindly asked to keep to the time allocated to them by the Chairmen. Authors are discouraged from using their own laptops unless absolutely necessary, in which case they should ensure that they can quickly and efficiently start their presentation when requested by the Chairman.

Chairmen are requested to keep to the timetable. Changes to the programme will be indicated on the copies of the programme displayed on the conference timetable board and at the entrance to each of the rooms.

As a courtesy and in politeness to all speakers and other participants, please turn off your mobile phone whenever you enter any of the meeting and lecture rooms.

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- Pantograph-Catenary Interaction P145-152

- Traction, Transmission and Braking Systems P310-313
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E. Fortunato
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Transition Zones: From Design to Maintenance
P224-225

Transition Zones: From Design to Maintenance
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Railway Operations and Maintenance Planning
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P317-321

Future Trends and Education in Railway Engineering
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Energy Storage Technologies
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Day 1: Wednesday 9 April 2014: AM
Room: Henry Matisse

09.00-10.30: Chaired by: Professor B. Indraratna and Professor P. Woodward

Invited Lecture:
L-X.5 Construction and Quality Control of Railway Embankments and Compacted Layers, A. Gomes Correia and S. Nazarian

Special Session: VII Rail Track Geotechnology
Organised by Professor B. Indraratna and Professor E. Tutumluer
P124 Recent Research and Practice of Soil-Reinforcing Technologies for Railways in Japan, F. Tatsuoka, K. Watanabe, M. Tateyama and M. Okamoto
P126 A Test Section with a Geocomposite Placed to Stabilise the Ballast Bed, L. Horňiček, M. Lidmil and P. Jasansky
P127 A Procedure to Assess Subballast Filtration under Cyclic Loading, L.D. Trani and B. Indraratna
P128 Computing Stress Cycles in Subsoils for Concrete Slab Tracks subject to High-Speed Trains, E. Nsabimana and Y.H. Jung

10.30-11.00: Coffee

11.00-12.30: Chaired by: Professor B. Indraratna and Professor P. Woodward

Special Session: VII Rail Track Geotechnology
Organised by Professor B. Indraratna and Professor E. Tutumluer
P129 Classification of Common Geotechnical Failure Types Occurring in Queensland’s Heavy Haul Rail Network, M. Mirzababaei, J. Egwurube, Y. Gyasi-Agyei, D. Foun, A. Hammond, P. Keleher and D. Nissen
P121 Railway Ballast Settlement: A New Predictive Model, G. Saussine, J.C. Quezada, P. Breul and F. Radjai
P122 Impact of Ballast Fouling on Rail Tracks, N. Tennakoon, B. Indraratna and S. Nimbalkar
P123 Investigation of Ballast Degradation and Fouling Trends using Image Analysis, M. Moaveni, Y. Qian, H. Boler, D. Mishra and E. Tutumluer

11.00-12.30: Chaired by: Professor B. Indraratna and Professor P. Woodward

Special Session: VII Rail Track Geotechnology
Organised by Professor B. Indraratna and Professor E. Tutumluer
P124 Recent Research and Practice of Soil-Reinforcing Technologies for Railways in Japan, F. Tatsuoka, K. Watanabe, M. Tateyama and M. Okamoto
P126 A Test Section with a Geocomposite Placed to Stabilise the Ballast Bed, L. Horňiček, M. Lidmil and P. Jasansky
P127 A Procedure to Assess Subballast Filtration under Cyclic Loading, L.D. Trani and B. Indraratna
P128 Computing Stress Cycles in Subsoils for Concrete Slab Tracks subject to High-Speed Trains, E. Nsabimana and Y.H. Jung
### Day 1: Wednesday 9 April 2014: AM
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<td>Chaired by: Professor E. Kassa and Dr V. Markine</td>
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<td><strong>Invited Lecture:</strong></td>
<td>L-2.4.3 Wheel and Rail Profile Wear on Small Radius Curved Tracks and its Effect on Derailment Coefficients: Measurement and Simulation, H. Sugiyama, M. Yada, H. Yamamoto, J. Kurihara, H. Ohbayashi, Y. Shimokawa, M. Mizuno and M. Tanimoto</td>
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<td><strong>Special Session: XIV Switches and Crossings: Modelling, Simulation and Testing</strong></td>
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<td>P208</td>
<td>The Influence of Track Elasticity when travelling on a Railway Turnout, R.F. Lagos, A. San Emeterio, J. Vinolas, A. Alonso and M. Aizpun</td>
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<td>P209</td>
<td>The Assessment of System Maintenance and Design Conditions on Railway Crossing Performance, Y. Bezin, I. Grossson and A. Alonso</td>
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<td>P210</td>
<td>Dynamic Experimental Tools for Condition Monitoring of Railway Turnout Crossing, X. Liu, V.L. Markine and I. Shevtsov</td>
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<td>P211</td>
<td>Measurement of the Low Frequency Dynamic Response of Ballast Supported Turnouts, J. Jonsson, M. Rantatalo, D. Larsson, J. Lundberg and A. Nissen</td>
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<td>10.30-11.00</td>
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<td>11.00-12.45</td>
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<td>P212</td>
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<td>Simulation of Railway Crossing Damage Due to Welding Defect, L. Xin, V.L. Markine and I.Y. Shevtsov</td>
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<td>The Performance and Control Requirements of a REPOINT Track Switch, N. Wright, S. Bemment, C. Ward, R. Dixon and R.M. Goodall</td>
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<td>Automated Monitoring System for Insulated Joints: Preliminary Results using Axle Box Acceleration Measurements, M. Molodova, M. Oregui, A. Nunez, Z. Li and R. Dollevoet</td>
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<td>Coffee</td>
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<td>11.00-12.30</td>
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<td>Predicting Track Geometry Exceedances by Using Digital Signal Processing, P. Joksimovic and G. van der Werf</td>
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<td>Sleepy Geometry Investigations using Discrete Element Modelling and the Box Test Apparatus, M. Safari Baghshorkhi, S. Laryea, J.-F. Ferellec, C. Chen and G.R. McDowell</td>
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Day 1: Wednesday 9 April 2014: AM
Room J-J Rousseau A

09.15-10.45: Chaired by: Professor Y. Suda and Professor S. Bruni

Invited Lecture:
L-2.4.1 Simulations of Running Dynamics for Vehicle Acceptance: Application and Validation, O. Polach and J. Evans

Modelling and Simulation of Railroad Vehicle Systems
P246 Typical Flutter Phenomena of HSRS and Optimal Configuration of High-Speed Bogies, M.W. Piao, S.L. Liang, W.Z. Zhao, J.Y. Li and Z.G. Fang
P247 Optimization of Traction and Braking Subsystems with respect to Mission Profile, L. Pugi, M. Malvezzi and R. Conti
P248 Dynamic Rolling Contact Analysis between Wheel/Rail by Large-Scale Parallel FEM, H. Sakai, M. Takagaki, M. Hayashi, A. Aikawa, H. Okuda and J. Yin
P249 Long Time Evolution of Train Dynamics with Respect to Track Irregularities, N. Lestoille, C. Soize, G. Perrin and C. Funfschilling

10.30-11.00: Coffee

11.00-12.30: Chaired by: Professor Y. Suda and Professor S. Bruni

Modelling and Simulation of Railroad Vehicle Systems
P251 Application of Modal Analysis on Railway Vehicles using On-track Measurements, L.M. Erviti and J.G. Gimenez
P252 Effects of Wheel Wear and Diameter Difference on Dynamics of High-Speed Trains, P. Han, W.H. Zhang and Y. Li
P254 Wavelet Theory in Relation to Vehicle Response and Shortwave Rail Irregularity, S.Q. Song and W.H. Zhang

Day 1: Wednesday 9 April 2014: AM
Room J-J Rousseau B

10.00-10.30: Chaired by: Professor S. Krajnović and Professor C. Wagner

Special Session: II Train Aerodynamics
Organised by Professor S. Krajnović and Professor C. Wagner
P40 Aerodynamic Shape Optimization of the Nose of a High-Speed Train subjected to Cross-Wind Conditions, J. Munoz-Paniagua, J. Garcia and A. Crespo

10.30-11.00: Coffee

Workshop
Further details to follow
Day 1: Wednesday 9 April 2014: PM
Room Henry Matisse

14.00-15.30: Chaired by Professor B. Indraratna and Dr Debakanta Mishra

Special Session: VII Rail Track Geotechnology
Organised by Professor B. Indraratna and Professor E. Tutumluer
P131  Railway Ballast Load Analysis using Small-Scale Cylindrical Triaxial Test, A. Merheb, R. Motta, L. Bernucci, E. Moura, R. Costa T. Vieira and F. Sgavioli
P132  A Distinction Between Cyclically and Dynamically Loaded Ballasted Track, M. Baesler and W. Rucker
P133  Spectral Analysis of Train-Related Dynamic Loads Acting on a Ballast Layer, A. Aikawa and H. Sakai
P134  The use of Falling Weight Deflectometer to Assess the Suitability of Routes for Upgrading, P. Sharpe and C.R. Govan
P135  A Critical and Comparative Review of Ballasted and Slab Tracks: Where Are We Heading?, H. Khabbaz and B. Fatahi
P137  Behavior of Continuous Welded Rail Tracks in Tight Curves on Narrow Gauge Railways, B. Bopp, U. Weidmann and D. Bruckmann

15.30-16.00: Coffee

16.00-18.00: Chaired by: Professor A. Gomes Correia and Dr Y. Momoya

Invited Lecture:
L-X.4 Railway Transitional Zones: A Case History from Ballasted to Ballastless Track
S. Costa D’Aguiar, E. Arlaud, R. Potvin, E. Laurans and C. Funfschillling

Special Session: III Geotechnical Aspects in Rail-Track Performance
Organised by Professor A. Gomes Correia and Dr Y. Momoya
P44  Reuse of Degraded Ballast to Roadbed Improvement, Y. Momoya, K. Itou and T. Nakamura
P46  Mechanical Behavior of Interlayer Soil in Ancient Railway Sub-Structure, T.V. Duong, A.M. Tang, Y.-J. Cui, V.N. Trinh, J.-C. Dupla, N. Calon, J. Canou and A. Robinet
P47  Trackbed Evolution on the French Railway Network, N. Calon, A. Robinet and V.N. Trinh
P49  Stress Increments due to an Embankment Load, M.A. Manica and E. Botero
P50  Vulnerability Assessment of Railway Track Buckling During Severe Thermal Events, M.A. Bradford

Day 1: Wednesday 9 April 2014: PM
Room Claude Papi A

14.15-15.45: Chaired by: Professor R. Lewis and Professor U. Olofsson

Invited Lecture:
L-2.3.4 A Tribological View of Wheel-Rail Wear Maps, Y. Zhu, J. Sundh and U. Olofsson

Special Session: XI Wheel-Rail Contact Tribology
Organised by Professor R. Lewis and Professor U. Olofsson
P179  A Procedure for Wheel and Rail Steels Characterization in Rolling Contact, A. Mazzu, M. Faccoli, M. Lancini, C. Petrogalli, D. Nelias and A. Ghidini
P180  Wear created by the Wheel-Rail Contact in Different Rail Vehicles, A. Rovira, P. Salvador, J. Carballere and F. Salas
P181  The Effects of Alternative Top of Rail Friction Materials on Pre-Existing Rolling Contact Fatigue Cracks, C. Hardwick and R. Lewis
P182  Influence of Normal Pressure and Slip in Surface Hardening in Twin-Disc Tests, F. Salas, A. Rovira, V. Amigo and A. Roda

15.30-16.00: Coffee

16.00-18.00: Chaired by: Professor R. Lewis and Professor U. Olofsson

Special Session: XI Wheel-Rail Contact Tribology
Organised by Professor R. Lewis and Professor U. Olofsson
P183  Experimental Modelling of Rail End Lipping in Insulated Joints, P. Beaty, R. Lewis, B. Temple and M.B. Marshall
P184  Effect of Laser Dispersed Treated Morphology on Traction Coefficient under Mixed Lubrication, Z.Y. Li, B.C. Cai, B. Yang, Z.Y. Ren, H.Z. Wu, M.J. Yang and Y. Wei
P186  White Etching Layer Formed on Rail Surface and its Detection Method, M. Ishida, Y. Maruyama and T. Sasaki
P188  Influence of Heat Treatment and Surface Condition on Early-Damaging of Rail Materials, A. Trausmuth, T. Lebersorger, E. Badisch, S. Scheriau and H.P. Brantner
P189  Development of Wear Models for Rolling-Sliding Rail-Wheel Contacts, A. Ramalho and P.V. Antunes
P190  A Study of the Falling Friction Effect on Contact Parameters through Exact Contact Models, J. Giner, P. Vila, A. Alonso and L. Baeza
14.00-15.30: Chaired by: Dr A. Nunez and Professor A. Bracciali

**Invited Lecture:**

L-X.3 Modeling and Simulation of Freight Wagon with Special Attention to the Prediction of Track Damage, S. Stichel, P.-A. Jönsson, C. Casanueva and S. Hossein Nia

**Special Session: V Towards Automated Monitoring and Maintenance Systems for Railway Infrastructures**

Organised by Dr A. Nunez, Dr Z. Li and Professor B. De Schutter

P93 The Rail: A Sensor for Measurement of Forces Applied by the Wheel, M. Bruner, E. Carano and G. Malavasi

P94 Satellite Monitoring of Railway Infrastructure, L. Chang, R. Dollevoet and R.F. Hanssen


P96 AV-RAMS: Maintenance of High Speed Lines, A. Andres and A. Calvete

15.30-16.00: Coffee

16.00-17.30: Chaired by: Dr A. Nunez and Professor A. Bracciali

**Special Session: V Towards Automated Monitoring and Maintenance Systems for Railway Infrastructures**

Organised by Dr A. Nunez, Dr Z. Li and Professor B. De Schutter

P97 Analysis on the Track Irregularity Power Spectral Density of the Beijing-Shanghai High Speed Railway, X.B. Liu, H.Y. Li and W.D. Wang

P98 Railway Integration of Midwest - Fico: Track Alignment Optimization, M.L. Barthasson

P99 Non-Parametric Bayesian Network to Forecast Railway Disruption Lengths, A.A. Zilko, A.M. Hanea, D. Kurowicka and R.M.P. Goverde

P100 Flexible Asset Monitoring System Improves Railway Infrastructure Availability, F.L.J. van den Bos, R. Koopal and N.J. Steentjes

P101 A Specific Dynamic Bayesian Network for a Prognosis based Maintenance Strategy, J. Foulliaron, L. Bouillaut, P. Aknin and A. Baros

**Special Session: X Interoperable Track and Rolling Stock: Testing, Homologation, Condition Monitoring and Maintenance**

Organised by Professor C. Vale and Professor A. Bracciali


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**Day 1: Wednesday 9 April 2014: PM**

**Room Claude Papi B**

14.00-15.30: Chaired by: Dr A. Nunez and Professor A. Bracciali

**Invited Lecture:**

L-X.3 Modeling and Simulation of Freight Wagon with Special Attention to the Prediction of Track Damage, S. Stichel, P.-A. Jönsson, C. Casanueva and S. Hossein Nia

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**Day 1: Wednesday 9 April 2014: PM**

**Room J-J Rousseau A**

14.00-15.30: Chaired by: Professor H. Sugiyama and Dr O. Polach

**Modelling and Simulation of Railroad Vehicle Systems**

P256 Wheel Wear Evaluation on Regional and High Speed Trains using In-House Wear Prediction Tools and Commercial Mbs, N. Kuka, R. Verardi and C. Ariau-do

P257 A NewWear Model for the Analysis of Wheel and Rail Profile Evolution on Complex Railway Networks, A. Innocenti, L. Marini, E. Meli, G. Pallini and A. Rindi

P258 Numerical Tests of the Prototype Railway Wagon for Intermodal Transport, W. Kras and T. Niezgoda

P259 Modeling of Railway Tanks Stress-Strain Condition under Hydrodynamic Loading, A.V. Putsiata, A.O. Shimansovsky and M.G. Kuzniatsova

P260 Stabilization of a Wheelset Hunting Motion by Utilizing the Rotating Device of the Running Gear as a Gyroscopic Damper, S. Lin, H. Yoshino, H. Yabuno and Y. Suda

P261 Railway System for Intermodal Transport Based on the Special Wagon with Platform, T. Niezgoda and W. Kras

15.30-16.00: Coffee

16.00-17.45: Chaired by: Professor H. Sugiyama and Dr O. Polach

**Modelling and Simulation of Railroad Vehicle Systems**

P262 Effect of Bogie Frame Torsional Rigidity on Vehicle Operating Performance, Y. Song, P.B. Wu and L. Jia


P264 Equipment Suspension Modeling and its Influence on Car Body Vibration, H.C. Wu, M.G. Li, M. Li and F. Gao

P265 Dynamics of 2 and 4-Axle Railway Vehicles in Transition Curves above Critical Velocity, K. Zboinski and M. Golofit-Stawinska

P266 A Fast Non-Elliptic Contact Model for Application to Rail Vehicle Dynamics Simulation, M. Sh. Sichani, R. Enblom and M. Berg


P268 Fluid-Solid Coupling Analysis of the Fuel Tank under Certain Generator Train, P. Lin, X.J. Deng, S.Q. Liu, D.W. Chen and S.Q. Fu
Day 1: Wednesday 9 April 2014: PM
Room J-J Rousseau B

14.00-15.30: Chaired by: Professor J.M. Goicolea and Professor R.A.B. Calcada

Special Session: IV Dynamics of Railway Bridges
Organised by Professor J.M. Goicolea, Professor R.A.B. Calcada and Professor R. Karoumi
P64  Modelling Railway Bridge Asset Management using Petri-Net Modelling Techniques, B.L. Le and J.D. Andrews
P65  Modelling Alternatives in the Dynamic Interaction of Freight Trains and Bridges, T. Arvidsson and R. Karoumi
P66  Assessment of the Safety of a Short Span High-Speed Railway Bridge using an Efficient Probabilistic Methodology, J.M. Rocha, A.A. Henriques and R. Calcada
P67  Extending the Assessment Dynamic Ratio to Railway Bridges, D. Cantero, E.J. O’Brien and R. Karoumi
P68  Experiences from Designing Bridges for Higher Speeds, J. Bujnak and J. Wyrwal
P69  Monitoring of Railway Viaducts and Bridges, H. De Backer, A. Outtier, K. Schotte, W. Nagy and P. Van Bogaert

15.30-16.00: Coffee

16.00-18.00: Chaired by: Professor P. Koziol and Professor M. de Matos Neves

Special Session: XV Dynamic Response of Structures and Media under Moving Forces or/and Masses: From Modelling to Applications
Organised by Professor P. Koziol and Professor M. de Matos Neves
P216  Modelling the Effect of Wheel Flat on Railway-Induced Ground Vibrations, G. Alexandrou, G. Kouroussis and O. Verlinden
P217  The Longitudinal Strength of a Body Frame in Consideration of Plastic Regions, T. Hamajima, K. Nishimura and Y. Terumichi
P218  Track-Structure Interaction in a New Concept of Station in Mechelen, D. Decloedt and B. De Pauw
P220  Dynamic Effects in a High-Speed Train-Track System, R. Bogacz, K. Frischmuth and W. Czyzczula
P221  Numerical Study of Trenches for the Reduction of Vibrations Induced by Traffic, J. Barbosa, P. Alves Costa and R. Calcada
P222  The Analysis of Beams subject to Moving Loads using: Coiflets, the Wavelet Finite Element Method and the Finite Element Method, M. Musuva, P. Koziol, C. Mares and M.M. Neves
P223  Mitigation of Vibrations in Buildings Induced by Railway Traffic in Tunnels: A Numerical Study, P. Lopes, P. Alves Costa, R. Calcada and A. Silva Cardoso

Day 2: Thursday 10 April 2014: AM
Room Henry Matisse

09.00-10.45: Chaired by: Professor C. Baker and Professor J.M.C.S. André

Invited Lecture:
L-2.4.4 Wheel Rail Contact: Theoretical and Experimental Analysis, A. Alonso, A. Guiraland J.G. Gimenez

Special Session: VI Wheel-Rail Damage: Influencing Factors and Metallurgical Aspects
Organised by Dr M. Steenbergen, Dr K. Six and Dr M. Rosenberger
P103  Rolling Contact Fatigue and Wear of Wheel/Rail Simulation: Wheel Thermomechanical Defects in the Russian Railway, I.G. Goryacheva, S.M. Zakharov and E.V. Torskaya
P104  Automated Measurement of Near-surface Plastic Shear Strain, G. Trummer, K. Six, C. Marte, A. Meierhofer and C. Sommitsch
P105  On Simulating the Thermal Conditions of Martensite Formation on Railway Wheel Treads, L. Sabitiz and I. Zobory
P106  Influence of Low Temperature on Deformation and Fracture of Rail Steels, F. Yu, B. Jar, and M. Hendry
Day 2: Thursday 10 April 2014: AM
Room Claude Papi A

09.15-10.30: Chaired by: Dr G. van der Werf and Dr M. Schumann

Future Trends and Education in Railway Engineering
P324 Examples of Public Research on Railway Vehicles in Czech Republic: Crashworthiness, Aerodynamics and Fatigue Life, M. Kepka, P. Heller, V. Kemka and S. Spirk
P325 Interactively Experiencing and Understanding Historical Steam Locomotive Technology, M. Schumann, A. Winge and K. Peters

Railway Operations and Maintenance Planning
P289 An Optimal Control Model for Rail Freight Car Fleet Sizing Problem, M. Milenković, N. Bojović and R. Nuhodžić
P294 Applying the Advanced Multimedia Technique for a Railway Tourism Vehicle to Raise the Operating Benefit, S.H. Han
P300 Decision Support System Availability: Optimal Combination and Allocation of Interventions, G. van der Werf and F.J. Tobben

10.30-11.00: Coffee

11.00-12.30: Chaired by: Professor C. Baker

Invited Lecture:
L-2.3.5 Risk Analysis of Railway Vehicles under Strong Crosswinds, C. Proppe and X. Zhang

Railway Noise and Vibration
P284 Acoustic Performance of Railways: A Case Study in Germany, H. Guler, B. Fath and T.P. Akyol

Day 2: Thursday 10 April 2014: AM
Room Claude Papi B

09.00-10.30: Chaired by: Professor A. Bracciali and Professor D.R. Prescott

Special Session: X Interoperable Track and Rolling Stock: Testing, Homologation, Condition Monitoring and Maintenance
Organised by Professor C. Vale and Professor A. Bracciali
P166 Modelling the Effects of Asset Management Decisions on a Railway Track Section, D.R. Prescott and J.D. Andrews
P167 Review of Instrumented Wheelset Technology and Applications, A. Bracciali, F. Cavaliere and M. Macherelli
P168 Fibre Optic Rail Pad Sensor Based Wheel Flat Identification, S.L. Zhang, C.G. Koh and K.S.C. Kuang
P169 Reducing Life Cycle Costs through analysis of the Interface Between Vehicle and Railway Track in the Netherlands, A. Zoeteman and R.P.B.J. Dollevoet
P171 Wayside Measurement of Lateral and Vertical Wheel/Rail Forces for Rolling Stock Homologation, L. Bociolini, A. Bracciali, L. Di Benedetto, R. Mustandrea and F. Piccioli

10.30-11.00: Coffee

11.00-12.30: Chaired by: Professor A. Bracciali and Professor D.R. Prescott

Special Session: X Interoperable Track and Rolling Stock: Testing, Homologation, Condition Monitoring and Maintenance
Organised by Professor C. Vale and Professor A. Bracciali
P172 Optimal Maintenance Strategies with a Dynamic Optimization Approach, R. Rozas, L. Bouillaut, P. Aknin and G. Branger
P173 TC-Type Low-Maintenance Track Structure and Maintenance Methods, Y. Okumura and Y. Hori
P176 The EUREMCO project: European Railway Electromagnetic Compatibility, R. Hanley, N. Haddad, C. Place, W. Baldauf, G. Zimmer, F. Maumy and E. Rigaud
P177 Reliability Analysis of Railway Rolling Stock Failure Patterns, B.M. Alkali, G. Brown, C. Tait and V. Orsi
09.00-10.30: Chaired by: Professor H. Sugiyama and Professor S. Stichel

Invited Lecture:
L-2.4.6 Rolling Stock Dynamic Evaluation by Means of Laboratory Tests
A. Facchinetti, S. Bruni and W. Zhang

Modelling and Simulation of Railroad Vehicle Systems
P269 The Influence of the Maintenance State of Track and Bogie Components on the Track-Vehicle Interaction and Loads, N. Kuka, R. Verardi, C. Ariaudo and J. Pombo
P270 Railway Sleeper Modelling with Deterministic and Non-deterministic Support Conditions, E. Kassa and D. Salomon
P272 A Study on the Feasibility of adopting Identical Wheel Profiles for the Electric Multiple Unit, F.T. Lin, X.Q. Dong, B. Wen and N. Wu

10.30-11.00: Coffee

11.00-12.45: Chaired by: Professor G.W. Yang and Dr Y. Bezin

Special Session: I Advances in Mechanics of High-Speed Trains
Organised by Professor G.W. Yang and Professor X.S. Jin
P1 High-Speed Feeder Passenger Train: NGT Link, D. Kruger and J. Winter
P5 On-Track Tests and Simulation of Active Secondary Suspension on a Rail Vehicle, A. Qazizadeh, R. Persson and S. Stichel
P6 Drag-reduction Design on High-speed Trains with Intelligent Optimization Algorithm, G.W. Yang, S.B. Yao and D.L. Guo
P7 Vibroacoustic Problems in High Speed Trains, F. Sorribes-Palmer, G. Alonso and A. Sanz-Andres

Day 2: Thursday 10 April 2014: AM
Room J-J Rousseau B

09.15-10.30: Chaired by: Professor J.M. Goicolea and Professor R. Karoumi

Special Session: IV Dynamics of Railway Bridges
Organised by Professor J.M. Goicolea, Professor R.A.B. Calcada and Professor R. Karoumi
P70 A Reduced Model for Robust Control of Longitudinal Vibration of Floating Cable-Stayed Bridge Induced by Train Braking and Moving Vertical Loads, W.-L. Qu, J. Liu, Y.-L. Pi and M.A. Bradford
P72 Stability of Tapered Half-Through Girder High Strength Steel Railway Bridges, M.A. Bradford and H.Y. Ban
P73 Assessment of Long-Term Structural Health at Villanueva del Jalon Viaduct, E. Moliner and M. Cuadrado
P74 Finite Element Analysis of a Masonry Arch Railway Bridge using Polyurethane Polymer, P.K. Woodward, O. Lagrouche and S. Thomas

10.30-11.00: Coffee

11.00-12.45: Chaired by: Professor R.A.B. Calcada and Professor R. Karoumi

Special Session: IV Dynamics of Railway Bridges
Organised by Professor J.M. Goicolea, Professor R.A.B. Calcada and Professor R. Karoumi
P77 Global and Local Dynamic Effects on a Railway Viaduct with Precast Deck, A. Meixedo, D. Ribeiro, R. Calcada and R. Delgado
P78 Design of the Renewal of Slab Track on Existing Steel Vierendeel Railway Bridges, J. Thielemans and B. De Pauw
P79 Dynamic Behaviour of a Short Span Filler-Beam Railway Bridge under High Speed Traffic, C. Bonifacio, D. Ribeiro, R. Calcada and R. Delgado
P80 Design of a Seismically Isolated Railway Viaduct over Axios River in Northern Greece, A.J. Kappos, I. Papadopoulos and A. Tokatlidis
Day 2: Thursday 10 April 2014: AM
Room Casanova

09.00-10.30: Chaired by: Dr S. Moretto and Dr H.X. Pan

Invited Lecture:
L-X.1 Automation in Railway Operations: Challenges, Perspectives and Experimented Effects on System Performance, S. Ricci

Special Session: XII Railway Research Commercialisation: Economy, Technology and Society
Organised by Dr S. Moretto, Dr H.X. Pan and Dr M. Milenkovic
P192 Agent Based Simulation of a Single-Wagon Load Network, D. Bruckmann, C.E. Jackson, M. Balmer and U. Weidmann
P194 Railway Transportation in Brazil under the perspective of Transaction Costs Economics, A.L.R. Oliveira
P195 Mind The Gap In High-Speed Trains Futures: A Methodological Contribution, S. Moretto, D. Robinson, A.B Moniz and S. Chen

10.30-11.00: Coffee

11.00-12.15: Chaired by: Dr H.X. Pan and Dr M. Milenkovic

XII Special Session: Railway Research Commercialisation: Economy, Technology and Society
Organised by Dr S. Moretto, Dr H.X. Pan and Dr M. Milenkovic
P196 Influence of Site Selection of High-Speed Railway Stations on Travel Efficiency: An example of the Shanghai Hongqiao Hub, H.X. Pan, S. Ye and M.L. Chen
P197 An Integrated Test Track Field for Railway System and Intelligent Transport System in University Research, Y. Suda and S. Lin
P199 Punctuality Based Calibration of Railway Capacity Models, S. Ricci

Day 2: Thursday 10 April 2014: PM
Room Henry Matisse

14.00-15.30: Chaired by: Dr M. Steenbergen and Dr K. Six

Special Session: VI Wheel-Rail Damage: Influencing Factors and Metallurgical Aspects
Organised by Dr M. Steenbergen, Dr K. Six and Dr M. Rosenberger
P107 Rail Surface Layer Modification under Train Operation, M.J.M.M. Steenbergen
P108 Simulation of Contact Phenomena at Full-Scale Wheel-on-Rail Test Rigs, D. Ullrich
P109 Angles and Location of a RCF Crack in Heavy Haul Railways based on the Critical Plane, S. Wang, Y. Zhou, Y. Xu and H. Li
P110 Mechanisms of Driving Surface Shear Cracks in Rolling Sliding Contact, W. Daves, M. Kracalik, W.P. Yao and S. Scheriau
P111 Rail Performance and Management of Rolling Contact Fatigue under Heavy Axle Load Conditions, D.R. Welsby, C.L. Pun, P.J. Mutton and W. Yan

15.30-16.00: Coffee

16.00-18.00: Dr M. Steenbergen and Dr K. Six

Special Session: VI Wheel-Rail Damage: Influencing Factors and Metallurgical Aspects
Organised by Dr M. Steenbergen, Dr K. Six and Dr M. Rosenberger
P113 Towards a Maintenance Free Rail, G. Girsch, A. Joerg and R. Stock
P114 Naturally Hard Steel Rails: Development and Feedback from Service, A. Bracciali and F. Piccioli
P115 Out-Of-Roundness: Simulation and Real-Life Measurements, R. Schmid and W. Zottl
P116 Chasing the Magic Wear Rate, E. Magel, E. Magel, J. Kalousek and P. Sroba
P117 Restoration of Switch Manganese Steels Crossings by Electric Arc Welding in a Robotized Plant, A. Bracciali and M. Saliccia
P118 A Microstructural Study of Rolling Contact Fatigue in Rails, J. Wu, R.H. Petrov, M. Naeimi, Z. Li and J. Sietsma
P120 Microstructures and Properties of Pulsed Mig Joint of A6n01 Al Alloy, J. Ye, P. Li, S. Yang, X. Deng and B. Gao
Day 2: Thursday 10 April 2014: PM
Room Claude Papi A

14.00-15.30: Chaired by: Professor S. Krajnović and Professor C. Wagner

Special Session: II Train Aerodynamics
Organised by Professor S. Krajnović and Professor C. Wagner
P24 Numerical and Experimental Studies of Train Geometries Subject to Cross Winds, M.M. Fragner, K.A. Weinman, R. Deiterding, U. Fey and C. Wagner
P26 Shape Optimization of High-Speed Train with Multiple Aerodynamic Properties, M. Suzuki, M. Satou, T. Ogawa and N. Okura

15.30-16.00: Coffee

16.00-17.45: Chaired by: Professor S. Krajnović and Professor C. Wagner

Special Session: II Train Aerodynamics
Organised by Professor S. Krajnović and Professor C. Wagner
P29 Effects of Nose Shape and Tunnel Cross-Sectional Area on Aerodynamic Drag of Train Travelling in Tunnels, J.K. Choi, S.M. Jeung and K.H. Kim
P31 Experimental Study on the effect of Crosswind on a Container Train with Different Load Configurations, S. Giappino, S. Melzi, G. Tomasini and M. Villani
P32 Experimental Investigation of Topological Changes in the Flow Field around High-Speed Trains with respect to Reynolds Number Scaling Effects, U. Fey, J. Haff, M. Jonsson, S. Loose and C. Wagner
P34 Development of a Numerical Modelling of Snow Accumulation on a High Speed Train, N. Paradot, E. Allain, R. Croue, X. De La Casa and J. Pauline
P35 High Speed Regulation in Extreme Conditions, G. Saussine and O. Neel

Day 2: Thursday 10 April 2014: PM
Room Claude Papi B

14.00-15.30: Chaired by: Professor A. Gomes Correia and Dr S. Costa D’Aguiar

Special Session: III Geotechnical Aspects in Rail-Track Performance
Organised by Professor A. Gomes Correia, Dr S. Costa D’Aguiar and Dr Y. Momoya
P45 New Recycled Aggregates with Enhanced Performance for Railway Track Bed and Form Layers, C. Saborido Amate
P51 Numerical Prediction of Permanent Deformation in Asphalt Track Foundation, S. Lee, J. Lee, Y. Lim, G. Song and M. Sagong
P52 Prestressed Concrete Sleeper Response during an Evaluative Test: Effect of Fatigue, V. Vesely, H. Simonova, Z. Keršner, V. Bilek, T. Mosler and L. Culik
P53 Ballasted Track Maintenance with a Multi-Unit Tamping Machine: A Numerical Discrete Efficiency Comparison, C. Voivret, R. Perales and G. Saussine
P54 The Influence of Moving Load Speed on the Cyclic Response of a Railway Track Platform, V. Alves Fernandes, S. Costa D’Aguiar and F. Lopez-Caballero
P55 Investigating the Railway Infrastructure through Numerical Analysis for Ground Stabilization Solutions, D. Zangani and C. Fuggini

15.30-16.00: Coffee

16.00-18.00: Chaired by: Dr S. Costa D’Aguiar and Dr Y. Momoya

Special Session: III Geotechnical Aspects in Rail-Track Performance
Organised by Professor A. Gomes Correia, Dr S. Costa D’Aguiar and Dr Y. Momoya
P56 Determination of Soil Dynamic Parameters by the Panda 3R: Railways Platform Case, M.A. Benz-Navarrete, E. Escobar, Y. Haddani, R. Gourves, S. Costa D’Aguiar and N. Calon
P57 Importance of Non-Linear Soil Behaviour on Modelling Rail Track Response, J. Cunha and A. Gomes Correia
P60 Analysis of Hydraulic System Response for Works Optimisation on Conventional Railways, M.-A. Moulin, G. Bochaton and N. Calon
P61 Shielding Structures From High Speed Rail Vibrations Using Wave Barriers, D.P. Connolly, G. Kouroussis, O. Laghrouche, O. Verlinden and P.K. Woodward
P62 Influence of Under Sleeper Pads on Track Quality in the Czech Republic, O. Plasek, M. Hruzikova, R. Svoboda and J. Bilek
### Special Session: I Advances in Mechanics of High-Speed Trains
Organised by Professor G.W. Yang and Professor X.S. Jin

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<td>P13</td>
<td>Influence of Rail Top Contamination on Transient Rolling Contact of a High Speed Driving Wheel, X. Zhao, Z. Wen, M. Zhu and X. Jin</td>
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### Special Session: IX Accidents Analysis and Safety Technologies
Organised by Professor A. Matsumoto, Professor R. Smith and Professor H. Nakamura

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<td>Managing Investigations in the Urgent Phase Following Railway Accidents, A. Bracciali and M. Monti</td>
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<td>P157</td>
<td>Numerical Simulation of Explosion Scenarios in a Real Metro Station, G. Valsamos, F. Casadei, G. Solomos and M. Larcher</td>
<td>Numerical Simulation of Explosion Scenarios in a Real Metro Station, G. Valsamos, F. Casadei, G. Solomos and M. Larcher</td>
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<td>P158</td>
<td>Comparison of Braking Performance for Different Technologies of Heavy Hauled Freight Trains, L. Cantone and V. Vullo</td>
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### Special Session: IX Accidents Analysis and Safety Technologies
Organised by Professor A. Matsumoto, Professor R. Smith and Professor H. Nakamura

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<td>P159</td>
<td>Advanced Passive Safety Research Focused on Rail Vehicles Interiors, S. Špirk and M. Kepka</td>
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<td>P162</td>
<td>Study on Train Derailment Mechanism Based on Catastrophe Theory, H. Dai, Z. Li and Z. Li</td>
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Day 2: Thursday 10 April 2014: PM
Room Casanova

13.45-15.30: Chaired by: Dr A. Facchinetti and Professor L. Baeza

Special Session: VIII Pantograph-Catenary Interaction
Organised by Professor J.A.C. Ambrosio and Dr A. Facchinetti
P138 Dynamic Optimization of an Existing Catenary System when Exceeding Design Speed, P. Navik and A. Ronnquist
P139 Dynamic Assessment of a Norwegian Contact Line: Exploring Higher Speed in Sharp Curves, A. Ronnquist and P. Navik
P140 Overhead Line Diagnostic System for High Speed Pantographs, M. Carnevale, A. Collina, A. Facchinetti and L. Gasparetto
P141 Influence of High Speed Railway Catenary Overlap Span on the Current Collecting Performance, J. Zhang, W. Liu and M. Yu
P142 Dynamic Analysis of the Pantograph-Catenary Interaction on Overlap Sections for High-Speed Railway Operations, P. Antunes, J. Ambrosio, J. Pombo and M. Pereira

15.30-16.00: Coffee

16.00-18.00: Chaired by: Dr A. Facchinetti and Professor L. Baeza

Special Session: VIII Pantograph-Catenary Interaction
Organised by Professor J.A.C. Ambrosio and Dr A. Facchinetti
P146 The Effect of the Working Height of Pantographs on Pantograph-Catenary Dynamic Performance, Q. Lv, R. Li, S. Wang, N. Zhou and W. Zhang
P147 Analysis of Pantograph-Catenary Dynamic Performance in Consideration of Fluid-Solid Coupled Vibration of Pantograph, R. Li, N. Zhou, G. Mei and W. Zhang
P148 Study on the Model of Electric Contact between Pantograph and Contact Wire, G. Zhu, W. Wang, G. Wu, G. Gao and X. Chen
P149 Arc Detection and Classification in Pantograph Catenary Systems by the use of Clustering Techniques, S. Barmana, M. Tucci and F. Romano
P151 Research on Test Method of Dynamics and Current-Collection Performance of Pantograph and Catenary System, Y.S. Ma, J.Y. Liang and N. Zhou
P152 A Study on the Harmonic Characteristics arising from the Arc between Pantograph and Contact Wire, J. Yu, X. Deng, S. Liu and Y. Xu

Day 3: Friday 11 April 2014: AM
Room Henry Matisse

09.00-10.45: Chaired by: Professor A. Levchenkov

Special Session: XVII Computerized Systems for Vehicle Management, Diagnostics and Maintenance
Organised by Professor A. Levchenkov and Professor R. Sarkisyan
P230 An Evolutionary Algorithm for Reducing Railway Accidents Caused by Human Factors, A. Levchenkov and M. Gorobetz
P232 Stochastic Train Delay Simulation using Petri Nets, L.F. Caetano and P.F. Teixeira
P233 Feasibility Study on Following Control of Trams through Numerical Simulations, K. Nakano and S. Wakabayashi

Environmental Aspects on Railway Operation and Maintenance

10.30-11.00: Coffee

11.00-12.45: Chaired by: Dr R. Hosse and Dr D.M. Van de Sype

Invited Lecture:
L-X.7 Model-Based Analysis of Optimized Market Diffusion of Satellite-Based Localization Systems for Train Control Systems, R.S. Hosse, K. Burmeiste and E. Schnieder

Railway Signalling and Communication
P275 A New Control Relay for Automatic Transfer of Supplies for Signalling Applications, D.M. Van de Sype, P. Hayt and S. Thiim
Day 3: Friday 11 April 2014: AM
Room Claude Papi A

09.00-10.30: Chaired by: Professor S. Krajnović and Professor C. Wagner

Special Session: II Train Aerodynamics
Organised by Professor S. Krajnović and Professor C. Wagner
P37 Simplified Model to Estimate Forces on Track Side Objects, S. Rutschmann and K. Ehrenfried
P38 Unsteady Simulations in Train Aerodynamics, S. Krajnović
P39 Aerodynamic Shape Optimisation of a High Speed Train Locomotive using Adjoint Solver, M. Bujny, A.B. Jaworski and J. Rokicki
P41 Numerical Study of Streamlined Trains, F. Carmona, I. Pereira and M.C.S. Andre
P43 Experimental Investigation of the Three-Dimensional Boundary Layer in the Nose of a Concept Train, I. Pereira and J.M.C.S. Andre

10.30-11.00: Coffee

11.00-12.15: Chaired by: Professor J.E. Abdalla Filho and Professor G. Malavasi

Invited Lecture:
L-X.6 Contact Forces and Running Stability of Railway Vehicles, G. Malavasi

Special Session: XIII Railway Vehicle-Infrastructure Interaction: Experimental, Analytical and Numerical Advances
Organised by Professor J.E. Abdalla Filho and Professor R. Carrazedo
P200 Rail Vibrations: Data Analysis and FE Modelling with Applications to Signalling Equipment, A. Bracciali, M. Macherelli and F. Piccioli
P201 Experimental Investigation of the Effect of Short-Pitch Rail Corrugation on Dynamic Behaviors of Metro Vehicle and Track Components, W. Li, W. Chang, Z. Wen, X. Du, Y. Cao and X. Jin

Day 3: Friday 11 April 2014: AM
Room Claude Papi B

09.00-10.30: Chaired by: Professor C. Tarawneh and Professor F.C. Wang

Invited Lecture:
L-2.3.3 Service Life Testing of Railroad Bearings with Known Subsurface Inclusions: Detected with Advanced Ultrasonic Technology, C.M. Tarawneh, J.A. Turner, L. Koester and B.M. Wilson

Special Session: XVIII Railroad Bearing Technologies
Organised by Professor C. Tarawneh and Dr B. Wilson
P236 Field Implementation Statistical Analysis of an Emerging Bearing Condition Monitoring System, C.M. Tarawneh, R. Estrada, B.M. Wilson and A. Martin

10.30-11.00: Coffee

11.00-12.15: Chaired by: Professor H.Y. Wang and Professor A. Ramalho

Invited Lecture:
L-2.3.2 Railway Vehicle Dynamics under Degraded Adhesion Conditions: An Innovative HIL Architecture for Braking Tests on Full-Scale Roller-Rigs, B. Allota, R. Conti, E. Meli, L. Pugi and A. Ridolfi

Traction, Transmission and Braking Systems
P306 Effect of Load on Vibrations of a Railway Gearbox, A. Bracciali and F. Piccioli
P307 State Monitoring and Analysis of an In-service Rail Transit Vehicle Braking System, J.Y. Zuo, Z.M. Wang, W. Hu and M.L. Wu
P308 Dynamic Thermal Analysis on High-Speed Railway Ventilated Brake Disc under the Effect of Air Flow, Q. Wang and J.Y. Zuo
09.30-10.30: Chaired by: Dr E. Fortunato and Dr S. Costa D’Aguiar

**Invited Lecture:**
L-2.4.5  Railway Track Transition Zones: Design, Construction, Monitoring and Numerical Modelling, E. Fortunato, A. Paixão and R. Calçada

**Special Session: XVI Railway Transition Zones: From Design to Maintenance**
Organised by Dr E. Fortunato and Professor A. Nurmikolu
P224  Impact Analysis of Track Irregularity in Transition Section of High Speed Rail, H.W. Yang, D. Chu, I.C. Wang, C.F. Hung and S.K. Ho

10.30-11.00: Coffee

11.00-12.00: Chaired by: Dr E. Fortunato and Dr S. Costa D’Aguiar

**Special Session: XVI Railway Transition Zones: From Design to Maintenance**
Organised by Dr E. Fortunato and Professor A. Nurmikolu
P226  Modelling Uneven Support at Railway Crossings using a Vehicle-track Coupling System, I. Grossoni, Y. Bezin and A. Alonso
P228  Non-linear Elastic Behaviour of Unbound Aggregates in FEM representing Railway Transition Zones, J.N. Varandas, A. Paixao, E. Fortunato, P. Holscher and R. Calçada
P229  Use of Multidepth Deflectometers and Strain Gauges to Investigate the Differential Movement at Railway Bridge Approaches, D. Mishra, E. Tutumluer, H. Kazmee, and H. Bolier

Day 3: Friday 11 April 2014: AM
Room J-J Rousseau B

09.30-10.45: Chaired by: Dr J. Lundberg and Dr G.J. van Houtum

**Railway Operations and Maintenance Planning**
P290  The Impact of Competitive Tendering on Railway Maintenance Performance in Sweden, A.M. Petersson and J. Lundberg
P291  A Methodology for Comparing and Harmonizing Railway Operating Processes, S. Hoeppner and U.A. Weidmann
P292  Planning for Intra-city and Regional Transport Multimode Systems, R.B. Silva, M.A. Cavalcanti Netto and A.E. Rezende
P293  Comparative Assessment of Manual and Automated Railway Wheels Inspection Means for Fault Detection, L. Ibarra, M.G. Lipsett and M.T. Hendry
P294  A Model to Simulate the Traffic of Trains on the Paraopeba Corridor, T.A. Dos Santos

10.30-11.00: Coffee

11.00-12.45: Chaired by: Dr J. Lundberg and Dr G.J. van Houtum

**Railway Operations and Maintenance Planning**
P299  Smart Railroad Maintenance Engineering with Stochastic Model Checking, D. Guck and J.-P. Katoen and M.I.A. Stoelinga, T. Luiten and J. Romijn
P301  Spare Parts Planning and Control for Maintenance Operations, J.J. Arts
P303  Defining Robustness for Railway Infrastructure, P. Norrbin and A. Parida
P304  An Innovative Runoff Hazard Mapping for Risk Diagnosis and Management on Railway Infrastructure, B. Chazelle, J. Dehotin and L. Lambert
P305  RAM Modelling of Railway Operational Sections: A Case Study from the Iron Ore Line, S.M. Famurewa, M. Rantatalo and U. Kumar
### Day 3: Friday 11 April 2014: PM
**Room Henry Matisse**

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<td>The Failure Part Detector and Synchronized Data Display System for Track Circuit, T. Noguchi, M. Suzuki, T. Takamori and H. Uehara</td>
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| 15.30-16.00 | Coffee |

### Day 3: Friday 11 April 2014: PM
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<td>Vehicle Models for the Dynamic Behaviour of Roller Rigs in a Running Test, Y. Kunimatsu and Y. Terumichi</td>
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<td>Dynamic Behaviour of a Typical Short-Span Brazilian Railway Bridge due to a Passing Vehicle, F.L.M. Beghetto and J.E. Abdalla Filho</td>
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<td>Numerical Calculations for Track Substructure: Preliminary Determination of Service Life, J. Kukulski</td>
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<td>Optimization of Railway Transition Curves with regard to the Wheel/Rail Wear, K. Zboinski and P. Woznica</td>
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<td>Identification of Railway Track Parameters for the Track/Train Interaction Analysis, R. Fesharakifard, A. Dequidt, O. Coste and T. Tison</td>
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| 15.30-16.00 | Coffee |
14.00-15.15: Chaired by: Professor H.Y. Wang and Professor A. Ramalho

**Traction, Transmission and Braking Systems**

P309  Nonlinear Dynamics of a Gear Transmission System under Parametric and Self-Excited Excitation on a High-Speed Train, G.H. Huang, W.H. Zhang, Y.P. Fu, S.L. Liang and X.Y. Wang

P310  CRH5 Cardan Shaft Condition Estimation from Gearbox Vibration, C. Yi, J.H. Lin, T.D. Ruan, Y.X. Hu and Y.P. Li

P311  Braking Simulation of a High-Speed Railway Vehicle in Low Adhesion Conditions, H.J. Zhang, H.Y. Wang, Z.F. Wen and X.S. Jin

P312  Elimination of Failures in Railway Gearboxes by Regenerative Coasting, A. Bracciali and F. Piccioli


15.30-16.00: Coffee

Day 3: Friday 11 April 2014: PM
Room Claude Papi B

14.00-15.45: Chaired by: Professor S. Bruni and Dr J. Kalivoda

**Mechatronics and Control Systems**

P317  Scaled Roller Rig Experiments with a Mechatronic Bogie, J. Kalivoda and P. Bauer

P318  Application of Semi-Active Control Strategies in Bogie Primary Suspension System, S.M. Mousavi Bideleh and V. Berbyuk

P319  Mechatronic System Simulation of a Full Scale Roller Rig for a Single Wheelset, B.B. Liu, S. Bruni and C.Y. Chang

P320  Multimodal Flexural Vibration Control of Carbody using Active Mass Dampers, Y. Akiyama, T. Tomioka and T. Takigami

P321  Railway Vehicle Optimisation using the Concept of “Design for Control”, C.P. Ward, T.X. Mei, P.D. Hubbard and M. Mirzapour

**Future Trends and Education in Railway Engineering**

P322  Lessons for Policy Makers in Non-High Speed Rail Countries, M.A.M. Ali

P323  Omani Rail Institute for the Specific and Unique Needs of the GCC Countries, T. Effey, M. Modigell and T. Jussen

16.00: Coffee
Day 3: Friday 11 April 2014: PM
Room J-J Rousseau B

14.00-16.00: Chaired by: Dr J. Winter and A. Rovira

Energy Storage Technologies
P238 Comparison of Dynamic Phenomena in the Drive System Electric Locomotive Powered by DC Motors and Asynchronous, S. Duda and T. Trawinski
P240 A Greedy Heuristic for Optimizing Metro Regenerative Energy Usage, D. Fournier, F. Fages and D. Mulard
P242 High-Speed Passenger Train NGT Link: Propulsion and Electrical Power Supply Concept, S. Kaimer, S. Streit and J. Winter
P245 Estimation of Train Energy Consumption in Different Operational Scenarios by means of a Neural Network, P. Martinez, R. Insa, P. Salvador and A. Rovira

15.30-16.00: Coffee