

Technical Program

Tuesday 13th September 2016

IWRN12 Commencement

Chair: Dave Anderson

08:30 Welcome to IWRN12

State of the Art Paper - Squeal Noise

Chair: Dave Anderson

08:50 A state-of-the-art review of curve squeal noise: phenomena, mechanisms, modelling and mitigation
Thompson, D. J.; Squicciarini, G; Ding, B

Session 1 - Squeal Noise

Chair: Dave Anderson

09:30 Wheel Squeal - Insights from Wayside Condition Monitoring Measurements and Field Trials
Jiang, Jiandong; Hanson, David; Bruce, Dowdell
09:50 Wheel squeal as a result of unsteady longitudinal creepage
Fourie, Danie; Frohling, Robert; Grabe, Hannes; Heyns, Stephan

Morning Tea

10:10 – 10:40

Session 2 - Predictions, Measurements and Modelling

Chair: Thorsten Tielkes

10:40 Ageing cuts down the track homogeneity causing differences between calculations and measurements of railway noise
Venghaus, Helmut
11:00 The influence of modelling simplifications on the prediction of railway induced vibrations
Germonpré, Matthias; Verbraken, Hans; François, Stijn; Degrande, Geert; Lombaert, Geert
11:20 Quantifying uncertainties in measurements of railway vibration
Kuo, Kirsty; Lombaert, Geert; Degrande, Geert

Session 3 - Predictions, Measurements and Modelling

Chair: Thorsten Tielkes

11:40 Dynamic response of axle-box and bogie to unevenness excitation due to multiple wheel-rail interactions
Fang, Ge; Wu, Tianxing; Peng, Zhike
12:00 Rail Ground-borne Noise and Vibration Prediction Uncertainties
Weber, Conrad; Karantonis, Peter
12:20 A Modified Turnout Impact Noise Model and Field Validation
Ho, Wilson; Wong, Banting; Cai, Ting

Lunch

12:40 – 13:40

Poster Session 1

Chair: Dave Anderson

13:40 Implications from the introduction of genset locomotives on locomotive type testing in NSW
McGregor, Duncan Robert
13:42 Critical analysis of c-dyn/c-stat ratio influence on floating slabtrack vibration attenuation performance
Carels, Patrick; Favotte, Olivier
13:44 Time Domain Transmitting Boundary for Discretely Supported Rail
Abe, Kazuhisa; Toda, Daisuke; Koro, Kazuhiro
13:46 Development of an automated system to identify noise levels and other attributes of individual rail pass by events, implemented with commonly available equipment.

- Stoker, Alexander; Dobson, Stephen; Ottley, Matthew
- 13:48 Performance and effect prediction for mitigation measures of resilient track on metro-induced ground-borne vibration
 Wu, Tianxing; Xing, Hailing; Liu, Jiahua
- 13:50 Optimal design of wave barriers for the reduction of vibration levels
 Van hoorickx, Cédric; Schevenels, Mattias; Lombaert, Geert
- 13:52 Development of Orthogonal Resilient Materials for Tuned Mass Damper
 Tam, Po-lai; Leung, Chi-wah; Mak, Chee-leung; Ho, Wilson; Cai, Ting

Afternoon Tea

15:00 – 15:30

Session 4 - Rail Roughness, Corrugation and Grinding

Chair: Jens Nielsen

- 15:30 Rolling noise and corrugation in curves: modelling and solutions.
 Stallaert,; Vanhonacker,
- 15:50 A new metrics to assess the acoustic performance of rail grinding processes
 LETOURNEAUX, Fabien; RIBOURG, Mathieu; FODIMAN, Pascal; TROLLE, Benoît
- 16:10 Routine measurement of long wavelength irregularities from vehicle-based equipment
 GRASSIE, STUART
- 16:30 Noise Reduction Measure for Trussed Non-Slab Bridges
 Mori, Shinji; Hirasawa, Ryo; Morita, Yoshito; Oosawa, Jyunichiro; Kobayashi, Minoru; Konishi, Shinji; Nakada, Ryuichi; Kawano, Yosuke; Abiko, Mitsuharu
- 16:50 Effects of Rail Lateral Dynamic Deflection and Vibration Level on Rail Corrugation Development
 Wang, Anbin
- 17:10 Prediction of rail corrugation growth in curves using a flexible and rotating wheelset model
 P. Vila, L. Baeza, J. Martínez-Casas and J. Giner

Wednesday 14th September 2016

State of the Art Paper - Policy, Regulation and Perception

Chair: Paul de Vos

- 08:30 State of the art review of rail noise policy
Croft, Briony Elizabeth; Hemsworth, Brian

Session 5 - Policy, Regulation and Perception

Chair: Paul de Vos

- 09:10 Supporting Decision Making and Management of Freight Rail Noise using GIS
Basutu, Laurena; Sharpe, Kyle
09:30 Between the wheel and the track: A regulator's reflections on rail noise regulation in NSW
Hanemann, Jacinta; Maddock, Paul
09:50 Abatement of railway noise in Germany
Weinandy, René; Appel, Percy; Myck, Thomas

Morning Tea

10:10 – 10:40

Session 6 - Structure-Borne Noise and Ground-Borne Noise

Chair: Jim Nelson

- 10:40 On the propagation and prediction of rail-induced ground-borne vibration within sandy soils
Li, Binghui; Zootjens, Luke
11:00 Influence of soil properties and model parameters on vibrations induced by underground railways in Shanghai
Xing, Hailing; Jiang, Tong; Liu, Jiahua; Wu, Tianxing
11:20 Attenuation properties of ground vibration propagated from subway tunnels in soft ground
Tsuno, Kiwamu; Masaru, Furuta

Session 7 - Structure-Borne Noise and Ground-Borne Noise

Chair: Jim Nelson

- 11:40 Mitigation of railway vibrations by means of a stiff wave barrier: experimental and numerical validation
Coulter, Pieter; Cuéllar, Vicente; Degrande, Geert; Lombaert, Geert
12:00 Effects of tuned slab damper on low frequency ground vibration levels on metro systems
Wang, Anbin
12:20 MECHANISM AND REDUCTION COUNTERMEASURE OF STRUCTURE BORNE SOUND
Watanabe, Tsutomu; Fuchigami, Shouta; Matsuoka, Koudai; Tokunaga, Munemasa

Lunch

12:40 – 13:40

Poster Session 2

Chair: David Towers

- 13:40 Track Condition Assessment using Primary Suspension Data
Siow, Yu Kwee; Foo, Da Yao; Nguyen, Thuy Ngoc, Jessie; Chia, Wee Lee
13:42 Classification of Impact Signals from Insulated Rail Joints Using Spectral Analysis
Yuen, Andrew; Zheng, Dingyang; Peter, Mutton; Yan, Wenyi
13:44 Combating structure-borne noise and vibrations by Under Sleeper Pads
Loy, Harald; Tschann, Lukas
13:46 Prediction of building vibration induced by underground trains using a coupled waveguide Finite / Boundary Element method
Jin, Qiyun; Thompson, David; Lurcock, Daniel
13:48 Simulation of rail corrugation growth and suppression at resilient track due to Multiple interactions
Wang, Yurong; Wu, Tianxing; Fang, Ge
13:50 Impact of Rail Dampers on the Mainline Rail Roughness Development
Suppin, Patrick; Gramowski, Christoph
13:52 Active Noise Control of Interior Noise of a High-speed train Carriage

- Zhao, Yanju
- 13:54 Psychoacoustic evaluation of generated noises of passenger seats for high speed trains
Sapena, Joan; Caminal, Rita
- 13:56 Verification of the effectivity of a mass-spring system after 20 years in service
Achs, Gunther; Toll, Hanno; Kuttelwascher, Christoph; Mach, Michael; Dold, Mirko
- 13:58 Experimental Research on the Characteristics of Chinese High-speed Railway Noise Source
Liu, Lanhua; Li, Zhiqiang

Afternoon Tea

15:00 – 15:30

Session 8 - High Speed Rail Noise

Chair: Pierre-Etienne Gautier

- 15:30 Resonance and propagation characteristics of slab high-speed railway tracks used in China
Sheng, Xiaozhen; Xiao, Xinbiao
- 15:50 Estimation of Aerodynamic Bogie Noise through Field and Wind Tunnel Tests
Uda, Toki; Yamazaki, Nobuhiro; Kitagawa, Toshiki; Nagakura, Kiyoshi; Wakabayashi, Yusuke
- 16:10 Aerodynamic Noise Reduction of Brake Disc for High-Speed Trains
Shiraishi, Nobuo; Wakabayashi, Yusuke; Kurita, Takeshi; Fujimoto, Takahiro; Ichikawa, Yuki
- 16:30 Reduction of aerodynamic noise emitted from pantograph by appropriate aerodynamic interference around pantograph head support
Mitsumoji, Takeshi; Sato, Yuichi; Yamazaki, Nobuhiro; Uda, Toki; Wakabayashi, Yusuke
- 16:50 Development of New Noise Reduction Equipment for the Slits on Tunnel Hoods
M. Matsunuma,

Thursday 15th September 2016

Session 9 - Predictions, Measurements and Modelling

Chair: David Towers

- 08:30 Reproducibility of railway noise measurements – influence of test site conditions
Nielsen, Jens; Augis, Eric; Biebl, Florian
- 08:50 Railway noise: a new paradigm for SNCF acousticians
POISSON, Franck; BONGINI, Estelle; DUBOIS, Françoise; FAURE, Baldrik; LAOUSSE, Dominique
- 09:10 Modelling framework for electromagnetic noise generation from traction motors
Botling,; Lopez Arteaga,
- 09:30 Train speed estimations from ground vibration measurements using a simple rail deflection model mask
Jurdic, Vincent; Bewes, Oliver; Burgemeister, Kym; Thompson, David
- 09:50 Groundborne Railway Noise and Vibration in Buildings: Results of a Structural and Acoustic Parametric Study
Lurcock, Daniel; Thompson, David; Bewes, Oliver

Morning Tea

10:10 – 10:40

Session 10 - Squeal Noise

Chair: David Thompson

- 10:40 Prediction on curve squeal in the case of constant wheel rail friction coefficient
Wang, Chao; Dwight, Richard; Li, Wenxu; Jiang, Jiandong
- 11:00 Analytical Prediction and Investigation of Wheel Squeal Amplitude
Meehan, Paul A.; Liu, Xiaogang
- 11:20 Investigation of railway curve squeal using a combination of frequency- and time-domain models
Pieringer, Astrid; Torstensson, Peter; Giner, Juan; Baeza, Luis

Session 11 - Structure-Borne Noise and Ground-Borne Noise

Chair: Paul de Vos

- 11:40 Modelling of ground-borne vibration when the train speed approaches the critical speed
Shih,; Thompson,
- 12:00 Estimating adjustment factors to predict vibration at research facilities based on measurements in a subway tunnel
Saurenman, Hugh; Ono, Christopher
- 12:20 The Factors Associated with the Management of Combined Rail / Wheel Roughness to Control Groundborne Noise and Vibration from the UKs Crossrail Project
Method, R

Lunch

12:40 – 13:40

Poster Session 3

Chair: Pierre-Etienne Gautier

- 13:40 Study on Optimizing the Parameters of Shock Absorber of High Speed Train Floor
Wang, Dongzhen; Ge, Jianmin
- 13:42 Low cost noise barriers for mitigating rail noise
Basutu, Laurena; Hanson, David; Dowdell, Bruce
- 13:44 The Uncertainty Associated with Short-term Noise Measurements of Passenger and Freight Trains
Weber, Conrad; Zoontjens, Luke; Hanson, David; Basutu, Laurena
- 13:46 Development of a suspended floor structure for a railway vehicle
Yamamoto, Katsuya; Goto, Tomonori; Asahina, Mineyuki; Akiyama, Yuki; Imaoka, Norihiko
- 13:48 Research on noise control of air-conditioning ventilation system in high-speed train
Bai, Guofeng; Lu, Fan; zhang, Guoan; Deng, zhenyu; Sui, fusheng
- 13:50 Study on Sound Absorption Seats of High Speed Train
Zhao Yanju,
- 13:52 The Effect of Rail Dampers on Wheel Squeal: Results of a Field Trial

- 13:54 Hanson, David; Jiang, Jiandong; Dowdell, Bruce; Kay, Susan
Application Effect of Chinese High-speed Railway Noise Barriers
Li, Yanliang; Li, Zhiqiang

Afternoon Tea

15:00 – 15:30

Session 12 - Wheel and Rail Noise

Chair: Masanobu Iida

- 15:30 A new model for the prediction of track sound radiation
Zhang, Xianying; Thompson, David J; Squicciarini, Giacomo
- 15:50 Hybrid model for prediction of impact noise generated at railway crossings
Torstensson, Peter T.; Squicciarini, Giacomo; Krüger, Matthias; Nielsen, Jens C.O.; Thompson, David J.
- 16:10 Development of supported rail vibration models
Li, Wenxu

Early Close Prior to Conference Dinner

Friday 16th September 2016

Session 13 - Structure-Borne Noise and Ground-Borne Noise

Chair: Jim Nelson

- 08:30 Vibration Reduction with Installation of Rail Dampers – A Case Study
Croft, Briony; Weber, Conrad
- 08:50 Computation of ground vibration around pier by using axisymmetric finite element method
Kaneda, Jun; Ikemoto, Hirofumi; Ishii, Takeshi; Saitoh, Kunio
- 09:10 Sound Transit Prototype High Performance Low Frequency Floating Slab Testing and Evaluation
Nelson, James Tuman; Watry, Derek L.; Amato, Michael A.; Faner, Patrick G.; Kaddatz, Sarah E.; Bergen, Thomas F.
- 09:30 Development of a Test Procedure for Stiffness Measurements Appropriate to Ground-Borne Noise Modelling
Herron, David; Bongini, Estelle; Faure, Baldrik; Potvin, Rodolphe; Cox, Steve
- 09:50 A comprehensive review of Force Density Levels from Sound Transit's Light Rail Transit Fleet
Rajaram, Shankar; Nelson, James Thurman; Saurenman, Hugh

Morning Tea

10:10 – 10:40

Session 14 - Wheel and Rail Noise

Chair: Masanobu Iida

- 10:40 Friction Management as a Sustainable Solution for Controlling Noise at the Wheel-Rail Interface.
Richard Stock,
- 11:00 Characterisation of Train Fleet Wheel Condition in a Metro
Albindo, Kevin Gunawan; Ng, Chong Joo; Ng, Teck Poo; Chia, Wee Lee
- 11:20 Rail shielding – influence on noise emission and rail vibration
Huber, Philipp; Liengme, Jean-Daniel; Koller, Günther
- 11:40 Wheel tread defects – a measurement-based approach to estimate the effects on railway noise
Dinhobl, Günter; Maly, Thomas; Jaksch, Martin; Suppin, Patrick

Session 15 - Predictions, Measurements and Modelling

Chair: Thorsten Tielkes

- 12:00 Design and Performance of a Permanent Vibration Monitoring System with Exceedance Alarms in Train Tunnels
Rajaram, Shankar
- 12:20 Ground-borne Noise and Vibration Modelling Software
Allan, Michael; Uyttersprot, Laura

Lunch

12:40 – 13:40 Including Conference Prize Presentations

Conference Close

13:40 – 16:00 Shuttle Buses to Gosford Station