

IAVSD 2023 PROGRAM

Monday

07:30 Registration | Rideau Canal Atrium Centre

08:30 Opening ceremony | Ottawa Salon

Plenary session A | Ottawa Salon
Chair: Tim Gordon

09:30 State-of-the-Art Presentation A1: Vehicle System Dynamics in Digital Twin Studies in Rail and Road Domains

Maksym Spiryagin, Johannes Edelmann, Florian Klingner, Colin Cole

10:30 Plenary Presentation A2 - Road; 5: Steering Feel Simulation with a High Performance Force Feedback Steering Wheel

Kilian Joerg, Matthias Becker, Korbinian Thaler, Peter E. Pfeffer

Coffee break

| Room | Ottawa Salon | Meeting Room 209 | Meeting Room 210 | Meeting Room 211 | Meeting Room 212 |
|-------|---|--|---|---|--|
| | Road 11: Autonomous Vehicles Chair: Gianpierto Mastinu | Road 12: Road Chair: Fredrik Bruzelius | Road 13: Motion Comfort Chair: Johannes Edelmann | Rail 11: Condition Monitoring and Maintenance 1 Chair: Nicholas Wilson | Rail 12: Wheel and Rail Profiles Chair: Björn Pålsson |
| 11:30 | 100: Architectures for Autonomous Emergency Actions not using Friction Knowledge <i>Lars Nielsen</i> | 307: SOT Military Vehicle Mobility Classification - Strategic, Operational, Tactical <i>Daniel Cole</i> | 92: Trajectory planning for motion sickness mitigation in autonomous driving: effect of frequency weighting and road three-dimensionality <i>Ilhan Yunus, Stefano Lovato, Jenny Jerrelind, Lars Drugge, Matteo Massaro</i> | 198: Crack detection in railway axles using axle-box vibration measurements: experimental investigation using a full-scale roller rig <i>Edoardo Sabbioni, Davide Tarsitano, Stefano Bruni, Mohamed Hassan</i> | 44: Investigating Gradient Index Profile and its Correlations with Equivalent Conicity and Rail Surface Management <i>Martin Li, Lars-Ove Jönsson, Ingemar Persson, Matthias Asplund, Mats Berg</i> |
| 12:00 | 101: Exploring four-wheel steering for trajectory tracking of autonomous vehicles in critical conditions <i>Wenliang Zhang, Lars Drugge, Mikael Nybacka, Jenny Jerrelind, Zhenpo Wang</i> | 159: Influence of sound, vibration, and motion-cueing feedback on driving experience and behaviour in real-life teleoperation <i>Lin Zhao, Mikael Nybacka, Malte Rothhämel, Lars Drugge</i> | 189: The impact of body and head dynamics in assessing motion comfort in automated vehicles <i>Georgios Papaioannou, Raj Desai, Riender Happee</i> | 322: Simulation-based evaluation of maintenance strategies using look-up tables <i>Saeed H-Nia, Abderrahman Ait-Ali, Kristofer Odolinski, Peter Torstensson, Sebastian Stichel</i> | 63: Wheel Tread Profile for Both Ukrainian and European Railways <i>Olga Markova, Helena Kovtun, Tetiana Mokriy, Iryna Malysheva, Victor Maliy</i> |
| 12:30 | 175: Vehicle Localization for Autonomous Vehicles Using Environmental Magnetic Field Incorporating Artificial Land Markers <i>Kyoya Ishii, Keisuke Shimono, Yoshihiro Suda, Takayuki Ando, Hirotaka Mukumoto, Tomohiko Nagao</i> | 284: Driveline Factor for Traction and Acceleration Performance Design <i>Jesse Paldan, Jordan Whitson, David Gorsich, Lee Moradi, Vladimir Vantsevich</i> | 217: The effect of roll and pitch movements of passenger cars on motion sickness <i>Andreas Hartmann, Uwe Schönfeld, Christiane Cyberski, Steffen Müller</i> | 17: High-speed railway wheel polygon detection framework using improved frequency-domain quadratic integration <i>Qinglin Xie, Gongquan Tao, Siuming Lo, Wubin Cai, Hongqin Liang, Zefeng Wen</i> | 255: Introducing a stable initial profile for fast passenger train <i>Elham Khorazmad, Saeed H-Nia, Mats Berg</i> |
| 13:00 | Road 14: Vehicle Stability Chair: Patrick Gruber | Road 15: Road Surface Assessment Chair: Jochen Rauh | Road 16: Tire Forces Chair: Rob Langlois | Rail 13: Adhesion and Friction Chair: Sebastian Stichel | Rail 14: Switches & Crossings 1 Chair: Oldrich Polach |

Lunch break

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| 14:00 | 70: Development and validation of a process chain for a real-time capable simulation of a vehicle with a cracked rear axle tie rod <i>Robert Schurmann, Alexander Krause, Jan Frischkorn, Alexander Lion</i> | 103: Rubber Friction Identification from Tyre Force Measurements using an inverse brush model and Monte Carlo Simulation <i>Tom Sanders, Georgios Mavros, James Knowles</i> | 146: Research on the prediction of tire radial load based on 1D CNN and BiGRU <i>Maozhenning Yang, Yuanjin Ji, Lihui Ren, Junwei Zeng, Youpei Huang, dao gong</i> | 90: Towards understanding the adhesion increasing effect of sand in wheel-rail contacts <i>Klaus Six, Bettina Suhr, William Skipper, Roger Lewis</i> | 236: Extension of CONTACT for switches and crossings and demonstration for S&C benchmark cases <i>Edwin Vollebregt, Peter Klauser, Alexander Keylin, Patricia Schreiber, Devin Sammon, Nicholas Wilson</i> |
| 14:30 | 104: Self-Excited Torsional Vibrations of the Driven Wheels in a High-Performance Car <i>Alessandro De Felice, Marco Cesari, Stefano Monfardini, Alexander Schramm, Silvio Sorrentino</i> | 82: Minimizing Stopping Distance on Split Friction via Steering and Individual Wheel Braking Optimization <i>Ektor Karyotakis, Mats Jonasson, Derong Yang, Jonas Sjöberg</i> | 237: Effect of tread depth on the tire cornering performance <i>Sogol Kharrazi, Mattias Hjort</i> | 151: A Concept for Torque Modulation-based Train-borne Measurement of Coefficient of Friction <i>Gokul J. Krishnan, Zhen Yang, Zili Li, Rolf Dollevoet</i> | 227: Assessment of an iterative settlement procedure in railway switches and crossings using two different approaches <i>Michel Sebès, Samuel Hawksbee, Fares Naccache, Pedro Jorge, Moncef Toumi, Ilaria Grossoni, Yann Bezin</i> |
| 15:00 | 153: Influence of chassis torsional stiffness of an agricultural vehicle on rollover stability <i>Mattia Belloni, Michele Vignati, Edoardo Sabbioni</i> | 333: Vehicle Fleet Data for Cost Efficient Real-Time Road Surface Assessment <i>Jochen Hipp, Kay Massow, Rafael Grote, Jens Pontow, Siegmund Züfle, Timo Espenschied, Martin Haueis, Patrick Blume, Ilja Radusch, Michiel Bontenbal</i> | 300: Measurement of tire vertical damping, carcass deflection and longitudinal relaxation length <i>Igo Besselink, Aron Aertssen, Dhruv Thakkar, Carlo Lugaro</i> | 174: Evaluation of wheel flange lubrication condition based on continuous observation of wheel/rail contact forces <i>Yosuke Ichiyangi, Yasuhiro Sato, Yohei Michitsuji, Akira Matsumoto, Masuhisa Tanimoto, Yuichi Nakasato, Junya Ito, Takuya Matsuda, Daisuke Shinagawa</i> | 261: Predicting dynamic force level in railway crossings <i>Yann Bezin, Pedro Mascarenhas Jorge, Hossein Alizadeh Otorabad</i> |
| 15:30 Coffee break | | | | | |
| Road 17: Vehicle Control Chair: Manfred Ploechl | | Road 18: Vehicle Safety Chair: Bruce Minaker | Rail 15: Wheel and Rail Damage 1 Chair: Luis Baeza | Rail 16: Traction and Braking Chair: Tian Xiang Mei | Rail 17: Measurement and Testing 1 Chair: Nicola Bosso |
| 16:00 | 134: Control-configured Design on Controllable Suspensions: Active Camber as a Case Study <i>Xinjie Zhang, Luhang Wang, Konghui Guo, Quan Yao, Qirui Feng, Ziqi Yi</i> | 52: Driver gaze model for motion cueing yaw feedback optimisation <i>Henrik Hvitfeldt, Jenny Jerrelind, Lars Drugge</i> | 331: Impact of vehicle characteristics on track damage for Universal Cost Model applications <i>Babette Dirks, Tohmmmy Bustad</i> | 59: Implementation of the rheological dry friction model in Fastsim algorithm for locomotive traction studies <i>Maksym Spiryagin, Oldrich Polach, Esteban Bernal, Mohammad Rahaman, Qing Wu, Colin Cole, Ingemar Persson</i> | 117: A Machine Learning Approach for Predicting Railway In-train Forces from ATO Measurements <i>Sheng Zhang, Pu Huang, Tim Constable, Wenyi Yan</i> |
| 16:30 | 274: Cooperative Truck Platooning on Canadian Public Roads during a Winter Season <i>Luo Jiang, Mahdi Shahbakhti</i> | 190: A study on the influence of steer-by-wire failure modes on driving safety <i>Xujing Song, Mårten Fritzell Westlund, Lars Drugge, Lin Zhao</i> | 37: Comprehensive mechanism of wheel rail corrugated wear <i>Huanyun Dai, Yayun Qi, Hao Gao, Yu Huang, Wen Shi</i> | 180: Analysis on Wheel Load Imbalance under Traction in Parallel Cardan Driving Bogies <i>Taihei Yamaguchi, Yohei Michitsuji, Shingo Makishima, Satoru Takahashi</i> | 256: Investigation of the wheel impact load and transition point on fixed crossings combining MBS & FEA with in-track measurements <i>Thomas Titze, Christian Bucher, Uwe Ossberger</i> |

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| 17:00 | 239: Performance-Aware Control Design for Reverse Docking of Tractor Semi-Trailer Combinations. <i>Viral Gosar, Moshen Alirezaei, Igo Besselink, Henkj Nijmeijer</i> | 143: Model Predictive Contouring Control for Vehicle Obstacle Avoidance at the Limit of Handling <i>Alberto Bertipaglia, Mohsen Alirezaei, Riender Happee, Barys Shyrokau</i> | 50: Investigation of Belgrospi-Like Damage Formation Using a 3D Elastic–Plastic Finite Element Model of Wheelset–Rail Rolling Contact on Curved Track <i>Zhijun Zhou, Xiaoxuan Yang, Gongquan Tao, Zefeng Wen, Wei Li</i> | 99: Jerk-Limited Railway Trajectories With Minimal Distance Between Waypoints <i>Aliaume Brochard, William Pasillas-Lepine, Bernard Demaya</i> | 72: Testing the Impact Performance of Long Pocket Dual Draft Gear Using Digital Twin Technique <i>Colin Cole, Maksym Spiriyagin, Qing Wu</i> |
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17:30 **Welcome reception**

Tuesday

8:00 **Registration | Rideau Canal Atrium Centre**

Plenary session B | Ottawa Salon
Chair: Manfred Ploechl

8:30 State-of-the-Art Presentation B1: Dynamics Performance of Long Combination Vehicles with Active Control Systems
Wei Huang, Mehdi Ahmadian, Amir Rahimi, Luke Steinginga

9:30 Plenary Presentation B2 - Road; 324: Steer-by-wire -- The challenge of angles and torque
Matthijs Klomp, Fredrik Bruzelius, Ossian Bergström, Johan Jansson, Filip Brink, Linnea Wennberg

10:00 Plenary Presentation B3 - Rail; 75: Application of non-Hertzian creep force models in rail vehicle dynamics simulation
Binbin Liu, Bin Fu, Qinghua Guan, Stefano Bruni

10:30 **Coffee break**

| Room | Ottawa Salon | Meeting Room 209 | Meeting Room 210 | Meeting Room 211 | Meeting Room 212 |
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| | Road 21: Tires and Temperature Chair: Yuping He | Road 22: Off-road Chair: Mats Jonasson | Rail 21: Track Modelling 1 Chair: Yoshihiro Suda | Rail 22: Optimisation Chair: Mats Berg | Rail 23: Wheel and Rail Damage 2 Chair: Maksym Spiriyagin |
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| 11:00 | 330: On the development of a friction-integrated brush tyre model for combined slip conditions <i>Megan Pegram, Davide Tavernini, Patrick Gruber</i> | 305: Hybrid Modelling in Terramechanics <i>Eric Karpman, Jozsef Kovecses, Marek Teichmann</i> | 7: Data-driven track irregularity estimation technique using car-body vibration <i>Hitoshi Tsunashima</i> | 349: The Role of Profile Quality Indices in Rail Profile Optimization <i>Teever Handal, Kevin Oldknow, Gustavo Silva, Sean Regehr, Eric Magel</i> | 85: Prediction and control of wheel wear of a high-speed train based on measured data and simulation <i>Xin Ding, Saeed Hossein Nia, Helmut Netter, Gang Chen, Sebastian Stichel, Rocco Libero Giossi, Elham Khorazmad, Zhendong Liu</i> |
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| 11:30 | 248: All-season tires – investigation of braking performance in summer and winter conditions <i>Mattias Hjort, Fredrik Bruzelius, Sogol Kharrazi, Anders Ydenius</i> | 354: Soil deformation model for efficient simulation of off-road vehicles <i>Yang Jiao, Jozsef Kovecses, Marek Teichmann</i> | 311: An attempt for train effect on track rating based on MBS simulation and maintenance data <i>Xavier Quost, Alfonso Panunzio, Pierre Boutet, Samuel Simon</i> | 32: Influence and Optimization of the Height of Crossing Point on the Dynamic Characteristics of Overlap <i>Yongming Yao, Jing Wang, Bin Wang, Meijun Mu, Zhipeng Yang, Hongbo Kou</i> | 88: On the road towards understanding squats: metallographic investigations of rails <i>Timna Gschwandl, Angelika Spalek, Thomas Antretter, Werner Daves</i> |
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| 12:00 | 318: A Semi-physical Multi-layer Tyre Temperature Model that Enables a Pragmatic Parameter Identification <i>Martin Schabauer, Christoph Scherndl, Cornelia Lex</i> | 208: Improving off-road vehicle lateral stability with integrated chassis control <i>Simon Scholtz, Herman A. Hamersma</i> | 245: Rail Settlement sensitivity and impact analysis for Universal Cost Model <i>Jonathan Leung, Bente de Leeuw, Carlos Casanueva Perez, Sebastian Stichel</i> | 212: Optimization method of EMU operation stability based on evolutionary control of wheel tread hollow worn <i>Zegen Wang, Dao Gong, Jinsong Zhou, Guangyu Liu</i> | 129: Phase-based mitigation method of high-order wheel polygonal wear <i>Wubin Cai, Maoru Chi, Xingwen Wu, Shulin Liang</i> |
| 12:30 | Lunch break | | | | |
| | Road 23: Vehicle Stability and Prediction Chair: Fidel Khouli | Road 24: Lane Changing Chair: Lars Nielsen | Rail 24: Switches & Crossings 2 Chair: Saeed Hossein Nia | Rail 25: Wheel-Rail Contact Chair: Zili Li | Rail 26: Ride Comfort Chair: Teever Handal |
| 13:30 | 234: Influences of design and operating parameters on vibration characteristics of a honeycomb non-pneumatic wheel <i>Zhou Zheng, Darshan Dorugade, Shanshan Chen, Subhash Rakheja, Ramin Sedaghati, Feng Chen</i> | 138: Extraction of lane changes from Naturalistic Driving Data for performance assessment of HCT vehicles <i>Abhijeet Behera, Sogol Kharrazi, Erik Frisk</i> | 130: Effects of curved switch rail wear on the dynamic performance of high-speed vehicles passing through CN No.42 turnout diverging route <i>Zhiang Sun, Xinwen Yang</i> | 203: An exact linear tangential contact theory for railway rolling noise modelling in curves <i>Juan Giner-Navarro, Binbin Liu, Fernando Rincon-Contel, Luis Baeza, Stefano Bruni</i> | 233: Ride comfort improvements of railway vehicles using model predictive control <i>Alexander Posseckert, Daniel Lüdicke</i> |
| 14:00 | 95: Investigating alternative phase planes for assessing vehicle stability <i>Giovanni Righetti, Roberto Lot, Basilio Lenzo</i> | 186: Influence of Vehicle Suspension Geometry on Vehicle Lateral Dynamics in Critical Lane Change Maneuvers <i>Wei WANG, Pongsathorn Raksincharoensak</i> | 187: The initial development of infrastructure switches & crossings modules of the Universal Cost Model 2.0 <i>Yann Bezin, Hugo Magalhaes, Pedro Mascarenhas Jorge, Carlos Perez Casanueva, Stefan Marschnig</i> | 86: Assessment of simplified models of conformal wheel-rail rolling contact <i>Yu Chen, Binbin Liu, Stefano Bruni</i> | 224: Ride Comfort control of an innovative two-axle vehicle considering wheel wear evolution <i>Rocco Libero Giossi, Rickard Persson, Sebastian Stichel</i> |
| 14:30 | 225: Nonlinear Concurrent Control of Yaw and Lateral Dynamics of Electric Vehicles <i>Parichat Yubonbanditkun, Mariagrazia Tristano, Giovanni Righetti, Hongwei Zhang, Basilio Lenzo, Xu Xu</i> | 287: Field Testing and Performance Evaluation of Roll Stability Control System of Double-trailer Trucks <i>Yang Chen, Campbell Neighborgall, Xiaohan Zheng, Mehdi Ahmadian</i> | 188: Multibody simulation of derailment risk in railway switches due to switch rail irregularities caused by interfering objects <i>Sucheth Krishna Kumar Bysani, Björn Pålsson, Anders Ekberg, Björn Paulsson, Elena Kabo</i> | 150: Fast Analytical Wheel-Rail Contact Modelling for Realtime Capable MBS in HIL using MATLAB Simulink <i>Stefan Heinrich, Simone Urbinati</i> | 172: Research on the Causes and Countermeasures of Abnormal Riding Comfort of Tram <i>Huansheng Wang, Maoru Chi, Wubin Cai, Shulin Liang, Yuchen Xie, Zhaotuan Guo</i> |
| 15:00 | 315: Enhancement of posture stability in narrow tilting vehicles under disturbance <i>Keizo Araki</i> | 362: Viability of differential braking based steering redundancy for an autonomous vehicle <i>Dorukhan Tokay, Volkan Bekir Yangin, Ozgen Akalin</i> | 221: Development of a 3D solid finite element model of a crossing panel and calibration to measurement data <i>Henrik Vilhelmson, Björn Pålsson, Jens Nielsen, Uwe Ossberger, Michael Sehner and Harald Loy</i> | 200: A Transient Creep Force Model to predict Torsional Wheelset Vibrations <i>Gabriele Scandola</i> | 251: On the stochastic nature of comfort on railway vehicles <i>Angel Morales, Eduardo Palomares, Antonio Nieto, Carmen Ramiro, Publio Pintado</i> |
| 15:30 | Coffee break | | | | |
| 16:00 – 17:30 | Poster paper presentations (schedule on pages 10 to 13) | | | | |

Wednesday

Plenary session C | Ottawa Salon

Chair: Mehdi Ahmadian

08:30 State-of-the-Art Presentation C1: Force Sensors for Active Safety and Durability of Road Vehicles
Giampiero R. M. Mastinu, Massimiliano Gobbi

09:30 Plenary Presentation C2 - Road; 91: Maps of Achievable Performance: a new general tool for vehicle handling analysis
Massimo Guiggiani, Basilio Lenzo

10:00 Plenary Presentation C3 - Rail; 179: Fast wear and RCF prediction on a whole rail network
Gabor Müller, Dietmar Hartwich, Stephan Scheriau, Klaus Six, Alexander Meierhofer

10:30 Coffee break

| Room | Ottawa Salon | Meeting Room 209 | Meeting Room 210 | Meeting Room 211 | Meeting Room 212 |
|-------|---|---|---|--|---|
| | Road 31: Tires and Friction Chair: Timo Sukuvaara | Road 32: Vehicle Suspension Chair: Lars Drugge | Rail 31: Measurement and Testing 2 Chair: Yann Bezin | Rail 32: Stability and Safety Chair: Jens Nielsen | Rail 33: Active Suspension Chair: Peter Klauser |
| 11:00 | 209: Study on Continuous Measurement of Road Friction Characteristics from the Viewpoint of Next-Generation Traffic Safety <i>Ichiro Kageyama, Yukiyo Kuriyagawa, Tetsunori Haraguchi, Tetsuya Kaneko, Atsushi Watanabe, Minoru Nishio</i> | 240: Pressure dependent semi-active interconnected system for vehicle anti-roll applications <i>Sathishkumar Palanisamy, Thiyagarajan J, Muthuramalingam T</i> | 195: Freight Wagons Innovative Derailment Detection Algorithm Design Based on Experimental Data <i>Michele Asperti, Federico Zanelli, Nicola Debattisti, Marco Mauri, Edoardo Sabbioni</i> | 313: Research on safety of high-speed train collision based on collision dynamics <i>Xiaorui Wang, Tao Zhu, Jingke Zhang, Zongzhi Li</i> | 15: Torsional Vibration Reduction of Railway Vehicle by Controlling Internal Pressure of Air Springs using H-infinity Control <i>Takayoshi Kamada, Kazuhisa Uchida</i> |
| 11:30 | 235: Measuring Cornering Properties of Heavy Vehicle Tyres on Snow Using a Tyre Testing Trailer <i>Miro-Tommi Tuutijärvi, Mattias Hjort, Sogol Kharrazi, Ville Pirnes, Teppo Siltanen</i> | 257: Analytical and Experimental Investigation of the Potential for Using Novel Nonlinear Magnetic Shock Absorbers in Ground Vehicle Applications <i>Amirhossein Daliri Shadbad, Robert Langlois, Fidel Khouli, Fred Afagh</i> | 46: Indirect Wheel-rail Force Measuring Method for Freight Cars and Derailment Evaluation <i>Pingbo Wu, Lai Wei, Shifeng Xu, Jia Zhang</i> | 43: Numerical investigation into the variation mechanism of hunting frequency in railway wheelset system <i>Jianfeng Sun, Xingwen Wu, Weidong Jiao, Yonghua Jiang, Maoru Chi, Shiju E, Attiq Rehman</i> | 156: Dynamics and control of MR damper in railway vehicle semi-active primary suspension <i>Bin Fu, Binbin Liu, Egidio Di Gialleonardo, Stefano Bruni</i> |
| 12:00 | 271: Closed-Loop Direct Tyre Force Control Based on Tyre Slip Mapping <i>Yunchang Yu, Wenfei Ji, Runfeng Li, Guangyu Tian</i> | 283: The Influence of Suspension Geometry on the Coupling of Lateral Acceleration and Ride Dynamics <i>Bruce Minaker, Jennifer Johrendt</i> | 293: A measurement of the wheel-rail contact temperature field <i>Chunyan He, Zhen Yang, Zili Li</i> | 96: Degradation prediction of track geometry irregularity from historical measurements based on deep learning <i>Qinglai Zhang, Shengyang Zhu, Jianmin Gao, Wanming Zhai</i> | 40: Numerical and experimental study on improving the dynamic performance of high-speed train with semi-active yaw damper <i>Zhaotuan Guo, Maoru Chi, Liangcheng Dai, Shulin Liang</i> |

12:30 Lunch break

14:30 – 17:30 Technical tours

19:00 – 22:00 Boat Cruise

Thursday

Plenary session D | Ottawa Salon

Chair: Simon Iwnicki

08:30 State-of-the-Art Presentation D1: Improved Curving Performance Using Unconventional Wheelset Guidance Design and Wheel-Rail Interface - Present and Future Solutions
Yoshihiro Suda, Yohei Michitsuji

09:30 Plenary Presentation D2 - Road; 176: Measurement and evaluation of rolling resistance of car tyres at low operating temperatures.
Lisa Ydrefors, Mattias Hjort, Sogol Kharrazi, Jenny Jerrelind, Annika Stensson Trigell

10:00 Plenary Presentation D3 - Rail; 142: Improvement of low frequency car-body hunting stability of high-speed trains through adaptive robust constraint-following control
Liang Ling, Jingyu Zhao, Heng Zhang, Zheshuo Zhang, kaiyun Wang, Wanming Zhai

10:30 Coffee break

| Room | Ottawa Salon | Meeting Room 209 | Meeting Room 210 | Meeting Room 211 | Meeting Room 212 |
|-------|---|---|---|---|--|
| | Road 41: Tires Chair: Fredrik Bruzelius | Road 42: Heavy Vehicles Chair: Zeljko Knezevic | Rail 41: Monorail Chair: Mehdi Ahmadian | Rail 42: Vibration and Control Chair: Zunsong Ren | Rail 43: Digital Twin Chair: Liang Ling |
| 11:00 | 69: Experimental Validation of Elliptical Contact Patch Tire Model Improved by introducing Slip Velocity-dependent Friction Coefficient <i>Ryota Nakanishi, Masami Matsubara, Takashi Ishibashi, Haruyuki Suzuki, Shozo Kawamura, Daiki Tajiri</i> | 114: A Review of Effects of Driver-vehicle Interactions on the Safety of Articulated Heavy Vehicles <i>Yuping He</i> | 328: Simulation of a Longitudinal Control System for an Automated Driving Self-Stabilized Monorail Vehicle <i>Raphael Hanselle, Rainer Rasche, Stefan Witte, Rolf Naumann, Sönke Lück, Dominic Stork</i> | 79: Investigation on High Frequency Vibration of Bogie Frame Due to Wheel/rail Short-Pitch Irregularities and Its Control Methodology Based on Piezoelectric Actuators <i>Xingwen Wu, Yang Luo, Maoru Chi, Zefeng Wen, Subhash Rakheja, Yunhua Huang, Shuling Liang, Xing Du, Yu Ren, Wei Wang</i> | 259: Digital twin of vehicle-track system for integrated track condition monitoring <i>Chen Shen, Rolf Dollevoet, Zili Li</i> |
| 11:30 | 125: Development of a tire characterization procedure from track acquisitions with an instrumented race vehicle <i>Davide Cortivo, Giovanni Meneghetti, Matteo Massaro, Dindo Luigi, Mattia Vendramin</i> | 121: Development of Optimal Path Planning and Control System for Double Trailer Truck <i>Geonyeong Park, Sangwon Han, Kunsoo Huh</i> | 262: Influence of the dynamic pendulum motion of a suspended monorail on the clearance requirement <i>Bernhard Kurzeck, Christian Kindinger, Pflingst Ulrich, Ludger Schülting, Fabian Denisow</i> | 216: Railway track management based on car body vibration of daily running trains measured by smartphone <i>Akira Matsumoto, Noriyuki Shinoda, Hitoshi Tsunashima, Yasuhiro Sato, Seigo Ogata</i> | 168: Real-Time Digital Twin for Railway Systems <i>Esteban Bernal, Maksym Spiriyagin, Juan Felipe Santa Marín, Alejandro Toro, Qing Wu, Colin Cole</i> |
| 12:00 | 290: Research on Prediction of Tire Camber-Sideslip Com-bined Mechanical Characteristics <i>Yanru Suo, Dang Lu, Fredrik Bruzelius, Yandong Zhang, Mattias Hjort</i> | 285: Experimental Validation of a Multi-Body Dynamics Model for a Novel Electric Bus <i>Patrick Kehoe, Nima Jafroudi, Rayane Ait Oubahou, Elton Toma</i> | 297: Analysis of mechanical eigenmodes of a self-stabilizing monorail vehicle <i>Martin Griese, Patrick Döding, Thomas Schulte</i> | 48: Influence of Rail Corrugation on Axle Box Acceleration: A Numerical Analysis Method Based on Adaptive Time - Frequency Feature Extraction <i>Jianfeng Guo, Zhendong Liu, Jinzhao Liu, Zaitian Ke, Kai Tao</i> | 94: Introduction of digital twins in the longitudinal train dynamics simulation of freight train air brake operations <i>Nicola Bosso, Luciano Cantone, Antonio Gugliotta, Matteo Magelli, Riccardo Trincherio, Nicolò Zampieri</i> |

12:30 Lunch break

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| | Road 43: Transit Chair: Mats Jonasson | Road 44: Ride Comfort Chair: Patrick Gruber | Rail 44: Vehicle and Track Modelling Chair: Colin Cole | Rail 45: Condition Monitoring and Maintenance 2 Chair: Binbin Liu | Rail 46: Vehicle Dynamics Chair: Teever Handal |
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| 13:30 | 41: Interdisciplinary Approach on Modeling Multimodal Public Transport Systems <i>Frederic Etienne Kracht, Lukas Spengler, Eva Goesswein, Ingmar Kranefeld, Magnus Liebherr, Eva Spachtholz, Dieter Schramm, Marc Gennat</i> | 122: On Comfort in Cycle Carriers for Child Transport <i>Malte Rothhämel, Yunqi Liu</i> | 128: Modelling and analysis of electromechanical coupled dynamics of permanent magnet direct-drive inboard bearing bogie <i>Maoru Chi, Chen Yang, Xingwen Wu, Wubin Cai, Guanzhou Ren, Guangtong Ma</i> | 36: Development of an algorithm to detect rail defects by accelerometry <i>Emilien Curtet, Alfonso Panunzio, Samuel Simon, Stephane Teppe, Jacobo Montoya, Emanuel Reynaud, Pierre Delage, Nicolas Vincent</i> | 289: Vehicle Dynamics-Centred Framework for Defining and Assessing System Integrity of High-speed Trains <i>Weihua Zhang, Yuanchen Zeng, Dongli Song, Zhiwei Wang</i> |
| 14:00 | 68: Multi-Target Longitudinal Control Based on Model Predictive Control for Autonomous Bus <i>Sangwon Han, Seungwon Choi, gihoon Kim, Geonyeong Park, Jaeho Choi, Kunsoo Huh</i> | 182: Improvement of Transient Response of Active Pitch Control for Preventing Passenger Falling Over in Autonomous Shuttle <i>Mitsuki Miki, Keisuke Shimono, Toshihiro Hiraoka, Yoshihiro Suda</i> | 210: Study on the dynamic behaviors of bogie frame in the presence of fatigue crack <i>Bo Peng, Xingwen Wu, Peng Qing, Caiying Mi, Maoru Chi, Shulin Liang</i> | 291: Multi-band fault feature extraction of rail vehicle axle-box bearing under multi-source interferences <i>Li Huang, Yao Cheng, Weihau Zhang</i> | 165: Comparison of vehicle dynamics simulation results using laser and contact-based profilometer measurements as inputs <i>Yi Wang, Elliot Rothwell, Kevin Oldknow, David Crosbee</i> |
| 14:30 | 105: Stabilization of Articulated Bus Through Hydraulic Joint Control: A Feasibility Study <i>Alessandro De Felice, Matteo Mercantini, Alexander Schramm, Silvio Sorrentino</i> | 192: Acceptance Assessment of an Adaptive Cruise Control System Using a Multi-Driver Dynamic Driving Simulator <i>Michele Asperti, Alessandro Francesconi, Edoardo Sabbioni</i> | 9: Dynamic Stress Analysis of Railway Bogies due to Wheel-rail Coupled Vibrations on Elastic Tracks <i>Lai Wei, Jing Zeng, Pingbo Wu, Xiaoping Jia, Zhenkun Mei</i> | 228: A speed-dependent condition monitoring system for track geometry estimation using inertial measurements <i>Ivano La Paglia, Carlos Esteban Araya Reyes, Egidio Di Gialleonardo, Alan Facchinetti, Marco Carnevale</i> | 312: Simulation method for train curve derailment collision and the effect of curve radius on collision response <i>Tao Zhu, Zongzhi Li, Shoune Xiao</i> |
| 15:00 | 110: Offset-based Path Planner for Lane Keeping of Autonomous Bus <i>gihoon Kim, Jaeho Choi, Sangwon Han, Hyukju Sohn, Jihoon Sung, Kunsoo Huh</i> | 194: Path-Tracking Control Strategy for Enhanced Comfort in All-Wheel-Steering Autonomous Vehicles <i>Chenhui Lin, Georgios Papaioannou, Efstathios Siampis, Efstathios Velenis</i> | 111: Numerical investigation of rail longitudinal vibration modes on corrugation formation <i>Pan Zhang, Zili Li</i> | 267: A Robust Defects Detection approach for Railway Catenary System <i>Shaoyao Chen, Yang Song, Gunnstein Frøseth, Albert Lau, Anders Rønquist</i> | 326: Dynamic responses of transmission system bearings for a high-speed train with polygonal wheel <i>Zhonghui Yin, Zhiwei Wang</i> |
| 15:30 | Coffee break | | | | |
| | Road 45: Machine Learning Chair: Johannes Edelmann | Road 46: Path Planning Chair: Sogol Kharrazi | Rail 47: Longitudinal Dynamics Chair: Luis Baeza | Rail 48: Active Steering Chair: Tian Xiang Mei | Rail 49: Vehicle Design and Modelling 1 Chair: Yoshihiro Suda |
| 16:00 | 161: Physics-infused neural network-driven investigation of vehicle sideslip angle <i>Mariagrazia Tristano, Basilio Lenzo, Harry Saxton, Xu Xu, Xudong Zhang</i> | 275: Interactive Planning for the Intersections with Uncertainty of Observed Vehicle's Intentions and Occlusion Areas <i>Xuhe Zhao, Chaojie Zhang, Jun Wang</i> | 118: Advances in Long Train-Track Dynamics Modelling <i>Daniel Roi Agustin, Qing Wu, Shengyang Zhu, Colin Cole, Maksym Spiryagin, Esteban Bernal</i> | 45: Distribution method and fault-tolerance control for active steering bogie based on overdrive characteristics <i>Shiqiao Tian, Xiangping Luo, Chunyu Xiao, Han Leng, Jinsong Zhou</i> | 177: New-Type PQ Monitoring Bogie with Steering Device <i>Yuichi Nakasato, Takuya Matsuda, Junya Ito, Masuhisa Tanimoto, Daisuke Shinagawa, Kensuke Nagasawa</i> |

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|-------|---|---|--|--|--|
| 16:30 | 223: Surrogate Modeling of Suspension Mechanisms for Driving Simulator using Machine Learning <i>Ryosuke Takahashi, Yudai Shirao, Tojuro Hiraga, Taichi Shiiba</i> | 335: Optimal and Real-time Planning for Emergency Collision Avoidance of Tractor-Trailer Vehicles <i>Daofei Li, Xin Jiang, Hao Pan, Jiajie Zhang</i> | 247: An optimal placement of the remote locomotive for minimising longitudinal coupling forces in freight trains <i>Francesco Mazzeo, Egidio Di Gialleonardo, Stefano Melzi</i> | 207: Robust Sliding Mode Control with Integral Action for Active Wheelset Steering of Railway Vehicles <i>Prapanpong Damsongsaeng, Rickard Persson, Carlos Casanueva, Sebastian Stichel</i> | 265: Comparison of dynamics modelling techniques for friction damped Y-Series suspension <i>David Crosbee, Yi Wang</i> |
| 17:00 | 273: Deep Neural Network-based Vehicle Longitudinal Control using End-to-End Imitation Learning Fused with Logical Rules <i>Shen Liu, Steffen Müller</i> | 35: Multi-objective Predictive Control for Intelligent Vehicles by Considering Stability Constraints in Complex Scenarios <i>Yu Zhang, Ye Chen Qin, Mingming Dong, Tao Xu, Ehsan Hashemi</i> | 81: The influence of longitudinal in-train force on wheel wear and fatigue damage of heavy-haul locomotives <i>Jiacheng Wang, Jianhua Wang, Ertian Zhang, Kaiyun Wang, Wanming Zhai, Liang Ling</i> | 21: Guiding Stiffness Analysis of Steering Assist Device for Straddle Monorail Vehicle <i>Zengchuang Zhao, Fangshun Ge, Lihui Ren, Dongjin Zhu, Yanqiang Xu, Jiaxin Wang</i> | 148: Vertical vibration suppression of railway vehicle carbody based on weight distribution design <i>Fansong Li, Sheng Yang, Huailong Shi, Jing Zeng</i> |

18:30 IAVSD Banquet

Friday
Plenary session E | Ottawa Salon
Chair: Stefano Bruni

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| 08:30 | State-of-the-Art Presentation E1: Out-of-Round Railway Wheels and the Mechanisms of Wheel Polygonisation <i>Simon Iwnicki, Jens Nielsen, Gongquan Tao</i> |
| 09:30 | Plenary Presentation E2 - Road; 281: Integrated motion control for heavy goods vehicles using multiple actuators <i>Aria Noori Asiabar, Timothy Gordon, Leon Henderson, Yangyan Gao, Jakub Prokeš, Leo Laine</i> |
| 10:00 | Plenary Presentation E3 - Rail; 98: Influence of wheel rotation on instrumented wheelset measurements <i>Luis Baeza, Christopher Knuth, Giacomo Squicciarini, David J. Thompson, Juan Giner-Navarro</i> |

10:30 Coffee break

| Room | Ottawa Salon | Meeting Room 209 | Meeting Room 210 | Meeting Room 211 | Meeting Room 212 |
|-------|--|--|--|---|--|
| | Road 51: Steering Control Chair: Yuping He | Road 52: Vehicle Dynamics Chair: Bruce Minaker | Rail 51: Pantograph-Catenary Interaction Chair: Maksym Spiryagin | Rail 52: Track Modelling 2 Chair: Klaus Six | Rail 53: Vehicle Design and Modelling 2 Chair: Peter Klauser |
| 11:00 | 108: All-wheel Steering Control Strategy for Over-actuated Virtual Track Train <i>Han Leng, Lihui Ren, Yuanjin Ji</i> | 272: Accelerating Safety Evaluation for Intelligent Vehicles: The Role of Prior Knowledge <i>Shanshi Chen, Xinjie Zhang, Xiaoxing Lv, Konghui Guo, Haitao Ding, Deyu Kong</i> | 258: Numerical Study on Wear Intensity of Pantograph Collector Strips During Drive Cycles of Rail Vehicles <i>Bastian Schick, Zhendong Liu, Sebastian Stichel</i> | 263: Calibration of 2D and 3D track models for simulation of vehicle-track interaction and differential settlement in transition zones using field measurement data <i>Kourosh Nasrollahi, Ana Ramos, Jens Nielsen, Jelke Dijkstra, Magnus Ekh</i> | 6: The availability of four kinds of hydraulic damper models on the dynamics investigation of two types of high speed EMUs <i>Zunsong Ren</i> |

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|-------|---|--|---|--|---|
| 11:30 | 260: Practical Application of Commercial Vehicle Lane Keeping Assist <i>Brett Campbell, William Sanchez, Daniel Williams</i> | 365: Delay Mitigation for V2I-based Cooperative Autonomous Driving Applications <i>Chen Sun, Yaodong Cui, Ngoc Dao, Weisen Shi, Amir Khajepour</i> | 329: Dynamic Analysis of Pantograph-Catenary Interaction on Contact Wire Gradients with Aerodynamic Effects <i>Pedro Antunes, Joao Pombo, Jose Rebelo, Jose Santos, Hugo Magalhães, Jorge Ambrosio, Rakesh Mishra, Frankie Jackson</i> | 278: Towards understanding train-induced ratcheting behavior of CWR with an improved fastener resistance model <i>Jun Luo, Shengyang Zhu, Wanming Zhai</i> | 18: Application of bimodulus constitution and submodel simulation on CFRP high-speed carbody connection structure <i>Lanxin Jiang, Shoune Xiao, Jie Wang, Guangwu Yang, Bing Yang, Dongdong Chen</i> |
| 12:00 | 310: An Improved Pure Pursuit Algorithm for the Automated Steering Control of Road Vehicles <i>Shammi Rahman, Timothy Gordon, Yangyan Gao, Leon Henderson, Leo Laine</i> | 268: Characterization of Noise and Vibration in a Ground Ambulance by Road Classification <i>Patrick Kehoe, Richard Egwabor, Robert Langlois, James Green, Adrian D.C. Chan, Cheryl Aubertin, Kim Greenwood, Andrew Ibey, and Stephanie Redpath</i> | 30: Design optimisation of mixed trains catenary systems at different speeds <i>Hanlei Wang, Dingyang Zheng, Wenyi Yan</i> | 301: Railroad Track Gage Widening Assessment Using On-board Doppler LiDAR Velocity Measurements and Unsupervised Machine Learning Techniques <i>Ahmad Radmehr, S. Morteza H. Mirzaei, Ian Larson, Carvel Holton, Mehdi Ahmadian</i> | 116: In-situ assessment of the vibration and sound reduction performance in curved section of a new type of resilient wheel installed on a metro train <i>Xin Zhou, Shuoqiao Zhong, Xiaozhen Sheng</i> |

12:30 Awards, Closing Ceremony, and Lunch | Ottawa Salon

Tuesday

Poster paper presentations

| Room | Ottawa Salon | Meeting Room 209 | Meeting Room 210 | Meeting Room 211 | Meeting Room 212 |
|-------|---|---|--|---|--|
| | Rail Poster Sessions I Chair: Mehdi Ahmadian | Road Poster Sessions I Chair: Gianpierto Mastinu | Rail Poster Session II Chair: Zunsong Ren | Road Poster Session II Chair: Lars Drugge | Rail Poster Sessions III Chair: Liang Ling |
| 16:00 | 16: Research on Hybrid Guidance System of Permanent Magnetic Levitation Vehicle <i>Hangsheng Wang, Jimin Zhang, Hechao Zhou, Zhenhai Zong</i> | 120: An Analytical Approach for Discrete Modeling of Energy Input into Passenger Car Tires <i>Ingmar Kranefeld, Frederic Etienne Kracht, Dieter Schramm, Paolo Bortolussi</i> | 8: Research on Running System Load and Rutting Evolution Regular of The Virtual Rail Train <i>Wen Li, Qinghua Du, Chengming Zhang, Lihui Ren, Zhenkun Yin, Hechao Zhou, Nuo Li</i> | 84: A Review of Effects of Driver-vehicle Interactions on the Safety of Articulated Heavy Vehicles <i>Takayuki Toyoshima</i> | 73: Study on the Mechanism of Wheelset Rotational Velocity Variation in Curved Track <i>Yuzuki Endo, Yohei Michitsuji, Masuhisa Tanimoto, Osamu Imahori, Kosuke Shimura</i> |
| 16:05 | 60: Air Spring Suspension Device for INNOVIA 300 Straddle Monorail Vehicle <i>Haida Xu, Zengchuang Zhao, Dongjin Zhu, Tang Luo, Mao Guo, Mingyang Zhang</i> | 144: Vehicle Localization Technique for Traffic Light Advisor Application <i>Daniele Vignarca, Mattia Waitz, Stefano Arrigoni, Edoardo Sabbioni</i> | 66: Research on The Influence of Lateral Stiffness of Articulated Device on Dynamic Performance of Virtual Track Train <i>Wen Li, Lihui Ren, Zeliang Sun, Haiying Lu, Chunyou Gao, Zhiyuan Liu, Nuo Li</i> | 113: A Coordinated Control Scheme for Active Safety Systems of Multi-Trailer Articulated Heavy Vehicles <i>Shenjin Zhu, Yuping He</i> | 196: Analysis on the Diagonal Wheel Load Variation in a Bogie Measured by Trackside Device <i>Takuya Matsuda, Kosuke Matsumoto, Takamitsu Aiba, Masahiro Kaneko, Yohei Michitsuji, Yuzuki Endo, Masuhisa Tanimoto</i> |
| 16:10 | 71: Research on Sensorless Control Strategy of High-speed Maglev Train Based on Extended Full-order State Adaptive Observer <i>Wenbai Zhang, Guobin Lin, Yuanzhe Zhao, Zhiming Liao, Huan Wang</i> | 201: Vehicle State and Tyre Force Estimation Based on Four-Wheel Vehicle Model Compared to Bicycle Model <i>Marco Viehweger, Frank Naets</i> | 53: Analysis of the Features of Wheel Out-of-Roundness and Construction of Wheel Roughness Spectrum of High-Speed Trains <i>Gongquan Tao, Yu Ren, Peng Wang, Chenxi Xie, Xinbiao Xiao, Zefeng Wen</i> | 215: Advanced Road Safety by Dynamics and Road Weather Services Tailored for Individual Heavy Vehicles <i>Timo Sukuvaara, Kari Mäenpää, Hannu Honkanen, Marjo Hippel, Virve Karsisto</i> | 39: Integration of Representative Vertical MBS Scenarios in The Simulation Based Determination of Design Loads for Railway Vehicle Bogies <i>Raphael Cleven, Samuel Burger, Christian Moser, Burkhard Corves</i> |
| 16:15 | 80: Damping Characteristics of High-Temperature Superconducting Pinning Maglev Dewar <i>Xucheng Zhou, Yi Luo, Yuchen He, Can Peng, Zigang Deng</i> | 214: The Effect of Active Wheel Load Transfer on The Performance of Formula Student Cars <i>Quan Yao, Konghui Guo, Luhang Wang, Qirui Feng, Xinjie Zhang, Xinjie Zhang</i> | 57: The Influence of Wheel Polygonization on Multiaxial Fatigue Damage of 300 km/h High-Speed Train Axle <i>Wanxiu Teng, Chun Lu, Yu Wang, Hongqin Liang, Zhichao Jin, Wen Hu, Gongquan Tao, Zefeng Wen</i> | 264: Real-time Simulation of Precipitation Effects on LiDAR <i>Haopeng Chen, Steffen Müller</i> | 31: Reconfigurable Path-tracking Strategy of Super Rail-Guided Train Based on Improved Model Predictive Control and Hierarchical Framework <i>Zehan Wang, Zhenggang Lu</i> |
| 16:20 | 127: Dynamic Research on the influence of Air Spring Mounted Position of HTS Maglev Vehicle Bogie <i>Yuhang Yuan, Yuchen He, Jianmei Zhu, Yi Luo, Zigang Deng</i> | 178: Machine Learning Based Torque Monitoring Algorithm for Preventing Unintended Acceleration and Deceleration in Vehicles <i>Byung Gun Kim, Eun Sang Park, Do In Kwon, Hyunki Shin</i> | 77: An Efficient Probability Analysis Framework to Obtain Vehicle Random Vibration Characteristics Considering the Randomness of Out-of-Roundness Wheels <i>Tengfei Wang, Wenjing Sun, Jinsong Zhou</i> | 229: Efficient L-shape Fitting Based on Critical Edge for Vehicle Orientation Estimation Using LiDAR <i>Chen Jiabao, MengXuan Song, Jun Wang</i> | 27: Bifurcation and Active Control of Motor Suspension to Railway Vehicle <i>Yu Huang, Huanyun Dai, Caihong Huang, Huailong Shi, Wen Shi</i> |

Tuesday

Poster paper presentations (continued)

| Room | Ottawa Salon | Meeting Room 209 | Meeting Room 210 | Meeting Room 211 | Meeting Room 212 |
|-------|--|---|---|--|--|
| | Rail Poster Sessions I Chair: Mehdi Ahmadian | Road Poster Sessions I Chair: Gianpierto Mastinu | Rail Poster Session II Chair: Zunsong Ren | Road Poster Session II Chair: Lars Drugge | Rail Poster Sessions III Chair: Liang Ling |
| 16:25 | 280: Verification of Levitation Chassis Dynamics Model of High-Speed Maglev Vehicle Based on Field Test <i>Baoan Zhang, Xiaoliang Dou, Haitao Li, Chao Huang, Jing Zheng</i> | 334: Conceptualization of A Next-Generation Electric Drive Combat Vehicle <i>Jonathan Tse, Junwoo Kim, Moustafa El-Gindy, Zeinab El-Sayegh</i> | 230: Effects of Wheel Polygon on the Underground Train-Induced Vibration in a Building <i>Li Wang, Chunyan He, Bin Zhu, Zili Li</i> | 308: Dynamical and Aerodynamical Analysis of Moving Road Utility Truck with the Morphing Boom Equipment under Crosswind Conditions <i>Parth Patel, Roy Koomullil, Vladimir Vantsevich</i> | 115: On Seismic Analysis of a High-Speed Train Travelling Over a Long-Span and High-Pier Bridge <i>Zhihao Zhai, Ruoyu Li, Zhenyu Chen, Chengbiao Cai, Shengyang Zhu, Yun Yang, Jun Luo, Jun Luo</i> |
| 16:30 | 24: A Reduced Pantograph-Catenary Interaction Model for Efficient Pantograph-Catenary Interaction Dynamic Analysis <i>Yan Xu, Zhendong Liu, Like Pan, Liming Chen, Jilin Lei</i> | 353: Aerodynamic Performance of the Utility Truck with the Next-generation Morphing Structures: Computations and Wind Tunnel Testing <i>Parth Patel, Inchan Yoon, Chandramouli Krishnamurthy, Vladimir Vantsevich, Roy Koomullil</i> | 67: Contact Analysis of S1002/UIC60E2 and Wheel Profile Optimization <i>Longjiang Shen, Xiaobo Zhong, Xiaoxing Deng, Bo Peng</i> | 321: Selection Method of Path Tracking Points of Train-Like Vehicle Based on Minimum Passing Width of Circular Curve <i>Huang Youpei, Yuanjin Ji, Li Hui</i> | 136: Study on Vibration-Induced Fatigue Failure of Antenna Beam for Metro Vehicles <i>Wenbiao Huo, Tiecheng Wang, Jianbo Xu, Gan Luo, Xinli Zhao, Lai Wei</i> |
| 16:35 | 131: Optimization Method of Dynamic Parameters of Pantograph in Urban Rail Transit <i>Xingshuai Zhi, Ning Zhou, Yao Cheng, Haifei Wei, Xin Zhang, weihau zhang</i> | 304: Wheeled Vehicle Slip-Sinkage Prediction <i>Eric Karpman, Wei Huang</i> | 343: Using Dynamic Simulations to Create Detailed Loading Environments for Rail Fatigue and Wear Modeling <i>Alexandre Woelfle, Wei Huang, Luke Steiginga, Alok Jahagirdar</i> | 345: Analysis of the Dynamic Performance of a Special Purpose Trailer by Modeling and Simulation <i>Luke Steiginga</i> | 166: Dynamic Characteristics of the Locomotive Axle Box Bearing in Acceleration Process with Track Irregularities <i>Yukun Wang, Zhiwei Wang, Weihau Zhang, Guanhua Huang</i> |
| 16:40 | 133: Non-Contact Contact Force Estimation for Pantograph and Catenary System Based on Kalman Filter <i>Hongming Chen, Ning Zhou, weihau zhang</i> | 346: Model Development and Validation of Special Purpose Trucks for Analysis of Maximum Push Force on Various Hard and Soft Terrains <i>Luke Steiginga</i> | 167: Research to Mechanism of Hunting Stability and Rolling Test to Railway Wagons <i>Wendong Shao, Kewei Lyu, Maosheng He, Shuang Liu, Lei Han, Wenlong Zhang</i> | 344: Real-Time Interactive Simulation Framework for a Tandem Tractor-Trailer <i>Robyn Fortune, Xavier Trudeau-Morin, Ali Zeighami, Masoud Hassani, Marek Teichmann</i> | 183: Improvement of Transient Response of Active Pitch Control for Preventing Passenger Falling Over in Autonomous Shuttle <i>Mitsuki Miki, Keisuke Shimono, Toshihiro Hiraoka, Yoshihiro Suda</i> |
| 16:45 | 141: Research on Hinge Load of Upper Arm Based on Rigid-Flexible Hybrid Model of Pantograph Considering Spatial Characteristic <i>Haifei Wei, Ning Zhou, Yao Cheng, Xingshuai Zhi, weihau zhang</i> | | 205: Simulation of the Operational Performance of a Subway Train Fitted with Eccentric Resilient Wheels in Straight Line <i>Shuoqiao Zhong, Xin Zhou, Xiaozhen Sheng</i> | | 309: A Multi-Task Fault Diagnosis Method for High-speed Train Axle Box Bearing on Physical Model Data <i>Fan Zhang, Zhiwei Wang, Yufei Han, Chaofan Li, Tianrui Li, Weihua Zhang</i> |

Tuesday

Poster paper presentations (continued)

| Room | Ottawa Salon | Meeting Room 209 | Meeting Room 210 | Meeting Room 211 | Meeting Room 212 |
|-------|--|---|---|--|--|
| | Rail Poster Sessions I Chair: Mehdi Ahmadian | Road Poster Sessions I Chair: Gianpierto Mastinu | Rail Poster Session II Chair: Zunsong Ren | Road Poster Session II Chair: Lars Drugge | Rail Poster Sessions III Chair: Liang Ling |
| 16:50 | 246: Investigation of the Dynamic Behavior of High-Speed Turnouts <i>Mahjoubeh Sistaninia, Werner Daves, Christian Bucher, Thomas Antretter, Hans-Peter Gänser</i> | | 253: Influence of Wheel-Rail Contact Model on the Prediction of Preferential Wavelengths in Rail Corrugation <i>Leonardo Faccini, Egidio Di Gialleonardo, Andrea Collina</i> | | 381: Vertical Resonance Analysis of Vehicle and Bridge on High-Speed Railway <i>Mangmang Gao, Jingjing Yang, Guolong Li, Xianfu Sun, Yunlu Wang</i> |
| 16:55 | 367: Piezoelectric Energy Harvesting from Concurrent Wind and Vibration Excitations in Railway Systems <i>Shuai Qu, Guobiao Hu, Chaoyang Zhao, Qiuyi Li, Yaowen Yang, Shengyang Zhu, Wanming Zhai</i> | | 22: Study on Train Running Safety in Railway Switches and Sharp Curves Considering Wheel Wear Evolution <i>Jun Lai, Yu Chen, Tao Liao, Jingmang Xu, Rong Chen, Ping Wang</i> | | 164: A Study on the Mechanism of Rear Carbody Shaking Phenomenon of EMU Passing Through Tunnel <i>Siyang Song, Shoune Xiao, Guangwu Yang, Tianzhou Zhang</i> |
| 17:00 | 185: Research on Modal Frequency Veering of Rail Vehicle System Based on Fuzzy Clustering <i>Guangyu Liu, Dao Gong, Jinsong Zhou, Lihui Ren, Zegen Wang</i> | | 25: Identification of Wheel-rail Adhesion Status Using an Improved Recursive Levenberg–Marquardt Algorithm <i>Qinghua Chen, Xin Ge, Kaiyun Wang</i> | | 10: Trend Analysis of Rail Corrugation on the Small Radius Curve of Modern Trams <i>Liu Shiyu</i> |
| 17:05 | 213: Active Steering Control of Independently Rotating Wheel Based on Multi-Agent Deep Reinforcement Learning with Experimental Validation <i>Juyao Wei</i> | | 51: Prediction of Train Wheel Wear Based on Archard Theory <i>Gengchen Sun, Dilai Chen, Xu Ai, Xiaojuan Wei</i> | | 157: Improving Curving Performances of High-Speed Rail Vehicles with Semi-active Yaw Dampers Gioele Isacchi, Francesco Ripamonti, Matteo Corsi, Mikael Tropeano |
| 17:10 | 11: A Damping-Enhanced Catenary Structure for the 400 km/h High-Speed Railway <i>Jiangwen Wang</i> | | 106: Wheel Diameter-Tread Hardness Relational Model for Railway Freight cars using Neural Network <i>Lin Gan, Junjun Ding, Maohai Fu</i> | | 102: Study of Dynamic Response Correlation and Fatigue Damage Contribution of High-Speed Train Bogie Based on ICA Algorithm <i>Zheng Yuan, Xianjia Chen, Lijun Ma, Xiaolong Zou, Zhenxian Zhang, Qiang Li, Shouguang Sun, Yujie Wei</i> |

| Tuesday | | | | | |
|--|---|---|--|--|---|
| Poster paper presentations (continued) | | | | | |
| Room | Ottawa Salon | Meeting Room 209 | Meeting Room 210 | Meeting Room 211 | Meeting Room 212 |
| | Rail Poster Sessions I Chair: Mehdi Ahmadian | Road Poster Sessions I Chair: Gianpierto Mastinu | Rail Poster Session II Chair: Zunsong Ren | Road Poster Session II Chair: Lars Drugge | Rail Poster Sessions III Chair: Liang Ling |
| 17:15 | 158: Magnetic Force Characteristics and Vehicle Dynamic Simulations of the Superconducting Maglev Vehicle <i>Jing Yang, Ai-bin Wang, Fu-xing Tan, Jun Zhao, Nan Shao</i> | | 243: Creation of and Measurement of Low Adhesion Conditions for The Development of On-Train Low Adhesion Detection Equipment <i>Tim Harrison, Christopher Ward, Peter Hubbard, Bilal Abudureheman, Ben White, David Fletcher, Roger Lewis, Kartik Chandrasekhar, David Vincent, Simon Chaney, Mark Burstow, Elaine Cockroft</i> | | 295: Fatigue Life Assessment of Subway Body Based on Dynamic Load Characteristics <i>Chao Wang, Tao Zhu, Bing Yang, Shoune Xiao, Guagwu Yang</i> |
| 17:20 | 315: Enhancement of Posture Stability in Narrow Tilting Vehicles Under Disturbance <i>Keizo Araki, Jongseong Gwak, Yoshihiro Suda</i> | | 326: Dynamic Responses of Transmission System Bearings for a High-Speed Train with Polygonal Wheel <i>Zhonghui Yin, Zhiwei Wang</i> | | 358: Research on Railway Wagon Wheel Flat Recognition Based on Wayside Detection of Wheel-Rail Force <i>Xinyu Peng, Jing Zeng, Qunsheng Wang, Yixuan Shi</i> |
| 17:25 | 149: Real-Time Simulation of Train Dynamics: A Physics Engine-Driven Approach <i>Zhao Tang</i> | | | | |
| 17:30 | | | | | |