


CORE 2020 Conference Program - *Collaborating to Master Complexity*

MONDAY 11 MAY 2020				
0700 – 1400	Exhibition Build			
1400 – 1700	Exhibitor Move In			
1400 – 1800	Registration Desk Open			
1730 – 1900	Welcome Reception, <i>CORE 2020 Exhibition Hall</i>			
TUESDAY 12 MAY 2020				
0700 - 1800	Registration Desk Open			
0715 - 0800	Presenter and Session Chair Breakfast <i>Compulsory for all chairs and presenters for the day</i>			
0700 - 1900	Exhibition Open			
0815 – 0950 Plenary Session				
0815 - 0835	Welcome to Country			
0835 - 0840	Welcome, <i>Master of Ceremonies</i> - Karen Tighe			
0840 - 0850	RTSA Welcome by RTSA Executive Chair, Maneesh Gupta			
0850 - 0900	Official Opening by Conference Organising Committee Chair, Graham Holden			
0900-0915	Ministerial Address by WA State Minister for Transport, Hon. Rita Saffioti MLA			
0915 - 0950	KEYNOTE ADDRESS: Lyle Bicknell, Principal Urban Designer, City of Seattle			
0950 – 1025	MORNING TEA			
1030 – 1235	CONCURRENT SESSIONS (<i>5 minutes buffer to make way to session rooms</i>) <i>Concurrent sessions are 20 minutes presentation + 5-minute questions time</i>			
	1A: TRACK MAINTENANCE	1B: ROLLING STOCK VEHICLE DESIGN AND MANUFACTURE	1C: SIGNALS AND TRAIN CONTROL SYSTEMS	1D: OPERATING SAFETY AND HUMAN FACTORS
1030	A REAPPRAISAL OF HEAD WEAR LIMITS FOR HEAT TREATED RAILS UNDER HEAVY HAUL CONDITIONS <i>Iman Salehi, Institute of Railway Technology VIC, Australia</i>	LIGHT RAIL PASSENGERS - ARE THEY PROTECTED IN A CRASH? <i>Jadmond Kiang, SNC-Lavalin Atkins, NSW, Australia</i>	LEVEL CROSSING PERFORMANCE MODELLING USING TIMED PETRI NETS <i>Steven Gibson, RGB Assurance, WA, Australia</i>	EARLY HUMAN FACTORS ANALYSIS – A RISK-BASED APPROACH FOR UNDERSTANDING WHAT SHOULD BE DONE AND WHEN. <i>Andrew Sutherland, Hf Integration Pty Ltd, WA, Australia</i>
1100	INERTIAL STANDARDS DEVELOPMENT FOR TRACK MAINTENANCE <i>Colin Cole, Central Queensland University, QLD, Australia</i>	BRINGING RAILCAR MANUFACTURE TO WESTERN AUSTRALIA, A COLLABORATIVE APPROACH <i>Garry Taylor, Public Transport Authority, WA, Australia</i>	TAKING OVER FROM THAMESLINK: THE FACTORS THAT WILL DETERMINE HOW AUSTRALIA CAN LEAD THE AUTOMATION RACE <i>Georgina Hartwell, WSP, NSW, Australia</i>	UNIFYING WORKLOAD AND SITUATION AWARENESS ASSESSMENTS IN HEAVY RAIL THROUGH APPLICATION OF MBSE TOOLS <i>William Scott, University Of Wollongong, SA, Australia</i>
1130	AUTOMATING AN \$70M/YEAR TRACK RENEWALS PROGRAM <i>Lachlan Prescott, Aurizon Network, QLD, Australia</i>	THE DEVELOPMENT OF AN IMPROVED FORGED KNUCKLE. <i>Karl Hofmann, Hofmann Engineering</i>	SYDNEY AUTOMATIC TRAIN PROTECTION PROGRAM – TECHNOLOGY INTEGRATION IN A BROWNFIELD MOVING BASELINE <i>Oliver Lake, Sydney Trains, NSW, Australia</i>	SLEEP APNOEA: AN UNDER DIAGNOSED THREAT TO RAILWAY SAFETY <i>James Michel, Marsh Rail Practice, Marsh and McLennan, DC, United States</i>
1200	ADVANCED RAIL-DEFECT MANAGEMENT WITH RAIL MILLING <i>Richard Stock, Linmag, Austria, Austria</i>	DOES DEMONSTRATION OF DESIGN COMPLIANCE ALSO DEMONSTRATE ENGINEERING DUE DILIGENCE? <i>Alexander Bidanov, SNC Lavalin Rail & Transit, NSW, Australia</i>	THE POTENTIAL BENEFITS OF ADVANCED TRAIN MANAGEMENT SYSTEM (ATMS) <i>Ian Fox, Australian Rail Track Corporation, SA, Australia</i> <i>Gary Evans, Australian Rail Track Corporation, SA, Australia</i>	SIGNAL COLOUR-MISCONCEPTIONS FROM PRESCRIPTION LENSES WORN BY TRAIN DRIVERS <i>Gregoire Larue, ACRI, QLD, Australia</i>
1230 - 1330	LUNCH – <i>Served in the Exhibition Hall</i>			


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1335 – 1535	CONCURRENT SESSIONS (5 minutes buffer to make way to session rooms) Concurrent sessions are 20 minutes presentation + 5-minute questions time			
	2A: TRACK SLEEPERS BALLAST	2B: WHEEL/RAIL INTERACTION	2C: SAFETY, PREVENTION AND INVESTIGATION	2D: TRANSIT PLANNING AND URBAN DESIGN
1335	MODAL ANALYSIS ADVANCEMENTS IN CONCRETE SLEEPER AND BALLAST CONDITION ASSESSMENT <i>Dwayne Nielsen, Central Queensland University, QLD, Australia</i>	RCF AND WEAR PREDICTION TO DEVELOP A RAIL MAINTENANCE REGIME FOR NEW METRO TRAIN INFRASTRUCTURE <i>Robert Schweiger, John Holland, SA, Australia</i>	VISUAL INTELLIGENCE AND CONNECTED EVENT AND VIDEO RECORDER TO ENHANCE TRAIN OPERATIONS AND SAFETY <i>J. David Semple, Wi-tronix, NSW, Australia</i> <i>Roger Martinez, Wi-tronix, NSW, Australia</i>	TOTAL RAIL: AN INTEGRATED APPROACH <i>TC Chew, Arup, London, UK</i>
1405	EXPANDING OUR UNDERSTANDING OF THE NOT SO INSIGNIFICANT RAIL EXPANSION JOINT <i>Andrew Matthews, GHD Pty Ltd, Vic, Australia</i>	RAIL PROFILE GRINDING STRATEGY FOR THE ARTC HUNTER VALLEY HEAVY HAUL NETWORK <i>Darrien Welsby, Institute of Railway Technology, VIC, Australia</i>	DELIVERING A SAFE RAILWAY: SAFETY CASE APPROACH APPLIED TO PASSENGER OPERATIONS ON SYDNEY METRO NORTHWEST <i>Andrew Ward, John Holland, NSW, Australia</i>	PREPARATION OF THE PEDESTRIAN MANAGEMENT PLANS FOR EPPING TO CHATSWOOD RAIL LINE STATION LINK PROGRAMME <i>Pietro Crovato, Jacobs, NSW, Australia</i>
1435	ROLE OF MICROSTRUCTURE ON ROLLING CONTACT FATIGUE CRACK INITIATION AT RAIL LOWER GAUGE CORNER <i>Soumyajit Mojumder, IITB Monash Research Academy, Vic, Australia</i>	PARALLEL COMPUTING RAIL HEAT TRANSFER SIMULATION FOR TRACK MEASURED TEMPERATURE DATA <i>Chris Bosomworth, Central Queensland University, QLD, Australia</i>	KAIKOURA EARTHQUAKE – USE OF REMOTE MONITORING AND OPERATIONAL CONTROLS FOR REOPENING THE MAIN NORTH LINE <i>Mr Daniel Headifen, KiwiRail, Wellington, New Zealand</i>	RAIL NETWORK LONG-TERM PLANNING: COMPARING CHALLENGES AND PRACTICES IN SWITZERLAND AND AUSTRALIA <i>Julien Morizet, WSP Australia Pty Limited, Vic, Australia</i>
1505	IMPROVED PERFORMANCE OF MECHANICALLY STABILISED CAPPING/STRUCTURAL FILL LAYERS UNDER CYCLIC LOADING <i>Rajesh Bhavsar, Geofabrics Australasia Pty Ltd, Vic, Australia</i>	MANAGING THE WHEEL RAIL INTERFACE – THE BENEFIT OF COMPREHENSIVE WHEEL/RAIL STUDY AT THE PROJECT PHASE. <i>Harry De Lange, Roy Hill, WA, Australia</i>	A RAIL CASE STUDY: DEVELOPING A SYSTEMS ASSURANCE REPORT USING A GOAL STRUCTURING NOTATION <i>Lauren Thompson, Aurecon, VIC, Australia</i> <i>Russell McMullan, City Rail Link Ltd, Auckland, New Zealand</i>	KEY FACTORS FOR A SUCCESSFUL MODERN TRAMWAY IN A DENSE URBAN ENVIRONMENT <i>Patrick Desforges, Systra, NSW, Australia</i>
1535 – 1600	AFTERNOON TEA served in Exhibition Hall			
1605 – 1735	CONCURRENT SESSIONS (5 minutes buffer to make way to session rooms) Concurrent sessions are 20 minutes presentation + 5-minute questions time			
	3A TRACK FORMATION AND GEOTECHNICAL  Session sponsored by ARTC	3B: ROLLING STOCK BRAKE AND ADHESION SYSTEMS	3C: ENVIRONMENTAL ISSUES AND ENERGY EFFICIENCY	3D: BRIDGES AND STRUCTURES
1605	INLAND RAIL – EARTHWORKS VALUE ENGINEERING <i>Mark Drechsler, Smec Australia Pty Ltd, SA, Australia</i>	OPTIMUM BRAKE CONTROL VIA MULTI-MODE SHIFTING OF SLIP CONTROL ZONE <i>Sundar Shrestha, Centre For Railway Engineering, QLD, Australia</i>	ARE HYBRIDS JUST HYPE? <i>Frank Szanto, Downer Rail, NSW, Australia</i>	KIWRIL LONG-TERM RAIL BRIDGE RENEWAL MANAGEMENT THROUGH A STRUCTURES HEALTH PRIORITISATION PROCESS <i>Rudolph Kotze, Kiwirail, New Zealand, New Zealand</i>
1635	DESIGN OF RAIL FORMATION AND SUBGRADE – MATCHING TESTING TO DESIGN PARAMETERS <i>Andy Doe, ARTC, QLD, Australia</i>	APPLIED AIR FLOW AS A DIAGNOSTIC TOOL: BENEFITS OF GREATER ASSESSMENT OF MEASURABLE AIR FLOW. <i>Karen Carriere, WABTEC CORP, Manitoba, Canada</i>	LESSONS LEARNED IN HOW TO MODEL STRATEGIC NOISE IMPACTS FROM ENTIRE FREIGHT RAIL NETWORKS COST EFFECTIVELY <i>Luke Zoontjens, SLR Consulting Australia, WA, Australia</i>	RAIL STRUCTURE INTERACTION – AN ESSENTIAL METHODOLOGY FOR IMPROVING BRIDGE SAFETY AND PASSENGER COMFORT <i>David Crump, GHD Ltd, VIC, Australia</i>
1705	TRACK SUPPORT FLOATING SOIL BEAM ON HELICAL PILES - CANADIAN NATIONAL RAILWAY BALA SUBDIVISION <i>Edward Wu, CN, Ontario, Canada</i> <i>Mario Ruel, CN, Ontario, Canada</i>	FROM FRICTION MEASUREMENT TO TRACK DAMAGE INDEXES IN HIGH ADHESION LOCOMOTIVE STUDIES <i>Maksym Spiryagin, Central Queensland University, QLD, Australia</i>	RAPID CHARGING CONCEPT FOR HYBRID HEAVY HAUL LOCOMOTIVE CONSISTS <i>Shah Ahmad, Centre for Railway Engineering, CQ University, QLD, Australia</i>	TBC
1740 – 1900	Networking Session			

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WEDNESDAY 13 MAY 2020				
0700 - 1800	Registration Desk Open			
0715 - 0800	Presenter and Session Chair Breakfast <i>Compulsory for all chairs and presenters for the day</i>			
0700 - 1900	Exhibition Open			
0830 - 1000	DAY 2 PLENARY SESSION			
0830 - 0835	Welcome Day 2, MC Karen Tighe			
0835 - 0850	Young Professional Scholarship Presentations			
0850 - 0930	KEYNOTE ADDRESS: Lido Costa, Rio Tinto			
0920 - 1000	KEYNOTE ADDRESS: Anne O'Neil, P.E., CSEP, Systems Engineering Catalyst and Industry Advisor, Anne O'Neil Consultants			
1000 - 1030	MORNING TEA			
1035 - 1235	CONCURRENT SESSIONS (5 minutes buffer to make way to session rooms) Concurrent sessions are 20 minutes presentation + 5-minute questions time			
	4A: Track Conditioning Monitoring and Data Analytics	4B: Rolling Stock Vehicle Dynamics	4C: Overhead Traction Systems	4D: Engineering Design Systems and Research
1035	BROKEN RAIL DETECTION - A RELIABLE AND ACCURATE ONBOARD SOLUTION Justin Niven, <i>Siemens Mobility, WA, Australia</i>	ASSESSING WAGON INSTABILITY IN LONG TRAINS USING PARALLEL CO-SIMULATION TECHNIQUE Qing Wu, <i>CQUniversity, QLD, Australia</i>	SMART EMERGENCY STEEL SUPPORT DESIGN FOR OVERHEAD LINE EQUIPMENT Andrew Tay, <i>Rhomberg Rail Australia, WA, Australia</i> Robert Stacey, <i>Public Transport Authority, WA, Australia</i>	MANAGING COMPLEXITY ON DIGITAL SYSTEMS; A MODEL-BASED SYSTEMS ENGINEERING APPROACH Donovan Roodt, <i>Shoal Group, NSW Australia & Malaeka Nadeem, Transport for NSW, NSW, Australia</i>
1105	DEVELOPMENTS IN THE RAIL PROFILE QUALITY INDEX Darrien Welsby, <i>Institute of Railway Technology, VIC, Australia</i>	ROLLING STOCK AND TWIST TEST INPUTS Ian Goldney, <i>SNC-Lavalin, QLD, Australia</i>	REMOTE ISOLATING AND RAIL CONNECTING - THE CONCEPTION OF THE e DT AND THE FEEDER CIRCUIT STATUS EVALUATOR David Stuart-Smith, <i>Arup, NSW, Australia</i>	MIRRORING FUTURES - MCX VS FRMCS Rodrigo Alvarez, <i>Rail Systems Australia, WA, Australia</i>
1135	ARTIFICIAL INTELLIGENCE FOR THE AUTOMATION OF RAIL AND CORRIDOR INSPECTIONS Nicholas Smith, <i>Airsight, NSW Australia</i>	ON-BOARD WHEEL FLAT DETECTION FOR HEAVY HAUL WAGONS USING ULTRA-LOW POWER SENSOR NODES Esteban Bernal, <i>Centre for Railway Engineering, CQUniversity, QLD, Australia</i>	NEW DYNAMIC DC FAULT LEVEL MODELLING FOR RAILWAY NETWORKS Medhat Al Zaman, <i>Middleton Group, VIC, Australia</i>	NETFLIX FOR ROLLINGSTOCK – DRIVER VIDEO ON DEMAND Stephen Endicott, <i>Public Transport Authority of Western Australia, WA, Australia</i>
1205	USING AUGMENTED REALITY TO ASSIST TRACK INSPECTORS FOR TURNOUT INSPECTIONS Siva Naidoo, <i>Institute of Railway Technology, VIC, Australia</i>	WHY CHANGE AS7524 COUPLERS AND DRAWGEAR? Scott Simson, <i>Bradken, NSW, Australia</i>	THE OPERATOR PATHWAY TO REMOTE ISOLATION Troy Guo, <i>Australian Rail Technology, NSW, Australia</i>	THE INTERNET OF TRAINS (IoT) – A PERSPECTIVE ON TECHNOLOGY IN A MODERN RAILWAY Yang Phay, <i>Public Transport Authority, WA, Australia</i>
1235 - 1330	LUNCH – Served in the Exhibition Hall			
1335 - 1535	CONCURRENT SESSIONS (5 minutes buffer to make way to session rooms) Concurrent sessions are 20 minutes presentation + 5-minute questions time			
	5A: Track- Rail Welding	5B: Rolling Stock Vehicle / Track Interaction	5C: Light Rail	5D: Communications Systems
1335	Poster Showcase	Poster Showcase	Poster Showcase	Poster Showcase
1405	KEY ISSUES IN MANAGING FIELD WELDING OF RAIL John Cookson, <i>Institute of Railway Technology, VIC, Australia</i>	MODERNISATION OF DYNAMIC LOAD FACTORS Andrei Khaidurov, <i>Aurizon, QLD, Australia</i>	ENTERING THE WIRELESS WORLD – USING TECHNOLOGY WITH LIGHT RAIL TO SHAPE A MODERN CITY Scott Ney, <i>WSP, NSW, Australia</i>	WHAT'S BEHIND THE 'WHY'? THE IMPORTANCE OF HUMAN CENTRED INFRASTRUCTURE DESIGN Stuart Allabush, <i>WSP, NSW, Australia</i>

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1435	THERMAL MODELLING TO OPTIMISE THE VERTICAL ALIGNMENT OF ALUMINOTHERMIC WELDS <i>Cong Qiu, Institute of Railway Technology, VIC, Australia</i>	POTENTIAL TO ADOPT CONDITION-BASED MAINTENANCE TO OPTIMISE OBSOLESCENCE MANAGEMENT FOR ROLLING STOCK IN WESTERN AUSTRALIA <i>Adriane Ho, Aurecon Australasia Pty Ltd, WA, Australia</i>	MINIMISING VEHICLE TO TRAM COLLISIONS <i>Mike Ford, Jacobs, VIC, Australia</i> <i>Anna Loughnan, Jacobs, VIC, Australia</i>	COLLABORATIVE RAIL R&D – SUCCESSES, CHALLENGES AND FUTURE OPPORTUNITIES <i>Stuart Thomson, Rail Manufacturing CRC, VIC, Australia</i>
1505	BASIC MECHANICAL PROPERTIES AND RATCHETING BEHAVIOUR OF FLASH BUTT WELDS IN HIGH STRENGTH STEEL RAILS <i>Hang Su, Monash University, VIC, Australia</i>	IMPLEMENTING NEW WHEEL AND RAIL PROFILES USING DIGITAL DATA ON THE CENTRAL QUEENSLAND COAL NETWORK <i>William Schuh, Aurizon, QLD, Australia</i>	THE EVOLUTION OF TRAM TERMINUS DESIGN IN THE MELBOURNE URBAN ENVIRONMENT <i>Ben Droscher, Jacobs, VIC, Australia</i>	COMMUNICATION OF COMPLEX PROJECT INFORMATION USING DIAGRAMMATIC TOOLS - SYDNEY METRO NORTHWEST OTS IC <i>Allen Ho, GHD, NSW, Australia</i>
1540 – 1610	AFTERNOON TEA			
1615 – 1700	CLOSING SESSION			
1615 – 1700	KEYNOTE ADDRESS: Anne O'Neil, P.E., CSEP <i>Systems Engineering Catalyst and Industry Advisor, Anne O'Neil Consultants</i>			
1900 – Late	Gala Dinner Sponsored by WSP 			

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