

23rd ANNUAL RESEARCH REVIEW, March 27-28, 2018
IMPACT OF INNOVATIVE TECHNOLOGY ON SAFETY AND EFFICIENCY

TIME	PRESENTATION TITLE	LEAD
	PLENARY SESSION	
8:00 am	Introduction and Welcome	Lisa Stabler, President TTCI
8:10 am	Keynote Speech	Lance Fritz, CEO, Union Pacific Railroad
8:30 am	AAR Strategic Research Overview	Semih Kalay and Gary Fry
8:45 am	FRA Research Update	Maryam Allahyar, Director, Office of Research, FRA
9:00 am	Railroad Technology Implementation <ul style="list-style-type: none"> • Implementation of Machine Vision Inspection Systems 	Hark Braren, BNSF
9:20 am	Railroad Research Implementation <ul style="list-style-type: none"> • Condition based maintenance of railcar roller bearings using predictive wayside alerts based on acoustic bearing detector measurements 	Kyle Mulligan, CP Rail
9:40 am	Railroad Research and Implementation <ul style="list-style-type: none"> • International Heavy Haul Technology Benchmarking 	Michael Roney, Special Consultant to IHHA
10:00 am	B R E A K	AAR University Affiliated Lab Posters, Other SRIs
10:20 am	VEHICLE/TRACK SYSTEMS RESEARCH	Jeff Wright, VP, Mechanical, BNSF
10:25 am	<ul style="list-style-type: none"> • Investigation of Rail Failures in Revenue Service Operations 	Harry Tournay
10:45 am	<ul style="list-style-type: none"> • Developments in Rail Grinding and Wheel/Rail Friction Control 	Scott Cummings
11:05 am	<ul style="list-style-type: none"> • Rolling Contact Fatigue (RCF) Research 	Harry Tournay
11:25 am	<ul style="list-style-type: none"> • Advanced RCF Measurement Technologies 	Matt Witte
11:40 am	Panel Discussion <ul style="list-style-type: none"> • Team TTCI • Kyle Mulligan, Mike Roney, Hark Braren 	Jeff Wright, VP, Mechanical, BNSF
12:00 pm	L U N C H	Poster Presentations, Affiliated Labs, FRA, and SRI posters
	MECHANICAL RESEARCH	
1:15 pm	Equipment Research	Rex Beck General Manager, Car, Union Pacific Railroad
1:20 pm	<ul style="list-style-type: none"> • Analytical and Statistical Evaluation of the Effects of Wheel Impact Loads on Wheel Failures 	Gary Fry
1:45 pm	<ul style="list-style-type: none"> • Investigation of UDEs and Other Ongoing Brake Research 	Scott Cummings
2:05 pm	<ul style="list-style-type: none"> • Performance Evaluation of 1,000,000-Mile Trucks 	Russ Walker
2:20 pm	<ul style="list-style-type: none"> • Next Generation High Performance Wheel Steels 	Kerry Jones
2:40 pm	Panel Discussion (20 Min) <ul style="list-style-type: none"> • Team TTCI 	Rex Beck General Manager, Car UP, Union Pacific Railroad
3:00 pm	BREAK	

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3:20 pm	Improved Automated Equipment Inspection	Brian Barr, VP Mechanical, CSX
3:25 pm	<ul style="list-style-type: none"> Effectiveness of Cracked Rim Detectors to Identify Broken Wheels 	Witte
3:45 pm	<ul style="list-style-type: none"> Truck Component Inspection Using Machine Vision Systems 	Meddah
4:05 pm	<ul style="list-style-type: none"> Evaluation of the Effectiveness of Multi-Scan Hot Bearing Detectors 	Steve Belport
4:20 pm	<ul style="list-style-type: none"> Advanced Technologies to Inspect Cracked Axles 	Matt Witte
4:35 pm	Panel Discussion (20 Min)	Brian Barr, VP Mechanical, CSX
	<ul style="list-style-type: none"> Team TTCI 	
4:55 pm	CLOSING REMARKS	Semih Kalay
5:00 pm	A D J O U R N	
	TRACK AND STRUCTURE RESEARCH	
1:15 pm	Track and Structure Design and Materials	Greg Workman, VP, Engineering, UP
1:20 pm	<ul style="list-style-type: none"> Accelerated Service Testing of New and Improved Track Components 	Joseph LoPresti
1:40 pm	<ul style="list-style-type: none"> Implementation of Special Trackwork Designs in Revenue Service 	Duane Otter
2:00 pm	<ul style="list-style-type: none"> Engineered Pads for Railroad Track Improvement 	Mike McHenry
2:20 pm	<ul style="list-style-type: none"> Revenue service evaluation of rail steels under HAL 	Ananyo Banerjee
2:40 pm	Panel Discussion (20 Min)	Greg Workman, VP, Engineering, UP
	<ul style="list-style-type: none"> Team TTCI 	
3:00 pm	B R E A K	Poster Presentations, Affiliated Labs, FRA and SRI posters
3:20 pm	Track and Bridge Structure Testing	Phil Merilli, VP, Engineering, NS
3:25 pm	<ul style="list-style-type: none"> Field Evaluation of Hybrid Composite Bridges and Bridge Crack Growth 	Duane Otter
3:45 pm	<ul style="list-style-type: none"> Effects of Heavy Axle Loads on Track Substructure 	Colin Basye
4:05 pm	<ul style="list-style-type: none"> Effects of Wear on Rail Performance 	Harry Tournay
4:35 pm	Panel Discussion (20 Min)	Phil Merilli, VP, Engineering, NS
	<ul style="list-style-type: none"> Team TTCI 	
4:55 pm	Closing Remarks	Gary Fry
5:00 pm	A D J O U R N	

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March 28, 2018 Tour Schedule

6:00	Leave Cheyenne Mountain Resort / Ride bus to TTC for Trackwalk
7:00 – 7:25	Buses from parking lot to Passenger Services Building (PSB)
7:05 – 7:30	Check in / Registration in PSB
7:15 – 7:45	Breakfast
7:45	Welcome and Safety Briefing
8:00 – 8:15	Buses from PSB to FAST
8:00 – 11:45	Tour at FAST (details below)
10:45	Bus from FAST to PSB for demos
10:45 – 11:45	Demos at PSB (details below)
11:15	Buses from FAST to PSB for lunch
11:15	Lunch begins in PSB
12:00	Last bus from FAST to PSB
11:15 – 12:30	Buses from PSB to OPS parking lot
12:30	Lunch and tour end - Bus leaves TTC to return to Cheyenne Mountain Resort

In-Building Displays, PSB

• RCF measurement Systems (EMFI and EMA Techniques)	Witte/Poudel
• Wheel/Rail Interface Research	Tournay, Fry, Witte
• Composite Tie Fatigue Lab Testing	McHenry
• Communication and Train Control	Brosseau
• Structural Testing and Analysis	Valdez-Salazar
• Unmanned Aerial Vehicles	Joy
• Track and Bridge Maintenance Models	Li
• TTCI Instrumentation and Laboratory Testing	Mauger
• Scientific Software and Dynamics Modeling	Jones
• AAR Standards and Inspections	Hannafious
• Root Causes of Wheel Failures	Fry, Jones
• Brake System Research	Cummings

Experiment Inspections and FAST Walk

• Phased Array Rail Inspection	Witte/Lindeman
• Cracked Wheel Detection	Witte
• Machine Vision Vehicle Inspection Systems	Meddah, Lindeman & Vendors
• Track Components and Tests	
o Premium Rail Steels	Banerjee, LoPresti
o Intermediate Hardness Rail Steels	Banerjee
o Improved Hardness, HAZ Treated, and Impact Treated Thermite Welds	Archuleta
o Effects of Moisture on Ballast Degradation	Wilke/Gao
o The New Wood and Composite Tie and Fastener Tests	McHenry
o Flange Bearing Ramp Materials	Wilk
o Steering Switch Points and Heavy Point Frog STW	Bakkum
o Frog Repair Tests	Bakkum
o Steel Bridge Tests	Otter/Dick
o Improved Hot Box Detection	Belport
o Machine Vision Inspection Systems	Meddah, Witte
o Cracked Rim Detector System	Witte/Lindeman
o Improved Track Inspection Systems	Various Vendors
o UAV demo	Rich Joy