
North Entrance
North Patio
Humanities
W
M
Front Desk
Knowledge
Innovation
Excellence
Loyalty
Leadership Boardroom
Commerce
Office
Houlihan's Restaurant + Bar
W
M
iCafe
Spa
Illinois Ballroom
a
b
c
Chancellor Ballroom
Lincoln
Alma Mater
Technology
Hotel Entrance
Hotel Lobby
Fitness Center
South Patio
Quad
W
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Graduate
Honors
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W
INNOVARail Registration Area
Heritage Hall 1
Heritage Hall 2
Heritage Hall 3
Heritage Hall 4
Heritage Hall 5
Heritage Hall 6
M
W

May 27 10:00 AM – 12:00 PM
1 3 7 8

May 27 1:30 PM – 2:50 PM
1 3 4 8

May 27 3:05 PM – 4:25 PM
1 2 5 8

May 28 8:00 AM – 9:20 AM
1 5 7 2

May 28 9:35 AM – 10:55 AM
1 5 7 2

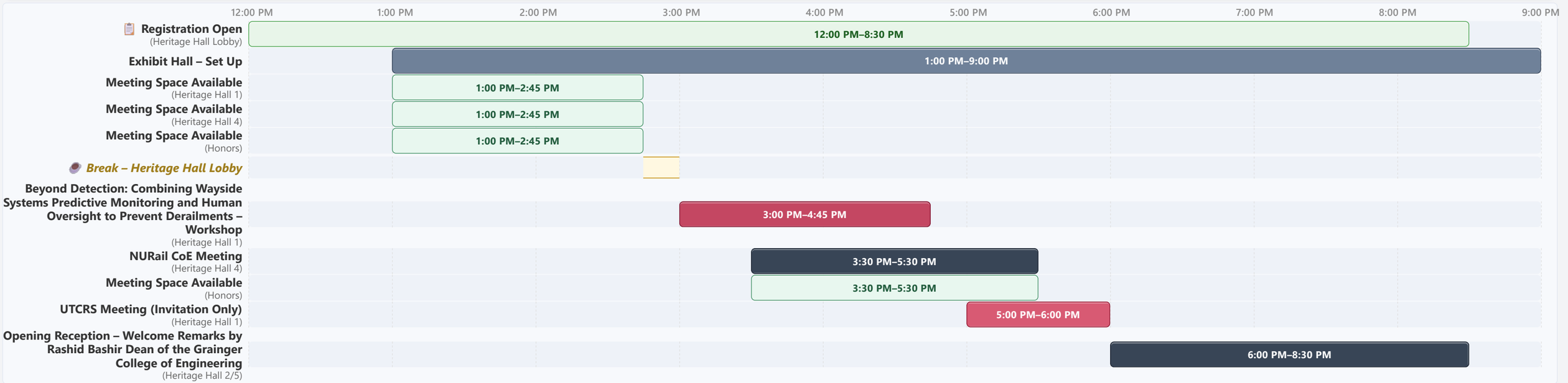
May 28 11:10 AM – 12:30 PM
1 3 7 8

May 28 1:30 PM – 2:50 PM
1 4 7 8

May 28 3:05 PM – 4:45 PM
1 4 7 8

Track	Topic	Speakers May 27	Speakers May 28	Total
Track 1	Railroad Track and Infrastructure	14	16	**30**
Track 2	Rolling Stock	4	8	**12**
Track 3	Motive Power, Energy, and Propulsion Systems	10	2	**12**
Track 4	Communication and Train Control	4	8	**12**
Track 5	Network, Operations, and Capacity	4	8	**12**
Track 7	Safety and Security	5	21	**26**
Track 8	Innovation and New Technologies	14	12	**26**

Tuesday, May 26, 2026 — Pre-Conference



Wednesday, May 27, 2026 — Conference Day 1

(7:30 AM – 8:30 PM) — **Registration Open** — Heritage Hall Lobby

8:20 AM – 8:25 AM — *Welcome from the Conference Chair – Yousef Kimiagar* — Heritage Hall 2/5

8:25 AM – 8:30 AM — *Welcome by VTS President – Prof. Dr.-Ing. Gerhard Bauch* — Heritage Hall 2/5

8:30 AM – 8:45 AM — *Plenary Session – FRA Administrator David A. Fink Opening Keynote* — Heritage Hall 2/5

8:45 AM – 9:45 AM — *Plenary Session – Future Rail Research Needs Panel Discussion*
Karl Alexy • Mike Baldwin • Joey Rhine • Corey Pasta
Moderator: Constantine Tarawneh — Heritage Hall 2/5

9:45 AM – 10:00 AM — *Break* — Heritage Hall Lobby

Timeslot 1
10:00 AM – 12:00 PM
15 min presentations
5 min Q&A
1 3 7 8

HERITAGE HALL 6

Track 1 – Session A – Ballast
Session Chair: Dimitris Rizos

10:00 AM — Comparative Evaluation of Capital and Spot Tamping Effectiveness through Track Geometry Deterioration Rates
University of Illinois Urbana-Champaign
Cayden Schroeder

10:20 AM — Developing Laboratory Test Data on Effects of Ballast Shoulder Width and Compaction Level of Tie Lateral Resistance
University of Hartford
Parth Patel

10:40 AM — Investigates the Effect of Freeze-Thaw Cycles on the Permanent Deformation Behavior of Railroad Ballast through Large-Scale Triaxial Cyclic Testing
University of South Carolina
Desi Tu

11:00 AM — Effects of Fouled Ballast on Track Responses Due to Excessive Rain
University of Delaware
Piero Caputo

11:20 AM — Automated 3D Railway Ballast Characterization with Field Validation
University of Illinois Urbana-Champaign
Kelin Ding

11:40 AM — Evaluation of New and Degraded Ballast Using an Innovative Bender Element Field Sensor and PANDA® Penetrometer
University of Illinois Urbana-Champaign
Hyunsoo Lee

HONORS

Track 3 – Session A – Energy Modeling, Decarbonization, and System-Level Impacts
Session Chair: Joseph Montalvo

10:00 AM — Harvesting Electrical Energy from Vibration of Railway Track using an Electromagnetic Energy Harvester with Circular Halbach Array
The University of Texas Rio Grande Valley
Adamaris Sanchez

10:20 AM — Quantifying Annual Industrial Locomotive Energy Consumption in the United States
National Laboratory of the Rockies
Alicia Birky

10:40 AM — Sensitivity of Simulated Energy Consumption to Railway Corridor Elevation Data Processing and Train Length
The University of Texas at Austin
Qianqian Tong

11:00 AM — Decarbonizing U.S. Intermodal Railyards through Evaluation of Energy System Scenarios: Partial Electrifications and Low-Carbon Fuels
University of Illinois Chicago
Brian Christian

11:20 AM — Capped Aluminum Power Delivery Rail: A drop-In replacement for steel and steel-aluminum composite 3rd rail
Conductix-Wampfler Inc.
Keith Forman

HERITAGE HALL 1

Track 7 – Session A – Application of Data Analytics on Grade Crossing Safety
Session Chair: Xiang Liu

10:00 AM — Signal Optimization in Multimodal Corridors with Railroad-Highway Grade Crossings
Tennessee State University
Jeannine Mbabazi

10:20 AM — Traffic Tracking at Grade Crossings Using AI
The University of Texas Rio Grande Valley
Silvia Flores-Osuna

10:40 AM — Identifying Key Risk Factors for Railroad Crossing Crashes with Modern AI Models
Tennessee State University
Reecha Sharma

11:00 AM — Artificial Intelligence Aided Monitoring System for Railroad Trespassing Mitigation
Rutgers University
John Ng

11:20 AM — Impact of Non-Motor Vehicle Traffic on Highway-Rail Grade Crossing Crash Predictions
University of Nebraska-Lincoln
Aemal Khattak

11:40 AM — Efficacy of Four-Quadrant Gate Grade Crossing Warning Systems Compared to Conventional Two-Quad Gates
University of Illinois Urbana-Champaign
Derek Campbell

HERITAGE HALL 4

Track 8 – Session A – Innovations in Rail Inspection and Signals
Session Chair: Jinghao Yang

10:00 AM — Advancements in LIDAR for Rail Applications
Hatch
Todd Ellis

10:20 AM — Laser Doppler Vibrometer-based Rail Defect Detection using Long Short-Term Memory Autoencoder
The University of Texas at Austin
Jinghang Weng

10:40 AM — Innovative Track Transition Monitoring System Using FBG Sensors: Field Validation for Rail Deflection and Load Measurement
Oklahoma State University
Mahsa Gharizadehvarnosefaderani

11:00 AM — Vision-Based UAV Navigation for Autonomous Railway Inspection
University of South Carolina
Toma Sucin

11:20 AM — System-Optimal Scheduling of Coupling and Decoupling for Battery-Powered Autonomous Freight Trains under Moving-Block Signaling
Sharma and Associates, Inc.
Sania E. Seilabi

11:40 AM — Application of AI-Based 3D Machine Vision for Enhanced Turnout Condition Monitoring
Pavemetrics Systems, Inc.
Antonio Mauricio

12:00 PM – 1:30 PM — *Lunch / Keynote Speaker – Kari Gonzales, President and CEO, MxV Rail* — Heritage Hall 2/5

Fireside Chat
Patrick Whitehead, Executive Vice President and Chief Operating Officer, Canadian National Railway
Heritage Hall 2/5

Timeslot 2
1:30 PM – 2:50 PM
15 min presentations
5 min Q&A
1 3 4 8

HERITAGE HALL 6

Track 1 – Session B – Track Buckling/RNT I
Session Chair: Dimitris Rizos

1:30 PM
Implementing Finite Element Modeling to Simulate Longitudinal Resistance in Continuous Welded Rail
The University of Texas Rio Grande Valley
Jesus Amaro

1:50 PM
Temperature Effect on Rail Anchor Longitudinal Resistance
The University of Texas Rio Grande Valley
David Vera

2:10 PM
Numerical Analysis of Rail Buckling Under Climate-Driven Temperature Extremes
Oklahoma State University
Mahtab Delfanazari

2:30 PM
Nonlinear Displacement Controlled Computational Model for Predicting Buckling and Post-Buckling Response of Rail Structures
Texas A&M University
Ozant Ozumert Bulguoglu

HONORS

Track 3 – Session B – Battery-Electric Trains, Charging, and Energy Storage
Session Chair: Michael Iden

1:30 PM
Evaluating Battery Electric Locomotive Energy Savings with Frequency Domain Analysis of Railway Corridor Grade Profiles
The University of Texas at Austin
Diwen Shi

1:50 PM
Optimal Location of Wireless Charging Infrastructure for Battery-Electric Freight Trains: A Network Design Approach
Sharma and Associates, Inc.
Sania E. Seilabi

2:10 PM
Evaluating Options for Electrifying Commuter Rail Diesel Multiple-Unit Vehicles on a Shortline Freight Corridor
The University of Texas at Austin
Heyang Zhang

2:30 PM
Multi-Cell EIS Measurement System for State Diagnosis of Railway Vehicle Traction Battery Packs
Korea National University of Transportation
Seonwoong Kim

HERITAGE HALL 1

Track 4 – Session A – Railroad Radio Improvements
Session Chair: Lamont Ward

1:30 PM
A Two-stage TDOA-based Algorithm for Locomotive Position Estimation in GNSS-denied Environments
University of Calgary
Ying Xuan Cao on behalf of Teslim Lawal

1:50 PM
Diffusion-Driven Channel Estimation for Robust Next-Generation High-Speed Railway Communication Networks
Royal Melbourne Institute of Technology, Melbourne, Australia
Manisha Kandel on behalf of Kanwardeep Singh Gahlot

2:10 PM
UWB Beacon-Receiver Based Indoor Ranging and Positioning System for GNSS-denied Environments
University of Calgary
Ying Xuan Cao

HERITAGE HALL 4

Track 8 – Session B – Innovations in Crossings and Operations
Session Chair: G. Avery Grimes

1:30 PM
SMART-TWIN: An AI-Driven Digital Twin Framework for Real-Time Traffic Operations and Infrastructure Decision-Making
California State University, Fresno
Hovannes Kulhandjian

1:50 PM
The Facility for Accelerated Service Testing (FAST®): New Loop Design, Early Operations, and Results
MxV Rail
Dante DeVencenty

2:10 PM
Extracting and Analyzing Rail Crossing Behavior Signatures from Videos using Tensor Methods
University of California Riverside
Het Patel

2:50 PM – 3:05 PM — **Break** — Heritage Hall Lobby

Timeslot 3
3:05 PM – 4:25 PM
15 min presentations
5 min Q&A
1 2 5 8

HERITAGE HALL 6

Track 1 – Session C – Track Buckling/RNT II
Session Chair: Gasser Ali

3:05 PM
Effects of Heating and Boundary Conditions on In-Situ Rail Neutral Temperature Estimates: A Parametric Investigation
University of South Carolina
Nicholas Cunningham

3:25 PM
Analysis of Buckled-Track Derailments and Their Implications on Rail Neutral Temperature
University of Illinois Urbana-Champaign
Kamyar Kosarneshan

3:45 PM
Development and Application of the Illinois Buckle Risk Model Using Multi-Source Track Data
University of Illinois Urbana-Champaign
Kaifeng Hu

4:05 PM
Further Developments Associated With Non-Contact in-Track Assessment of the State of Rail Stress
University of Kansas
Veeshal Modi

HONORS

Track 2 – Session A – Bearings/Condition Monitoring
Session Chair: Constantine Tarawneh

3:05 PM
Accelerometer Placement Effect on Measured Vibration Response of Freight Railcar Bearings
The University of Texas Rio Grande Valley
Joseph Montalvo

3:25 PM
A Comparative Study of Analog and Digital Accelerometers: Performance, Signal Integrity, and Application Suitability for the Rail Industry
The University of Texas Rio Grande Valley
Roberto Avila

3:45 PM
Feature Extraction from Railroad Bearing Onboard Vibration Sensors Using Machine Learning Models
The University of Texas Rio Grande Valley
Sergio Martinez

4:05 PM
Effects of Prolonged Inactivity on Railcar Bearing Performance
The University of Texas Rio Grande Valley
Constantine Tarawneh

HERITAGE HALL 1

Track 5 – Session A – Operation of Shared Rail Corridors
Session Chair: Tyler Dick

3:05 PM
Simulating Changes in Shared Corridor Capacity Under Evolving Operating Practices
The University of Texas at Austin
Juliana Johnson

3:25 PM
Reducing Shared Corridor Heterogeneity through Alignment of Freight and Passenger Train Operating Plans and Characteristics
Michigan Technological University
Suphanat Juengprasertsak

3:45 PM
Optimizing In Railway Networks Using Reinforcement Learning
Indian Institute of Technology Madras
Isha Nayar

HERITAGE HALL 4

Track 8 – Session C – Innovations in Bridges and Structures
Session Chair: Eric Fitzsimmons

3:05 PM
Autonomous Operation of Movable Rail Bridges
WSP USA
Miguel Estrella

3:25 PM
Deployable Kirigami Truss Bridge: Design, Reduced Scale Experiment, and Simulation App
Michigan Technological University
Zhongqi Fan

3:45 PM
Fiberoptic Sensing for Improved Bridge Monitoring
Modern Safety Engineering NA
Christian Doeringer

4:05 PM
Advanced Technology for the Identification of Stray Current Leakage for DC Powered Rail Systems
Hatch
Miqdaad Fatakdawala

4:25 PM – 4:40 PM — **Coffee Break** — Heritage Hall Lobby

4:40 PM – 6:00 PM — **Poster Session** — Heritage Hall 3

6:00 PM – 9:00 PM — **Dinner and Award Ceremony** — Heritage Hall 2/5

Thursday, May 28, 2026 — Conference Day 2

(7:30 AM – 12:00 PM) **Registration Open** Heritage Hall Lobby

Timeslot 4
8:00 AM – 9:20 AM
15 min presentations
5 min Q&A
1 5 7 2

HERITAGE HALL 6

Track 1 – Session D – Track I
Session Chair: Reza Naseri

Quantifying Laboratory Investigation of the Influence of Tie and Fastener Type and Condition on Rail Torsional Resistance — 8:00 AM
University of Illinois Urbana-Champaign
Kaifeng Hu

A Probabilistic Risk Assessment Framework for Evaluating Track Geometry Inspection and Safety Performance — 8:20 AM
University of Houston
Yanjie Yi

Enhancing Railway Track Monitoring with an Innovative Low-Power Wireless GNSS Displacement Meter — 8:40 AM
Worldsensing
Nathan McGee

Influence of Track Structure, Curvature, and Maximum Allowable Speed on Track Degradation Before and After Higher-Speed Rail Service Introduction — 9:00 AM
University of Illinois Urbana-Champaign
Jose Gustavo Venancio da Silva Ramos

HONORS

Track 5 – Session B – Future of Freight Rail Traffic
Session Chair: Tyler Dick

Freight Rail's Role in Price Stability and Supply Chain Resilience — 8:00 AM
Association of American Railroads
Jessica Shui

Encouraging Growth and Competition in an era of Mega-Mergers — 8:20 AM
Independent Rail Consultant
Avery Grimes

Rebalancing Modal Use for Freight Transport — 8:40 AM
North Carolina State University
George List

Can Merchandise Traffic be Saved? — 9:00 AM
Independent Rail Consultant
Roger Baugher

HERITAGE HALL 1

Track 7 – Session B – Grade Crossing Safety Improvement and Risk Mitigation
Session Chair: Gasser Ali

Operational Impacts of Variable Message Signs at Rail Crossings Adjacent to Signalized Intersections — 8:00 AM
Tennessee State University
Afia Serwaa Yeboah

A cognitive engineering approach to mapping cues to improve safety at highway rail grade crossings — 8:20 AM
Michigan Technological University
Elizabeth Veinott

Advancing Deakin RF Sensing for Enhancing Level Crossing Safety — 8:40 AM
Deakin University (Australia)
Manisha Kandel on behalf of Shiva Pokhrel

Safety Implications of Motor Vehicle Wheelbase, Vertical Ground Clearance, and Vertical Profile of Highway Rail Grade Crossings in the United States — 9:00 AM
University of Illinois Urbana-Champaign
Francesco Bedini Jacobini

HERITAGE HALL 4

Track 2 – Session B – Condition Monitoring
Session Chair: Constantine Tarawneh

Feasibility Study on Low-Cost Monitoring of Train Abnormalities Using Rotor Frequency Information from Traction Motors — 8:00 AM
Railway Technical Research Institute
Michihiro Yamashita

Locomotive Override: Recent Incidents Survey and Override Analysis Study — 8:20 AM
U.S. DOT Volpe National Transportation Systems Center
Patricia Llana

Electrical Scheme Diagnose: Case Study — 8:40 AM
Alstom
Jean-francois Arnold

Integrating Onboard/Wayside Sensor Fusion with PTC for Robust Foul Volume Object Detection — 9:00 AM
US DOT Federal Railroad Administration
Sam Alibrahim

9:20 AM – 9:35 AM — *Break* — Heritage Hall Lobby

Timeslot 5
9:35 AM – 10:55 AM
15 min presentations
5 min Q&A
1 5 7 2

HERITAGE HALL 6

Track 1 – Session E – Track II
Session Chair: Brennan Gedney

A Markov Decision Process Approach to Evaluating Under Tie Pads in Railroad Track Maintenance — 9:35 AM
University of Illinois Urbana-Champaign
Jaeik Lee

On the Reliability of a Physics-Informed Proxy for Track Stiffness Irregularities Detection Using InService Rail Vehicles — 9:55 AM
University of South Carolina
Reza Naseri

Onboard Vibration-Based Railway Track Monitoring: Correlations and Differences between Axle Box Accelerometer and Laser Doppler Vibrometer — 10:15 AM
Delft University of Technology
Yuanchen Zeng

Mechanistic Evaluation of Track Modulus: Effect of Missing and Inadequately Supported Ties — 10:35 AM
Oklahoma State University
Manouchehr Zeidiboghrabad

HONORS

Track 5 – Session C – Freight Mode Choice and Disruptive Technologies
Session Chair: Tyler Dick

Modeling Freight Mode Choice: A Multinomial Logit Approach with Empirical Calibration — 9:35 AM
North Carolina State University
Md Abdullah Al Hasan

Integrated Modeling of Truck-to-Rail Opportunities on the Los Angeles–Chicago Corridor — 9:55 AM
Argonne National Laboratory
Natalia Zuniga-Garcia

Leveraging Autonomous, Battery-Electric Technology to Transform the Rail Industry — 10:15 AM
Intramotev / Washington University in St. Louis
Timothy Luchini

Financing the Future of Freight: Exploring Innovations and Public Sector Investments in U.S. Rail Decarbonization — 10:35 AM
University of Illinois Chicago
Brian Christian

HERITAGE HALL 1

Track 7 – Session C – Rail Security
Session Chair: Sam Alibrahim

An Examination of the Intersection Between Cybersecurity and Safety: Using Security and Transport Protocols in Safety-Related Communications for Railway Applications — 9:35 AM
Hatch LTD
Mansour Tabari

Decision Support System for Cyber-Resilient Railway Fallback Operations — 9:55 AM
University of Passau (Germany)
Xingming Bi on behalf of Lorant Meszlenyi

Rail Security as a Big Data Problem: Analysis and Results — 10:15 AM
University of West Florida
Jeremy Straub

From Surveillance Cameras to Intelligent Vision: A Review of AI and Image Processing Technologies for Crime Prevention in Rail Public Transportation — 10:35 AM
University of Illinois Chicago
Ali Mohammadi

HERITAGE HALL 4

Track 2 – Session C – Wheels/Railcar Load
Session Chair: Constantine Tarawneh

Development and Testing of an Onboard Load Sensor Embedded within Passive Steering Bearing Adapter Pads — 9:35 AM
The University of Texas Rio Grande Valley
Diego Aguila/Aaron Blanton

Examining the Effects of Lateral Loading on Freight Tapered Roller Bearings — 9:55 AM
The University of Texas Rio Grande Valley
Arturo Fuentes

Analysis of Wheelset Removal Trends — 10:15 AM
MxV Rail
Corey Pasta

An Integrated Analysis of Freight Rail Wheel Performance: Effects of Crack Geometry, Load Position, and Braking Conditions — 10:35 AM
ENSCO Inc.
Mohamad Ghodrati

10:55 AM – 11:10 AM

Break

Heritage Hall Lobby

Timeslot 6
11:10 AM – 12:30 PM
15 min presentations
5 min Q&A
1 3 7 8

HERITAGE HALL 6

Track 1 – Session F – Concrete Ties
Session Chair: Dimitris Rizos

Crosstie Flexural Capacity Comparison — 11:10 AM
Kansas State University
Christopher Jones

Concrete Tie Corrosion Susceptibility — 11:30 AM
Kansas State University
Christopher Jones

Evaluation of Prestressed Concrete Railroad Ties Under Cyclic and Impulse Loading — 11:50 AM
Kansas State University
Hunter Meier

Freeze-Thaw Testing of Five Different Prestressed Concrete Tie Designs Spanning 50 Years of Production — 12:10 PM
Kansas State University
Hunter Meier

HONORS

Track 3 – Session C – Traction Power Electronics, Thermal Management, and Control
Session Chair: Michael Iden

Critical Improvements in Thermal Materials and Characterization Tools for Propulsion System Power Semiconductors — 11:10 AM
DS&A LLC
Dave Saums

Innovative Liquid Cooling Hardware Improvements for Propulsion System Power Semiconductors — 11:30 AM
DS&A LLC
Dave Saums

Modeling and Control of Traction Systems for Urban Electric Trains — 11:50 AM
Hanoi University of Science and Technology
Vo-Duy

HERITAGE HALL 1

Track 7 – Session D – Analytical and Simulation-Based Methods for Rail Safety
Session Chair: Chris Barkan

Numerical modelling and evaluation of different track-mounted derailment mitigation measures — 11:10 AM
Politecnico di Milano
Matteo Santelia

Probability of Tank Car Damage and Release for Specific Derailment Conditions — 11:30 AM
Applied Research Associates
Steven Kirkpatrick

HERITAGE HALL 4

Track 8 – Session D – Innovations in Track and Ballast
Session Chair: Mustapha Rahmaninezhad

A Framework for Full Network Coverage of Track Stability Monitoring — 11:10 AM
University of South Carolina
Brennan Gedney

Scalable Estimation of Degrees of Curvature and Grades for the U.S. Freight Rail Network Using Open-Source GIS Data — 11:30 AM
North Carolina State University
Md Abdullah Al Hasan

Enhancing Railway Track Lateral Resistance using Bending-induced Architected Instability-based Metamaterials — 11:50 AM
The University of Texas at Austin
Sibo Zhang

Predicting Track Gauge Deterioration with a Self-Attention Transformer and RFID-Assisted Alignment — 12:10 PM
Rutgers University
Mulin Wan

12:30 PM – 1:30 PM

Lunch

Heritage Hall 2/5

Timeslot 7
1:30 PM – 2:50 PM
15 min presentations
5 min Q&A
1 4 7 8

HERITAGE HALL 6

Track 1 – Session G – Rail I
Session Chair: Reza Naseri

Predicting Rail Break Gap Sizes in Sub-Freezing Temperatures Leveraging a Laboratory and Finite Element Study — 1:30 PM
University of Illinois Urbana-Champaign
Kamyar Kosarneshan

Multiscale Modeling of Seasonal Thermal Mechanical Effects on Subsurface Crack Growth in Rails — 1:50 PM
Texas A&M University
Sina Saberi

A Physics-Informed Risk Assessment Framework for Modeling Rail Failure Risk from Transverse Defects — 2:10 PM
University of Houston
Yanjie Yi

Microstructure - Fracture Behavior Relationship of Thermite Weld Repairs — 2:30 PM
Tuskegee University
Heshmat Aglan

HONORS

Track 4 – Session B – Advancements in Train Control and Signaling for Urban Railroad
Session Chair: Lamont Ward

Automation of Urban Railway - A Retrospective Analysis and Look Into the Future of Rail Transport — 1:30 PM
University of Dresden
Sven Scholz

C-Rail: Expanding the C-ITS Ecosystem to Trams and Trains — 1:50 PM
Robert Bosch GmbH, Bosch Engineering GmbH
Nico Ostendorf

SeRStep Based Novel Approach for Sensitivity Analysis of CBTC Safe Braking Model — 2:10 PM
WSP USA
Pankaj Dhakate

HERITAGE HALL 1

Track 7 – Session E – Innovative Solutions for Rail Safety Improvement
Session Chair: Chris Barkan

Development of Simulation Model for Shielding of Internal Components of Railcar Against Shrapnel in the Explosion Incidents — 1:30 PM
ENSCO Inc.
Przemyslaw Rakoczy

Keeping Safety On Track: Improving Safety for Short Line and Regional Railroads — 1:50 PM
Short Line Safety Institute
Julia Leone

HERITAGE HALL 4

Track 8 – Session E – Innovations in Safety and Technology
Session Chair: Jinghao Yang

Predictive Condition Monitoring of Freight Rail Bearings: A Vibration-Based Machine Learning Approach — 1:30 PM
The University of Texas Rio Grande Valley
Elian Cantu

Subsurface Crack Characterization in Rail via Contrast Enhanced Ultrafast Ultrasound Imaging — 1:50 PM
Michigan Technological University
Hinga Roseline Raliba

Crashworthiness of Emerging Rail Technology Equipment: Scenarios of Concern — 2:10 PM
U.S. DOT Volpe National Transportation Systems Center
Karina Jacobsen

2:50 PM – 3:05 PM

Break

Heritage Hall Lobby

Timeslot 8
3:05 PM – 4:45 PM
15 min presentations
5 min Q&A
1 4 7 8

HERITAGE HALL 6

Track 1 – Session H – Rail II
Session Chair: Brennan Gedney

Failure Analysis of Thermite Weld Rails Under Reverse Slow Bend Test — 3:05 PM
Tuskegee University
Heshmat Aglan

A Dynamic Finite Element Approach to Simulate Single Rail Breaks in Continuous Welded Rail — 3:25 PM
University of Illinois Urbana-Champaign
Kamyar Kosarneshan

Fatigue Crack Modeling in Railheads: Material Characterization and Simulation of Varying Flaws — 3:45 PM
Texas A&M University
Hesam Mortazavi

A Finite Element Investigation of Microstructural Effects on Fatigue Crack Propagation in Rail Steel — 4:05 PM
Texas A&M University
Bulent Altay

Ultrasonic Rail Inspection: A Pillar of Heavy Haul Railway Safety — 4:25 PM
MRS Logistics
Marcos Paulo Eudoxio

HONORS

Track 4 – Session C – Safety and Security for Train Control Systems
Session Chair: Jinghao Yang

Intelligent Traffic Signal Control at Railway Crossing Based on Train-Induced Blockage Information — 3:05 PM
University of South Carolina
Ning Ding

A Survey of Security Vulnerabilities and Solutions for Railway Wireless Communications — 3:25 PM
Queen's University (Canada)
Mackenzie Tummers

SAFE-T: Secure Authentication Framework for End-of-Train Communications — 3:45 PM
University of Illinois Urbana-Champaign
Richard Liu

Real-Time Eco-driving in regional trains with ERTMS signaling system — 4:05 PM
University of Salerno
Vincenzo Galdi

HERITAGE HALL 1

Track 7 – Session F – Data-Driven Risk Assessments for Rail Infrastructure and Operations
Session Chair: Francesco Bedini

Data-Driven Risk-Based Modeling of Manual Walking Inspection Frequency — 3:05 PM
University of Delaware
Manisha Kandel

Development of a Risk Based Track Geometry Inspection Model for Optimizing Inspection Intervals — 3:25 PM
University of Delaware
Johnson Chukwu

Temporal Trends in the Geospatial Location and Nearby Railroad Track Topography of Freight Train Handling Derailments — 3:45 PM
The University of Texas at Austin
Matthew J Friar

Statistical Modeling of Distributed Power, Train Length, and Derailment Rate — 4:05 PM
University of Illinois Urbana-Champaign
Xinhao Liu

Technical Systems Integration Risk Mitigation Using a Systems Engineering Approach for Civil Infrastructure Projects in Multi-Package Rail & Transit Programs — 4:25 PM
WSP Canada Inc.
Janarthan Vedantham

HERITAGE HALL 4

Track 8 – Session F – Innovations in Rolling Stock
Session Chair: Sergio Martinez

Integration of Solar Energy Harvesting on Wireless Onboard Condition Monitoring Systems for Long-Term Power Sustainability — 3:05 PM
The University of Texas Rio Grande Valley
Richard Palacios Jr.

Enhancing Safety in LNG Rail Transport: A Risk-Based Decision Support Framework — 3:25 PM
Morgan State University
Nicole Anderson

Risks of Overly Rapid Commercialization of New Locomotive Designs & Technologies — 3:45 PM
Tier 5 Locomotive LLC
Michael Iden

Machine Learning-Based Estimation of Train Energy Consumption — 4:05 PM
Scuola Superiore Sant'Anna
Domenico Uomo