



**Transportation Research Board
95th Annual Meeting**

January 10–14, 2016 ■ Washington, D.C.

**University of Illinois at Urbana-Champaign (UIUC)
Rail Transportation and Engineering Center (RailTEC)**

**Guide to RailTEC Presentations
TRB 95th Annual Meeting
Washington, D.C.
January 10-14, 2016**



Overview of Sessions with RailTEC Session Chairs or Presentations

SUNDAY

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Design of Concrete Crossties and Fastening Systems: Latest Advances in Research and Development

Sunday 9:00 AM - 12:00 PM - Convention Center, 143C

Workshop 141

Crude by Rail: Opportunities and Challenges in North America

Sunday 1:30 PM- 4:30 PM- Convention Center, 143C

Workshop 190

MONDAY

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Best of the Best: Raising the Bar on Intercity Passenger Rail Performance

Monday 8:00AM - 9:45AM Convention Center, 147A

Session 233

New Technologies for Ballast Condition Assessment and Management

Monday 8:00AM - 9:45AM Convention Center, 143A

Session 234

Railroad Operational Safety Research

Monday 8:00 AM - 9:45 AM Convention Center, 147B

Session 235

Intercity Passenger Rail Intermodal Interface Subcommittee, AR010 (1)

Monday 8:00 AM - 9:45 AM Marriott Marquis, Woodley Park (M3)

New Technologies for Track Condition Assessment and Management

Monday 10:15 AM - 12:00 PM Convention Center, 143B

Session 290

Innovations in Highway-Rail Crossing Safety

Monday 1:30 PM - 3:15 PM Convention Center, 101

Session 355

Current Research on Freight Rail Transportation

Monday 1:30 PM - 3:15 PM Convention Center, 149

Session 367

Railway Maintenance Committee, AR060

Monday 1:30 PM - 3:15 PM Marriott Marquis, Mount Vernon Square (M3)

Railroad Track Structure System Design Committee, AR050

Monday 3:45PM- 5:30PM Marriot Marquis, Chinatown (M3)

Hazardous Materials Transportation Research

Monday 3:45PM- 5:30PM Convention Center, 144A

Session 428

Railroad Operating Technologies Committee

Monday 3:45PM- 5:30PM Marriot Marquis, Woodley Park (M3)

Research Topics in Railroad Network Capacity

Monday 7:30PM- 9:30PM Convention Center, 144C

Session 471

Standing Committee on Commuter Rail Transportation (AP070)

Subcommittee on Research (AP070(2))

Monday 7:30 PM - 9:30 PM, Marriott Marquis, Judiciary Square (M3)

Shared Rail Corridors and Facilities Joint Subcommittee of

AP065(3), AP045, AP070, AP075, AR010, AR040

Monday 7:30 PM - 9:30 PM, Marriott Marquis, Congress (M4)

TUESDAY

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Improvements in Turnout Design

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Session 512

Rail Transit System Technical Issues

Tuesday 8:00 AM - 9:45 AM Convention Center, 143B

Session 513

Dwight David Eisenhower Transportation Fellowship Program Research Showcase

Tuesday 8:00 AM - 12:00 PM Convention Center, 202B

Session 519

Energy Efficiency Technologies for Rail Transportation

Tuesday 10:15 AM- 12:00 PM Convention Center, 147B

Session 576

Research in Railroad Track Structure System Design

Tuesday 10:45 PM - 12:30 PM Convention Center, Hall E

Session 594

Rail Safety IDEA Program

Tuesday 10:45 PM - 12:30 PM Convention Center, Hall E

Session 595

Current Research in Railway Maintenance

Tuesday 10:45 PM - 12:30 PM Convention Center, Hall E

Session 596

Applications of Unmanned Aircraft Systems Within the Rail Industry

Tuesday 1:30 PM - 3:15 PM Convention Center, 143B

Session 628

Transit, Freight, and Logistics Modeling Subcommittee, ADB30 (1)

Tuesday 1:30 PM - 3:15 PM Marriott Marquis, Independence H (M4)

Freight Rail Transportation Committee, AR040

Tuesday 1:30 PM - 5:30 PM Marriott Marquis, Chinatown (M3)

Nonintrusive Testing of Track Structure and Substructure

Tuesday 3:45 PM - 5:30 PM Convention Center, 149

Session 704

Crude Oil Transportation Subcommittee, AT040 (1)

Tuesday 3:45 PM - 5:30 PM Marriot Marquis, Archives (M4)

Starting Over: The Challenge of Sustaining Passenger Rail Performance and Restoring Discontinued Services

Tuesday 3:45 PM - 5:30 PM Convention Center, 144B

Session 703

Current Research on Freight Rail Transportation

Tuesday 4:15 PM - 6:00 PM Convention Center, Hall E

Session 734

Research in Railway Operating Technologies

Tuesday 4:15 PM - 6:00 PM Convention Center, Hall E

Session 733

Schedule Details

[\(RailTEC faculty, staff, student and alumni presentations in blue\)](#)

SUNDAY

Design of Concrete Crossties and Fastening Systems: Latest Advances in Research and Development

Sunday, January 10, 2016 9:00 AM - 12:00 PM Convention Center, 143C

Workshop 141

[J. Riley Edwards and Marcus S. Dersch](#) University of Illinois, Urbana Champaign, presiding

This workshop will focus on the latest research on concrete crossties and fastening systems for rail transit, intercity passenger rail, and heavy-haul freight railroads. Topics will include field and laboratory experimentation and analytical modeling to better inform the design of systems with the objective of increasing component life cycles. Presentations will be given by academic and industry researchers, infrastructure owners, and the supply community that manufactures these components.

Transportation Test Center Crosstie and Fastening Research

Michael McHenry, Transportation Technology Center, Inc.

Rail Transit Operator Perspective - Design and Maintenance of Concrete Crossties and Fastening Systems

Antonio Cabrera, New York City Transit

Laboratory Quantification of Flexural Demand on Concrete Crossties under Different Support Conditions

Josué César Bastos, University of Illinois, Urbana Champaign

J. Riley Edwards, University of Illinois, Urbana Champaign

Marcus Dersch, University of Illinois, Urbana Champaign

Design of High Strength Low Modulus Concrete Crossties

Dimitris Rizos, University of South Carolina

FRA Concrete Crosstie Design Project Results

Robert Peterman, Kansas State University

Panel Discussion

J. Riley Edwards, University of Illinois, Urbana Champaign

Michael McHenry, Transportation Technology Center, Inc.

Antonio Cabrera, New York City Transit

Dimitris Rizos, University of South Carolina

Robert Peterman, Kansas State University

Marcus Dersch, University of Illinois, Urbana Champaign

Crude by Rail: Opportunities and Challenges in North America

Sunday, January 10, 2016 1:30PM - 4:30PM Convention Center, 143C

Workshop 190

David Willauer, IEM, Inc., presiding

George Grimes, Patriot Rail Company, presiding

Crude by rail has burgeoned in recent years, in part due to the domestic availability of shale oil in North America. This workshop will include recent US and Canadian rulemaking, preliminary findings from the DOE Tight Oil Study, the implications from rulemaking on Class I railroads, modeling the probability of crude oil derailments and subsequent releases, issues and challenges with mid-stream oil transportation, and crude oil characteristics with implications for transport in North America.

Part 1: Crude by Rail Federal Response and Industry Challenges

New USDOT and Canada Rules on the Safe Transportation of Flammable Liquids by Rail:

Issues for Industry and Regulators

Edward Pritchard, Paladin Consulting Group, Inc.

Challenges and Implications for Class 1 Railroads

John Gray, Association of American Railroads (AAR)

Shipper Challenges in the Petroleum Industry

O. Chris Jackson, Shell Oil Company

Part 2: Crude Oil Characteristics: Implications for Risk and Transport

Crude by Rail: Findings from Risk Research

Christopher Barkan, University of Illinois, Urbana Champaign

USDOE Crude Oil Characteristics Research: Current Status

Richard Elliott, U.S. Department of Energy

Developments in Methodology and Best Practices for Crude Oil Characterization

Randy Segato, Canadian Crude Quality Technical Association

MONDAY

Best of the Best: Raising the Bar on Intercity Passenger Rail Performance

Monday, January 11, 2016 8:00AM - 9:45AM Convention Center, 147A

Session 233

Genaro Mejia, Arup, presiding

Model for Optimal Selection of Projects to Improve Running Time and Operating Cost Efficiency on Passenger Rail Corridors

Haichuan Tang, Southwest Jiaotong University

Tyler Dick, University of Illinois, Urbana-Champaign

Brennan Caughron, University of Illinois, Urbana-Champaign

Xiaoyun Feng, Southwest Jiaotong University

Christopher Barkan, University of Illinois, Urbana Champaign

Impact of On-Time Performance and Fuel Prices on Amtrak Ridership and Revenue

Mark Feldman, Steer Davies and Gleave, Inc.

William Sheridan, National Railroad Passenger Corporation (Amtrak)

Bruce Williams, National Railroad Passenger Corporation (Amtrak)

Masroor Hasan, Steer Davies and Gleave, Inc.

Kate Yu, Steer Davies and Gleave, Inc.

Megan Brock, Steer Davies and Gleave, Inc.

Challenges and Opportunities in Implementation of the Future California Rail Network

Samuel Levy, Massachusetts Institute of Technology

A. Awadagin Faulkner, Massachusetts Institute of Technology

Joseph Sussman, Massachusetts Institute of Technology

Quality Versus Quantity in Integrated Railroad Network: Rolling Stock Procurement Valuation for Madrid-Perpignan High-Speed Line

Fernando Barreiro Pereira, Universidad Nacional de Educacion a distancia

New Technologies for Ballast Condition Assessment and Management

Monday, January 11, 2016 8:00AM - 9:45AM Convention Center, 143A

Session 234

Carlton Ho, University of Massachusetts, Amherst, presiding

Hai Huang, Pennsylvania State University, presiding

James Hyslip, HyGround Engineering, LLC, presiding

Morphological Characterization of Railroad Ballast Degradation Trends in the Field and Laboratory

Maziar Moaveni, University of Illinois, Urbana Champaign

Issam Qamhia, University of Illinois, Urbana Champaign

Erol Tutumluer, University of Illinois, Urbana Champaign

Colin Basye, Transportation Technology Center, Inc.

Dingqing Li, Association of American Railroads (AAR)

Samuel Douglas, Union Pacific Railroad Company

Rapid Estimation of Fouled Ballast Material Properties

Madan Neupane, University of Kansas

Robert Parsons, University of Kansas

Jie Han, University of Kansas

Evaluating Correlation Between Geotechnical Index and Electromagnetic Properties of Fouled Ballasted Track by Full-Scale Laboratory Model

Hamed Faghihi Kashani, University of Massachusetts, Amherst
Carlton Ho, University of Massachusetts, Amherst
William Clement, University of Massachusetts, Amherst
Charles Oden, Earth Science Systems, LLC

Effect of Geogrid on Railroad Ballast Studied by SmartRock

Shushu Liu, Penn State University
[Hai Huang, Pennsylvania State University](#)
Tong Qiu
Jayhyun Kwon, Tensar International Corporation

Railroad Operational Safety Research

Monday, January 11, 2016 8:00AM - 9:45AM Convention Center, 147B

Session 235

[Xiang Liu, Rutgers, The State University of New Jersey, presiding](#)

Freight Train Collision Risk Analysis in the United States, 2000 to 2014

[Xiang Liu, Rutgers, The State University of New Jersey](#)

Fault Tree Analysis of Adjacent Track Accidents on Shared-Use Rail Corridors

[Chen-Yu Lin, University of Illinois, Urbana Champaign](#)
[M. Rapik Saat, University of Illinois, Urbana Champaign](#)
[Christopher Barkan, University of Illinois, Urbana Champaign](#)

Evaluation of Confidential Close Call Reporting System: New Findings on Implementation and Impact

Joyce Ranney, Office of the Assistant Secretary for Research and Technology (OST-R)
Jonathan Morell, Fulcrum Corporation
Melinda Davey, Jacobs

Moving map displays: Using CTIL and Eye Tracking Technologies to Measure Operator Glance Durations and Performance in Locomotive Cabs

Jared Young, University of Massachusetts, Amherst

Intercity Passenger Rail Intermodal Interface Subcommittee, AR010(1)

Monday, January 11, 2016 8:00AM – 9:45AM Marriot Marquis, Woodley Park (M3)

Eric C. Peterson, presiding

Optimal pricing for high-speed rail under competition with airplane and car: The case of the United States Northeast Corridor

[Moschoula Pternea, University of Maryland](#)
[Ali Haghani, University of Maryland](#)
[Lei Zhang, University of Maryland, College Park](#)

A Multi-Stage Approach to Air-Rail Competition: Focus on Rail Agency Objective, Train Technology and Station Access

[Ahmadreza Talebian, University of Illinois, Chicago](#)
[Bo Zou, University of Illinois, Chicago](#)

New Technologies for Track Condition Assessment and Management

Monday, January 11, 2016 10:15AM - 12:00PM Convention Center, 143B

Session 290

Francesco Lanza Di Scalea, University of California, San Diego, presiding
Theodore Sussmann, Office of the Assistant Secretary for Research and Technology (OST-R), presiding

**The Role of Comprehensive Track Assessment in Track Improvement Projects
A Case Study with Pan Am Railways**

Jacinda Clemenzi, ENSCO, Inc.

Hugh Thompson, Federal Railroad Administration (FRA)

Robert Wilson, Federal Railroad Administration (FRA)

Theodore Sussmann, Office of the Assistant Secretary for Research and Technology (OST-R)

Air-Coupled Ultrasonic Inspection of Crossties

John Popovics, University of Illinois, Urbana Champaign

Su Yun Ham, University of Nebraska, Lincoln

Chi-Luen Huang, University of Illinois, Urbana Champaign

Alternate Inspection Approach to Reduce Derailment Risk

Gary Carr, Federal Railroad Administration (FRA)

James Rome, Rome Navigation Innovations, Inc.

Application of Non-Contacting LIDAR Sensors for Track Geometry Assessment

Mehdi Ahmadian, Virginia Polytechnic Institute and State University

Masood Taheri, Virginia Polytechnic Institute and State University

Josh Munoz, Virginia Polytechnic Institute and State University

Innovations in Highway-Rail Crossing Safety

Monday, January 11, 2016 1:30PM – 3:15PM Convention Center, 101

Session 355

Aemal Khattak, University of Nebraska, Lincoln, presiding

**Application of Light Detection and Ranging Technology to Assess Safe Passage of Low-Ground Clearance
Vehicles at Highway-Rail Grade Crossings**

Myungwoo Lee, University of Nebraska, Lincoln

Aemal Khattak, University of Nebraska, Lincoln

Rehabilitation of Railway-Highway At-Grade Crossings: Recommendations and Guides

Jerry Rose, University of Kentucky

**Microwave Radar Vehicle Detection Performance at Railroad Grade Crossings with Quad Gates in Normal
and Adverse Weather Conditions**

Juan Medina, University of Utah

Rahim Benekohal, University of Illinois, Urbana Champaign

Impacts of Rail-Road Crossings: International Synthesis and Research Gaps

Chris De Gruyter, Monash University

Graham Currie, Monash University

Railway Maintenance Committee, AR060

Monday 1:30PM- 3:15PM Marriott Marquis, Mount Vernon Square (M3)

Dwight Clark, Union Pacific Railroad Company, presiding

Current Research on Freight Rail Transportation

Monday, January 11, 2016 1:30 PM- 3:15 PM Convention Center, 149

Session 367

George Grimes, Patriot Rail Company, presiding

Short Line Railroads: Meeting 21st Century Demand with 19th Century Infrastructure

Jeremy Sage, Washington State University
Kenneth Casavant, Washington State University
James Eustice, Washington State University
Chris Herman, Washington State Department of Transportation

Review and Evaluation of New Jersey Rail Grant Program

Bekir Bartin, Istanbul Kemerburgaz University
Kaan Ozbay, New York University (NYU)
W. Allen, University of Pennsylvania
Shrisan Iyer, Rutgers, The State University of New Jersey
Martin Robins, Rutgers, The State University of New Jersey
Marc Weiner, Rutgers, The State University of New Jersey
Hani Nassif, Rutgers, The State University of New Jersey

Enhanced Resource Conflict Graph Rescheduling Model for Freight Rail Traffic: Introducing Energy Saving

Ambra Toletti, ETHZ - Swiss Federal Institute of Technology
Valerio De Martinis, ETHZ - Swiss Federal Institute of Technology
Ulrich Weidmann, ETHZ - Swiss Federal Institute of Technology
Andrew Nash, Green City Streets

Heterogeneous Valuation of Railway Freight Service Quality Dimensions by Chinese Shippers: Choice-Based

Conjoint Analysis
Lorant Tavasszy, Delft University of Technology
Liwei Duan, Southwest Jiaotong University
Jafar Rezaei, Delft University of Technology
Caspar Chorus, Delft University of Technology

Railroad Track Structure System Design Committee

Monday, January 11, 2016 3:45PM – 5:30PM Marriot Marquis, Chinatown (M3)
[J. Riley Edwards, University of Illinois, Urbana Champaign, presiding](#)

Influence of Track Variables and Product Design on Insulated Rail Joints

Emrecan Soylemez, L. B. Foster Company
Korhan Ciloglu, L. B. Foster Company

Hazardous Materials Transportation Research

Monday, January 11, 2016 3:45PM – 5:30PM Convention Center, 144A
Session 428
Richard Bornhorst, Federal Aviation Administration (FAA), presiding

Resolution Agile Remote Sensing for Transportation Safety

Raj Bridgelall, North Dakota State University
James Rafert, NDSU/UGPTI Transportation Safety Systems Center
Denver Tolliver, Upper Great Plains Transportation Institute
EunSu Lee, New Jersey City University

Risk Analysis of Transporting Crude Oil by Rail: Methodology and Decision Support System

[Xiang Liu, Rutgers, The State University of New Jersey](#)

Hierarchical Framework for Mitigating the Risk of Hazardous Materials Transportation

Sara Masoud, University of Arizona
Sojung Kim
Young-Jun Son, University of Arizona

Risk Analysis of Natural Gas Distribution Lines Subjected to Natural Forces

Khalid Farrag, Gas Technology Institute
Jie Gong, Rutgers, The State University of New Jersey

Classification of Water-Reactive Materials That Emit Toxic Gases

Steve Hwang, Department of Transportation

Railroad Operating Technologies Committee

Monday, January 11, 2016 3:45PM – 5:30PM Marriot Marquis, Woodley Park (M3)
[Yung-Cheng Lai, National Taiwan University, presiding](#)

Use Of Mouse Tracking To Evaluate The Operator Efficiency On Train Dispatcher Workstations

Joern Pacht, Technical University of Braunschweig

Barriers and Public Policies for Technology Adoption in the EU Railways Sector

Vasco Reis, Instituto Superior Tecnico
Rosário Macário, Instituto Superior Tecnico

Research Topics in Railroad Network Capacity

Monday, January 11, 2016 7:30PM – 9:30PM Convention Center, 144C
Session 471
David Clarke, University of Tennessee, Knoxville, presiding

[Evaluating Rail Network Assets and Capacity Allocation Using a Profit-Maximizing Capacity Framework](#)

[Yung-Cheng Lai, National Taiwan University](#)
[Yi-Ju Lin, National Taiwan University](#)
[Nien-Tsu Han, National Taiwan University](#)

[Operational Schedule Flexibility and Infrastructure Investment: A Capacity Trade-off on Single-Track Railways](#)

[Tyler Dick, University of Illinois, Urbana Champaign](#)
[Darkhan Mussanov, University of Illinois, Urbana Champaign](#)

Scheduling and Routing Freight Trains with Multiple Cost Functions

Andy Chow, University College London
E-Yang Tan, University College London
Ben Ng, University College London
Aris Pavlides, University College London
Konrad Bablinski, Steer Davies Gleave

Dynamic Capacity Allocation of Multileg Railway Container Transportation Based on Bid Price

Xiaoqiang Zhang, Southwest Jiaotong University
Ma Lang, Southwest Jiaotong University
Xu Weiqiang, Zhejiang Sci-Tech University

Standing Committee on Commuter Rail Transportation (AP070)

Subcommittee on Research (AP070(2))

Monday 7:30 PM - 9:30 PM, Marriott Marquis, Judiciary Square (M3)
[Thomas Cornillie, presiding](#)

Shared Rail Corridors and Facilities Joint Subcommittee of

AP065(3), AP045, AP070, AP075, AR010, AR040

Monday 7:30 PM - 9:30 PM, Marriott Marquis, Congress (M4)
[Mark Walbrun, Hatch Mott MacDonald, presiding](#)

TUESDAY

Improvements in Turnout Design

Tuesday 8:00AM - 9:45AM Convention Center, 144A

Session 512

David Davis, Association of American Railroads (AAR), presiding

Obtaining Higher Speeds from Conventional Length Turnouts

Paul Rice, National Railroad Passenger Corporation (Amtrak)

Improved Performance Mainline Turnouts

David Davis, Association of American Railroads (AAR)

Performance of Continuous Mainline Turnouts on BNSF

Erik Frohberg, Burlington Northern Santa Fe Railway (BNSF)

Performance of Four Frog Configurations at NS Mega-site

Brad Kerchof, Norfolk Southern Railway

Rail Transit System Technical Issues

Tuesday, January 12, 2016 8:00AM - 9:45AM Convention Center, 143B

Session 513

Anthony Bohara, HDR, Inc., presiding

TTC's New Streetcar Procurement Process and Lessons Learned

Stephen Lam, Toronto Transit Commission

Load Quantification for Light Rail, Heavy Rail, and Commuter Rail Transit Infrastructure

Xiao Lin, University of Illinois, Urbana Champaign

J. Riley Edwards, University of Illinois, Urbana Champaign

Marcus Dersch, University of Illinois, Urbana Champaign

Conrad Ruppert, University of Illinois, Urbana Champaign

METRO Green Line Transit Signal Priority: Implementation and Lessons Learned

JoNette Kuhnau, Kimley-Horn and Associates

Dan Soler, Metro Transit - Minneapolis, St. Paul

Development of Analysis and Planning Process for Renewal and Repair of Track Substructure

Willem Ebersohn, ENCADA, LLC

Dwight David Eisenhower Transportation Fellowship Program Research Showcase

Tuesday, January 12, 2016 8:00 AM – 12:00 PM Convention Center, 202B

Session 519

Fawn Thompson, Federal Highway Administration (FHWA), presiding

This session showcases the innovative research of the 2015 undergraduate and graduate Eisenhower Fellowship recipients. Recipients will present their research in a panel format and address a broad array of significant transportation topics including congestion mitigation, infrastructure development and investment, safety, security, emerging green technologies, logistics, and a host of other relevant transportation topics.

Evaluation of Road Diet Projects on Roadways with 5+ Lanes

John Cebe, Georgia Institute of Technology (Georgia Tech)

Trends in Cities Converting Freeways for Sustainability: Case Study of Interstate 81, Syracuse, New York

Ryan Reeves, University of California, Berkeley

Application of Multicriteria, Multistakeholder Decision Analysis to Federal Transportation Performance Management

Timothy Doyle, Massachusetts Institute of Technology

Michigan Urban Trunkline Segments Safety Performance Function Development

Patricia Thompson, Iowa State University

Quantifying Train Derailment Risk at Highway-Rail Grade Crossings

Samantha Chadwick, University of Illinois, Urbana Champaign

Today's Perception of Vehicle Safety and Its Impact on Preparing for Tomorrow's Autonomous Vehicles

Deja Jackson, University of Florida

Applications of Bluetooth Probe Data for Freeway Systems

John Wagner

Dampening Traffic Waves with Autonomous Vehicles

Raphael Stern, University of Illinois, Urbana Champaign

Better, Quicker, Together: Mobile Crowdsourcing Approach to Real-Time Sensing of Transit Service Quality and Customer Satisfaction

Corinna Li

Energy Efficiency Technologies for Rail Transportation

Tuesday, January 12, 2016 10:15 AM - 12:00 PM Convention Center, 147B

Session 576

Adrian Hellman, Office of the Assistant Secretary for Research and Technology (OST-R), presiding

Rail Energy Technologies for the 21st Century: Summary Review and Analysis

Raphael Isaac, University of California, Davis

Lewis Fulton, University of California, Davis

Evaluation of Freight Train Energy-Saving Potential Using Onboard Monitoring Data

Valerio De Martinis, ETHZ - Swiss Federal Institute of Technology

Ulrich Weidmann, ETHZ - Swiss Federal Institute of Technology

Andrew Nash, Green City Streets

Economic, Efficiency, and Technology Factors That Determine Viability of Fuel Cell Use in Class 1 Heavy-Freight Locomotion

Jeffrey Lidicker, Jeffrey Lidicker Consulting

Adriano Rothschild, Michigan Technological University

Lisa Dunnebacke, Dunnebacke Communications

Two-Train Trajectory Optimization with Green Wave Policy

Pengling Wang, Delft University of Technology

Rob Goverde

NCRRP Project 02-01: Comparison of Passenger Rail Energy Consumption with Competing Modes

Gordon English, Transys LTD

Tyler Dick, University of Illinois, Urbana Champaign

Research in Railroad Track Structure System Design

Tuesday, January 12, 2016 10:45AM - 12:30PM Convention Center, Hall E

Session 594

J. Riley Edwards, University of Illinois, Urbana Champaign, presiding

Field Measurement of Bending Moments in Prestressed Concrete Monoblock Crossties Under Heavy-Haul Freight Railroad Loads

Henry Wolf, University of Illinois, Urbana Champaign
J. Riley Edwards, University of Illinois, Urbana Champaign
Marcus Dersch, University of Illinois, Urbana Champaign
Yu Qian, University of Illinois, Urbana Champaign
David Lange, University of Illinois

Finite Element Analysis of Effects of Bolt Condition on Bolted Rail Joint Stresses

Kaijun Zhu, University of Illinois, Urbana Champaign
J. Riley Edwards, University of Illinois, Urbana Champaign
Yu Qian, University of Illinois, Urbana Champaign
Bassem Andrawes, University of Illinois, Urbana Champaign

Role of Initial Particle Arrangement in Ballast Mechanical Behavior

Yu Qian, University of Illinois, Urbana Champaign
Seung Jae Lee, Florida International University
Erol Tutumluer, University of Illinois, Urbana Champaign
Youssef Hashash, University of Illinois, Urbana Champaign
Jamshid Ghaboussi, University of Illinois, Urbana Champaign

Rail Safety IDEA Program

Tuesday, January 12, 2016 10:45AM - 12:30PM Convention Center, Hall E

Session 595

Jo Allen Gause, Transportation Research Board, presiding

TRB's Rail Safety IDEA Program: Sponsoring Innovation to Improve Railroad Safety and Performance

Jo Allen Gause, Transportation Research Board

Rail Safety IDEA Project 25: Dynamic Impact Factors on Existing Long-Span Steel Truss Railroad Bridges

Ramesh Malla, University of Connecticut

Rail Safety IDEA Project 26: Remote Sensing with Mobile LiDAR and Imaging Sensors for Railroad Bridge Inspections

Luis Otero

Rail Safety IDEA Project 27: Field Evaluation of Ballast Fouling Conditions Using Machine Vision

Erol Tutumluer, University of Illinois, Urbana Champaign

Rail Safety IDEA Project 28: Field Validation of Inspection Gauges for Wheel Climb Safety at Switch Points

Allan Zarembski, University of Delaware

Current Research in Railway Maintenance

Tuesday, January 12, 2016 10:45AM - 12:30PM Convention Center, Hall E

Session 596

Dwight Clark, Union Pacific Railroad Company, presiding
Conrad Ruppert, University of Illinois, Urbana Champaign, presiding

Noninvasive Techniques for Measuring Vertical Transient Track Displacement

Stephen Wilk, University of Illinois, Urbana Champaign
Timothy Stark, University of Illinois, Urbana Champaign
Jerry Rose, University of Kentucky

Applications of Unmanned Aircraft Systems Within the Rail Industry

Tuesday, January 12, 2016 1:30 PM - 3:15 PM Convention Center, 143B

Session 628

Joseph Drapa, Transportation Technology Center, Inc., presiding

UAS Application in CSX

Elvis Higgins, CSX Corporation, Inc.

Use of Unmanned Aerial Vehicles in Railroad Trespasser Abatement

Rich Gent, Hot Rail. LLC

University Research on UAVs for Construction Inspection and Possible Applications for Railway Inspection and Maintenance

Tyler Dick, University of Illinois, Urbana Champaign

Mani Golparvar-Fard, University of Illinois, Urbana Champaign

Transit, Freight, and Logistics Modeling Subcommittee, ADB30(1)

Tuesday, January 12, 2016 1:30PM – 3:15PM Marriott Marquis, Independence H (M4)

Yanfeng Ouyang, University of Illinois, Urbana Champaign, presiding

Freight Rail Transportation Committee, AR040

Tuesday, January 12, 2016 1:30PM – 5:30PM Marriott Marquis, Chinatown (M3)

George Grimes, Patriot Rail Company, presiding

Nonintrusive Testing of Track Structure and Substructure

Tuesday, January 12, 2016 3:45PM - 5:30PM Convention Center, 149

Session 704

Carlton Ho, University of Massachusetts, Amherst, presiding

Design of Well-Performing Railway Transitions

Timothy Stark, University of Illinois, Urbana Champaign

Stephen Wilk, University of Illinois, Urbana Champaign

Jerry Rose, University of Kentucky

Use of SASW for Prediction of Substructure Performance

Carlton Ho, University of Massachusetts, Amherst

Timothy Stark, University of Illinois, Urbana Champaign

Resistivity Approach of Fouled Ballast Characterization and Introduction of Vertical Resistance Probe

Madan Neupane, University of Kansas

Robert Parsons, University of Kansas

Jie Han, University of Kansas

Assessment of Track Geometry and Substructure Conditions to Identify Track Maintenance Needs

James Hyslip, HyGround Engineering, LLC

Efficient Track Condition Analysis by Integrating Track Geometry and GPR Data

Mika Silvast, Roadscanners

Crude Oil Transportation Subcommittee, AT040(1)

Tuesday, January 12, 2016 3:45 PM - 5:30 PM Marriott Marquis, Archives (M4)

David Willauer, IEM, Inc., presiding

Consequence Modeling of Petroleum Crude Oil Release in Transportation

Manuel Martin Ramos, University of Illinois, Urbana Champaign

Jesus Aguilar Serrano, University of Illinois, Urbana Champaign

M. Rapik Saat, University of Illinois, Urbana Champaign

Starting Over: The Challenge of Sustaining Passenger Rail Performance and Restoring Discontinued Services

Tuesday, January 12, 2016 3:45 PM - 5:30 PM Convention Center, 144B

Session 703

Walter Zullig, presiding

Commuter-Style Interurban Railways and Modern Regional Transit: Rise, Fall and Reuse

John Allen

Herbert Levinson

Rebuilding Connections: Planning, Policy, and the Challenge of Restoring Commuter Rail Service to Southeast Wisconsin

Thomas Cornillie

What Happened to Speed? Scheduled Speeds of North American Passenger Trains, 1965-2015

John Allen

Herbert Levinson

Progress and Challenges in Developing Passenger Rail Services: an international private sector perspective

Henry Posner, Railroad Development Corporation

Current Research on Freight Rail Transportation

Tuesday, January 12, 2016 4:15PM – 6:00PM Convention Center, Hall E

Session 734

Christopher Barkan, University of Illinois, Urbana Champaign, presiding

Two-Stage Stochastic Programming with Recourse for Railroad Blocking Problem with Uncertain Demand

Reza Mohammad Hasany

Yousef Shafahi, Sharif University of Technology

Calculation of External Costs of Road and Railway Freight Transportation and Internalization

Pei Li, Tongji University

Rong Zhang

Analytical Models of Rail Transportation Service in the Grain Supply Chain: Deconstructing the Operational Advantages of Shuttle Train Service

Michael Hyland, Northwestern University

Hani Mahmassani, Northwestern University

Lama Bou Mjahed, Northwestern University

State of Urban Rail Freight Strategies in European Cities

Tobias Fumasoli, ETHZ - Swiss Federal Institute of Technology

Ulrich Weidmann, ETHZ - Swiss Federal Institute of Technology

Cost functions for mainline train operations and their application to timetable optimization

Aris Pavlides, University College London

Andy Chow, University College London

Optimal Track Utilization in Electric Multiple Unit Depots

Haodong Li, Beijing Jiaotong University
Mingzhou Jin, University of Tennessee, Knoxville
Shiwei He, Beijing Jiaotong University
Zhirui Ye, Southeast University
Jinglu Song, University of Tennessee, Knoxville

Research in Railway Operating Technologies

Tuesday, January 12, 2016 4:15PM – 6:00PM Convention Center, Hall E

Session 733

[Yung-Cheng Lai, National Taiwan University, presiding](#)

Global Navigation Satellite System-Based 1oo2 Train Positioning System Performance Evaluation Method

Shangguan Wei, Beijing Jiaotong University

Synchronous Control System Based on Wireless Data Transmission for 50,000-Ton Heavy-Haul Trains

Huang Shize, Tongji University
Qiyi Guo, Tongji University

Markov Chain Model for Train Rescheduling

Ismail Sahin, Yildiz Technical University

Adaptive Fuzzy Optimal Speed Profile Planning for High-Speed Train Operation Based on Pareto-set

Shangguan Wei, Beijing Jiaotong University

[Integrated Planning of Multitype Locomotive Service Facilities](#)

[Siyang Xie, University of Illinois, Urbana Champaign](#)
[Zhaodong Wang, University of Illinois, Urbana Champaign](#)
[Yanfeng Ouyang, University of Illinois, Urbana Champaign](#)
Kamalesh Somani, CSX Transportation

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We are deeply grateful and appreciate the opportunity to work with you!



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