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

Guide to RailTEC Student, Faculty, Staff
and Alumni Presentations
TRB 96th Annual Meeting
Washington, D.C.
January 8-12, 2017
Overview of Sessions with RailTEC Session Chairs or Presentations

SUNDAY

Innovative Doctoral Research from Dwight David Eisenhower Transportation Fellowship Program
*Sunday 9:00 AM-12:00 PM*
Workshop 105 | Convention Center, 202B

Managing Impacts in Track Structure, Part 1 (Part 2, Session 189)
*Sunday 9:00 AM-12:00 PM*
Workshop 144 | Convention Center, 143B

Managing Impacts in Track Structure, Part 2 (Part 1, Session 144)
*Sunday 1:30 PM-4:30 PM*
Workshop 189 | Convention Center, 143B

MONDAY

The Business of Passenger Railroading
*Monday 8:00 AM-9:45 AM*
Session 256 | Convention Center, 147B

Advances in Railway Substructure Loading Response Quantification
*Monday 8:00 AM-9:45 AM*
Session 258 | Convention Center, 143B

Railroad Track Performance Metrics
*Monday 10:15 AM-12:00 PM*
Session 338 | Convention Center, 143B

Innovative Transportation Information, Data, and Library Practices
*Monday 1:30 PM-3:15 PM*
Session 355 | Convention Center, Hall E

Railroad Track Performance Metrics
*Monday 1:30 PM-3:15 PM*
Session 405 | Convention Center, 143B
Rail Transit Infrastructure Committee, AR055
Monday 3:45 PM- 5:30 PM
Marriott Marquis, L'Enfant Plaza (M3)

Highway/Rail Grade Crossing Accident Analysis
Monday 3:45 PM- 5:30 PM
Session 447 | Convention Center, 101

Passenger Rail Equipment Research
Monday 3:45 PM- 5:30 PM
Session 470 | Convention Center, Hall E

Advances in Railroad Operating Technologies
Monday 3:45 PM- 5:30 PM
Session 471 | Convention Center, Hall E

Design for Resilience of Rail Infrastructure
Monday 3:45 PM- 5:30 PM
Session 473 | Convention Center, 143A

TUESDAY

Railroad Track Structure System Design Committee, AR050
Tuesday 8:00 AM- 9:45 AM
Marriott Marquis, Judiciary Square (M3)

TRB's Rail Safety IDEA Program: Sponsoring Innovation to Improve Railroad Safety and Performance
Tuesday 10:15 AM- 12:00 PM
Session 598 | Convention Center, Hall E

Current Research Trends in Freight Rail Transportation
Tuesday 10:15 AM- 12:00 PM
Session 601 | Convention Center, Hall E

Current Trends in Railroad Track Structure Research
Tuesday 10:15 AM- 12:00 PM
Session 602 | Convention Center, Hall E
Railroad Maintenance Research and Innovations  
Tuesday 10:15 AM- 12:00 PM  
Session 603 | Convention Center, Hall E

Noise and Vibration Issues for Rail and Construction Projects  
Tuesday 1:30 PM- 3:15 PM  
Session 623 | Convention Center, 140B

Freight Rail Transportation Committee, AR040  
Tuesday 1:30 PM- 5:30 PM  
Session 623 | Convention Center, 140B

Current Railroad Maintenance Issues and Innovative Solutions  
Tuesday 3:45 PM- 5:30 PM  
Marriott Marquis, Capitol (M4)

Railroad Accidents, Incidents, and Emergencies: Identification, Modelling, and Mitigating Strategies  
Tuesday 3:45 PM- 5:30 PM  
Session 752 | Convention Center, 103B

WEDNESDAY

Commuter Rail Research Subcommittee, AP070(2)  
Wednesday 10:15 AM- 12:00 PM  
Marriott Marquis, Woodley Park (M3)

Research Advances in Agricultural Transportation  
Wednesday 2:30 PM- 4:00 PM  
Session 879 | Convention Center, 143B
Innovative Doctoral Research from Dwight David Eisenhower Transportation Fellowship Program

Sunday 9:00 AM-12:00 PM
Workshop 105 | Convention Center, 202B
Fawn Thompson, Federal Highway Administration (FHWA), presiding
This workshop features innovative research presented by second- and third-year Eisenhower doctoral fellowship recipients from top universities across the nation. The research covers a broad array of significant transportation topics, including infrastructure development and investment, safety, security, emerging green technologies, and a host of other relevant topics.

Geographies of (Dis)advantage in Cycling: Cross-sectional and Longitudinal Associations Between Bike Lanes and Sociodemographic Characteristics in U.S. Cities
Lindsay Maurer Braun, University of North Carolina, Chapel Hill

On the Road to Better Healthcare Access: Assessing Transportation Barriers in Older Adults with HIV
Caitlin Pope

Initial Findings for the Impacts of Ridesourcing on VMT, Parking Demand, Transportation Equity, and Travel Behavior
Alejandro Henao, University of Colorado, Denver

MPO Performance Metric and Target Survey
Alice Grossman, Georgia Institute of Technology (Georgia Tech)

Drivers of Infrastructure Project Outcomes: Institutional Stability and Change in Transportation Sector Projects
Brittany Montgomery, Massachusetts Institute of Technology

Predicting the Occurrence and Cost of Temporary Speed Restrictions on North American Freight Lines
Alexander Lovett, University of Illinois, Urbana Champaign
Managing Impacts in Track Structure, Part 1 (Part 2, Session 189)

Sunday 9:00 AM- 12:00 PM
Workshop 144 | Convention Center, 143B
David Staplin, HNTB Corporation, presiding

This workshop addresses the quantification of the many sources of impacts on the design and performance of rail infrastructure. Assessing the magnitude of these sources—measurement techniques, subgrade variability, track transitions, and more—can help mitigate their influence.

First Session: The Impact Environment, Measurement, and Its Importance
David Staplin, HNTB Corporation

Automated Data Collection to Characterize Wheel Impacts
Conrad Ruppert, University of Illinois, Urbana Champaign
Brandon Van Dyk, Vossloh Fastening Systems

Noninvasive Measurement of Impact Loads at Transition Zones
Timothy Stark, University of Illinois, Urbana Champaign

Measuring the Influence of Wheel Flats on Ballast Using Pressure Plates
Jerry Rose, University of Kentucky

Influence of Track Geometry on Rail Defect Formation
Allan Zarembski, University of Delaware

Deterioration Measurement of Track Geometry at Features
Simon Middleton, AECOM

Second Session: Managing Impacts due to Subgrade Instability and Variation
Phil Sharpe, AECOM

Spot Remediation Techniques in the United Kingdom
Phil Sharpe, AECOM

Experience with Remediation of Poor Subgrades on Canadian National Railway
Michael Hendry, University of Alberta

Use of Hot-Mix Asphalt in Open Track to Improve Subgrade Performance
Jerry Rose, University of Kentucky

Injection Work on Transportation Technology Center, Inc.
Jeff Hill, Hayward Baker Inc.

Rammed Aggregate Piers
Kord Wissmann, Geopier Foundation Co.
Managing Impacts in Track Structure, Part 2 (Part 1, Session 144)

Sunday 1:30 PM- 4:30 PM
Workshop 189 | Convention Center, 143B
David Staplin, HNTB Corporation, presiding

This workshop addresses the quantification of the many sources of impacts on the design and performance of rail infrastructure. Assessing the magnitude of these sources—measurement techniques, subgrade variability, track transitions, and more—can help mitigate their influence.

Third Session: Managing Impacts due to Transitions in Track Structure
Timothy Stark, University of Illinois, Urbana Champaign

CSX Bridge Approach Experience
Chris Moale, CSX Corporation, Inc.
Mark Austin, CSX Corporation, Inc.

Undertie Pads for Transitions
Stephen Wilk, University of Illinois, Urbana Champaign

Differences in Entrance and Exit Repair Lengths at Transitions
Damon Smith, CSX Corporation, Inc.

Performance of Geosynthetic Reinforcement at Bridge Abutments
Mario Ruel, Canadian National Railway Company (CN)

Impact Reduction on Ballast Decked Bridges
Duane Otter, Association of American Railroads (AAR)

Fourth Session: Managing Impacts in Track Structure
David Davis, Association of American Railroads (AAR)

Turnout Designs for Improved Impacts: BNSF Experience
Erik Frohberg, Burlington Northern Santa Fe Railway (BNSF)

Turnout Switch Design Improvements
David Davis, Association of American Railroads (AAR)

Reducing Impacts on Open-Throated Frogs
Brad Kerchof, Norfolk Southern Corporation

Reducing Insulated Joint Impacts
Sidney Shue, L. B. Foster Company

Use of Undertie Pads to Improve Tie-Ballast Interaction
Peter Musgrave, Network Rail

Discussion of Research Needs
David Staplin, HNTB Corporation
The Business of Passenger Railroading

Managing successful passenger rail services requires addressing and overcoming a range of challenges that are unique to the mode – ranging from managing risk, effectively using data for decision making, and developing agile organizations. This session brings together industry leaders offering diverse perspectives on elements crucial for delivering high-performance passenger rail services.

Metro-North Railroad: Meeting the Challenges of Organizing and Operating a High-Volume Passenger Railroad Service

Knowing Your Customer: VRE Path to Success

Serving Diverse Markets on a Diverse Corridor

Private Sector Perspectives on Opportunities and Challenges in Passenger Rail Service

Advances in Railway Substructure Loading Response Quantification

Comparative Evaluation of Particle Movement in a Ballast Track Structure Stabilized with Biaxial and Multiaxial Geogrids

Track Support Measurements for Improved Resiliency of Railway Infrastructure
Quantifying Transient and Permanent Deformation Trends and Effects of Dynamic Load Amplification in Instrumented Bridge Approaches due to ACELA Express Passenger Trains
Debakanta Mishra, Boise State University
Huseyin Boler, University of Illinois, Urbana Champaign
Erol Tutumluer, University of Illinois, Urbana Champaign
Wenting Hou, University of Illinois, Urbana Champaign
James Hyslip, HyGround Engineering, LLC

Assessing the Damaging Effects of Railway Dynamic Wheel Loads on Railway Foundations
Michael Burrow, University of Birmingham
Shi Jin, Beijing Jiaotong University
Mohamed Wehbi, Network Rail
Gurmel Ghataora, University of Birmingham

Railroad Track Performance Metrics
Monday 10:15 AM- 12:00 PM
Session 338 | Convention Center, 143B
Joseph Smak, National Railroad Passenger Corporation (Amtrak), presiding

Railway Ballast Permeability and Cleaning Considerations
Scott Schmidt, University of Illinois, Urbana Champaign
Sagar Shah, University of Illinois, Urbana Champaign
Maziar Moaveni, University of Illinois, Urbana Champaign
Blake Landry, University of Illinois, Urbana Champaign
Erol Tutumluer, University of Illinois, Urbana Champaign
Colin Basye, Transportation Technology Center, Inc.
Jiangchen Li, University of Alberta

Repeatable Procedure to Determine Representative Average Rail Profile
Jonathan Regehr, University of Manitoba

Data-Driven Optimization of Railway Track Inspection and Maintenance Using Markov Decision Process
Siddhartha Sharma, University at Buffalo
Yu Cui, University at Buffalo
Qing He, University at Buffalo

Integrated Infrastructure Asset Management Solution: Use of Latest Survey Technology to Determine Absolute Position of Track
Willem Ebersohn, National Railroad Passenger Corporation (Amtrak)
Morgan Reed, John Chance Land Surveys, Inc.
Michael Trosino, National Railroad Passenger Corporation (Amtrak)
Innovative Transportation Information, Data, and Library Practices

Monday 1:30 PM-3:15 PM
Session 355 | Convention Center, Hall E
Leighton Christiansen, Office of the Assistant Secretary for Research and Technology, presiding

The TRB Standing Committee on Library and Information Science for Transportation (LIST) ABG40 hosts posters on a wide range of topics demonstrating innovative approaches in transportation information, data, and libraries. Topics include responding to new requirements for public access and open data mandates; text and data mining of transportation research; digitizing collections; evaluating and implementing digital library tools; and trends in special librarianship that help transportation libraries be more innovative.

Enhancing Access to a Nation’s Land Transport Information: Digitization Case Study
Andrew Meier, ARRB Group, Ltd.

Trends in Transportation Research: Exploring Content Analysis in Topics
Subasish Das, Texas A&M Transportation Institute
Karen Dixon, Texas A&M Transportation Institute
Xiaoduan Sun, University of Louisiana, Lafayette
Anandi Dutta, Texas A&M University
Michelle Zupancich, Texas A&M Transportation Institute

Digitizing the Transportation History of Washington, D.C.: Using Tumblr and Omeka to Showcase DDOT’s Hidden Collections
Kathleen Crabb, District Department of Transportation (DDOT)

Text Mining on 100 Years of Air Crash Narratives: Key Findings
Subasish Das, Texas A&M Transportation Institute
Anandi Dutta, Texas A&M University
Michelle Zupancich, Texas A&M Transportation Institute

Visualizing Research Collections in the National Transportation Library’s Digital Repository ROSA P
Mary Moulton, Office of the Assistant Secretary for Research and Technology
Nicole Strayhorn, Florida State University

April 1, 1967: Opening Day of the U. S. Department of Transportation
David Martin, Office of the Assistant Secretary for Research and Technology
Amanda Wilson, Office of the Assistant Secretary for Research and Technology
Nicole Strayhorn, Florida State University

Opening Transportation Data for Innovation: Getting Our Public Access Bits in a Row
Leighton Christiansen, Office of the Assistant Secretary for Research and Technology
Amanda Wilson, Office of the Assistant Secretary for Research and Technology
Nicole Strayhorn, Florida State University
Nikki Olsen, University of Southern California
From Ephemera to Data Points: Reevaluating the Role of Timetables and Other Data in Research Collections  
Thomas Cornillie, Capitol Corridor Joint Powers Authority

Revenue Adequacy and the Future of the Railroad Industry  
Monday 1:30 PM- 3:15 PM  
Session 405 | Convention Center, 143B  
George Grimes, Patriot Rail Company, presiding

Current proposals to use revenue adequacy as a constraint on freight rail industry pricing are generating debate about its historical use, definition and calculation, and the economic consequences of such proposals. This session examines this subject in depth from shipper and rail industry viewpoints within a historical, regulatory, and economic framework. This session is intended to inform shippers, railroaders, regulators, economists, and anyone interested in the economic future of the rail industry about this subject.

Revenue Adequacy in Rail Economic Regulation  
Raymond Atkins, Sidley Austin LLP

Shipper Viewpoints and Proposals on Revenue Adequacy Application  
Robert Rosenberg, Slover & Loftus LLP

Economic Issues Concerning Revenue Adequacy  
Mark Burton, University of Tennessee, Knoxville

Revenue Adequacy Proposals, Business Risks, Future Investment, and Industry Size  
Kevin Neels, The Brattle Group

Rail Transit Infrastructure Committee, AR055  
Monday 3:45 PM- 5:30 PM  
Marriott Marquis, L’Enfant Plaza (M3)  
Anthony Bohara, HDR, presiding

Rail Transit Infrastructure Committee Meeting. Meeting will cover review of prior meeting minutes, committee membership, updates on current research projects, reports on committee activities, discussion of possible future workshops and sessions, presentations on recent technical submissions and relevant topics.

WMATA’s Safe Track Program  
Integration of Light Rail on the I-90 Floating Bridge Across Lake Washington  
Thomas Cooper  
John Harrison, WSP|Parsons Brinckerhoff  
Lina Lawrence, WSP|Parsons Brinckerhoff  
Bryan Williams, Jacobs  
Charity Ketchum, Transportation Technology Center, Inc.  
John Sleavin, Sound Transit
Quantification of the Concrete Crosstie Load Environment for Light Rail Transit Infrastructure
Aaron Cook, University of Illinois, Urbana Champaign
J. Riley Edwards, University of Illinois, Urbana Champaign
Matt Csenge, University of Illinois, Urbana Champaign
Yu Qian, University of Illinois, Urbana Champaign

Highway/Rail Grade Crossing Accident Analysis
Monday 3:45 PM-5:30 PM
Session 447 | Convention Center, 101
Aemal Khattak, University of Nebraska, Lincoln, presiding
This session will present current research in accident analysis at highway/rail grade crossings.

A Comparative Study of Rail-Pedestrian and Cyclist Trespassing Crash Injury Severity at Highway-Rail Grade Crossings and Non-Crossings
Meng Zhang, University of Tennessee, Knoxville
Asad Khattak, University of Tennessee, Knoxville
Jun Liu, Virginia Department of Transportation
David Clarke, University of Tennessee, Knoxville

Bayesian Spatial Models of Crash Frequency at Highway-Railway Crossings
Renato Guadamuz-Flores, University of Costa Rica
Jonathan Aguero-Valverde, University of Costa Rica

Nested Sorting and Clustering for Visualization of Accidents at Highway-Rail Grade Crossings
Jacob Mathew, University of Illinois, Urbana Champaign
Rahim Benekohal, University of Illinois, Urbana Champaign
Juan Medina, University of Utah

A Cluster Based Approach to Analyze Crash Injury Severity at Highway-Rail Grade Crossings
Yashu Kang, University of Nebraska, Lincoln
Aemal Khattak, University of Nebraska, Lincoln

Passenger Rail Equipment Research
Monday 3:45 PM-5:30 PM
Session 470 | Convention Center, Hall E
Eloy Martinez, LTK Engineering Services, Inc., presiding

A Comprehensive Approach to Allocate Reliability and Cost in Passenger Rail System Design
Yung-Cheng Lai, National Taiwan University
Chia-Tsung Lu, National Taiwan University
Chun-Lin Lu, National Taiwan University
Measurement of Carbody Vibration in Urban Rail Transit Using Smartphones
Wang Ping, Southwest Jiaotong University
Yuan Wang, Southwest Jiaotong University
Li Wang, Southwest Jiaotong University
Rong Chen, Southwest Jiaotong University
Jie-ling Xiao, Southwest Jiaotong University

The Net Greenhouse Gas Impact of Jubilee Line Extension
Shoshanna Saxe, University of Toronto

Advances in Railroad Operating Technologies
Monday 3:45 PM- 5:30 PM
Session 471 | Convention Center, Hall E
Adrian Hellman, Office of the Assistant Secretary for Research and Technology, presiding

Train Routing and Timetabling Problem with Switchable Dispatching Policy
Yan Xu, Beijing Jiaotong University
Bin Jia, Beijing Jiaotong University
Amir Ghiasi, University of South Florida
Xiaopeng Li, University of South Florida

Comparison Analysis of Track-Based Train Operation System and Communications-Based Train Operation System for Train Safety
Sehyun Tak, Korea Advanced Institute Science and Technology
Seongjin Choi, Korea Advanced Institute Science and Technology
Donghoun Lee, Korea Advanced Institute Science and Technology
Hwasoo Yeo, Korea Advanced Institute Science and Technology

Modeling Real-Time Communications-Based Train Control Operation in Mixed Traffic Networks: Simulation-Based Approach
Valerio De Martinis, ETHZ - Swiss Federal Institute of Technology
Ambra Toletti, ETHZ - Swiss Federal Institute of Technology
Ulrich Weidmann, ETHZ - Swiss Federal Institute of Technology
Andrew Nash, Emch+Berger AG Bern

Using Banedanmark's Traffic Management System to Develop Concept Timetable 2030
Andrew Nash, Emch+Berger AG Bern
Samuel Roos, Emch+Berger AG Bern
Bernd Schittenhelm, Banedanmark / Rail Net Denmark

SysML Formalization of the Disruption Management Process in European Railways
Birgit Jaekel, Technische Universität Dresden
Paola Pellegrini, IFSTTAR
Sonia Sobieraj Richard, IFSTTAR
Joaquin Rodriguez, IFSTTAR
Real-Time Energy-Saving Optimization for Multiple Trains Based on Multiagent Cooperative Control
Rui-Fen Zhang, Beijing Jiaotong University
Shangguan Wei, Beijing Jiaotong University
Cai Bai-Gen, Beijing Jiaotong University
Jian Wang, Beijing Jiaotong University

Reducing Rail Energy Consumption Through Coasting and Regenerative Braking
Leon Allen, Long Island Railroad Company
I Jy Chien, New Jersey Institute of Technology

Integrated Train Timetabling and Rolling Stock Scheduling Model Based on Time-Dependent Demand for Urban Rail Transit
Yixiang Yue, Beijing Jiaotong University
Juntao Han, Beijing Jiaotong University
Shifeng Wang, China Railway Electrification Survey Design & Research Institute Co. Ltd.
Xiang Liu, Rutgers, The State University of New Jersey

Job Shop Scheduling Under the Combination of Four Different Buffering Conditions
Yu Zhang, University of South Florida

Design for Resilience of Rail Infrastructure
Monday 3:45 PM - 5:30 PM
Session 473 | Convention Center, 143A
Radim Bruzek, ENSCO, Inc., presiding

Derivation of Roadbed Stiffness Criteria in UK Standards
Phil Sharpe, AECOM

Under-Tie Pads to Improve Track Resilience
William Moorhead, TRAMMCO, LLC
Stephen Wilk, University of Illinois, Urbana Champaign
Timothy Stark, University of Illinois, Urbana Champaign

Fastening System Stiffness Measurement and Influence on Railway Track
Brandon Van Dyk, Vossloh Fastening Systems

Influence of Elasticity’s Change on Actions and Deflection of Slab Track: Measurements Onsite and Theoretical Analysis
Konstantinos Giannakos, Independent Researcher
**TUESDAY**

**Railroad Track Structure System Design Committee, AR050**

*Tuesday 8:00 AM- 9:45 AM*

Marriott Marquis, Judiciary Square (M3)

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

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

*Tuesday 10:15 AM- 12:00 PM*

Session 598 | Convention Center, Hall E

Jo Allen Gause, Transportation Research Board, presiding

This session presents status and findings from five Rail Safety IDEA Programs. The principal researchers for each project will be available to discuss their research in an informal setting.

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

Jo Allen Gause, Transportation Research Board

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

Suvash Dhakal, University of Connecticut

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

Daniel Otero, Florida Institute of Technology

Mark Moyou, Florida Institute of Technology


Erol Tutumluer, University of Illinois, Urbana Champaign

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

Allan Zarembski, University of Delaware

**Rail Safety Project 29: Self-Deicing LED Signal for Railroad and Highway Intersections**

Hongyi Cai, University of Kansas

**Current Research Trends in Freight Rail Transportation**

*Tuesday 10:15 AM- 12:00 PM*

Session 601 | Convention Center, Hall E

Peter Swan, Penn State, Harrisburg, presiding

Current research in rail freight transportation will be presented in an informal setting where attendees can directly interact with authors.

**Train Combination Optimization at Marshalling Station in the Loading End of a Heavy Haul Railway**

Jun Zhao, Southwest Jiaotong University
Dian Wang, Southwest Jiaotong University
Qiyuan Peng, Southwest Jiaotong University

**Railway Capacity Allocation Modeling Using a Genetic Algorithm**
Hyunseung Kim, University of Seoul
In-jae Jeong, Hanyang University
Dongjoo Park, University of Seoul

**Risk Comparison of Transporting Hazardous Materials in Unit Trains versus Mixed Trains**
Xiang Liu, Rutgers, The State University of New Jersey

**Macro-Level Classification Yard Capacity Modeling**
Licheng Zhang, University of Tennessee, Knoxville
Mingzhou Jin, University of Tennessee, Knoxville
Zhirui Ye, Southeast University
Haodong Li, Beijing Jiaotong University
David Clarke, University of Tennessee, Knoxville
Yanyan Wang, Shandong University

**Railway Engineering Education Symposium: Evolving to Rebuild a Growing Rail Academic Community**
Pasi Lautala, Michigan Tech Transportation Institute
Tyler Dick, University of Illinois, Urbana Champaign

**Economics and Planning of Short Haul and Short Line Railway Intermodal Rail Service: Lessons from Past and Current Operations**
Sean Pengelly, University of Illinois, Urbana Champaign
Tyler Dick, University of Illinois, Urbana Champaign

**Evaluation of Transportation and Economic Impact of Short Line Railroads in Texas**
Daisy Saldarriaga, University of Houston
Boya You, Texas Southern University
Lu Gao, University of Houston
Fengxiang Qiao, Texas Southern University

**Current Trends in Railroad Track Structure Research**

*Tuesday 10:15 AM - 12:00 PM*

Session 602 | Convention Center, Hall E

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

*This session will give attendees the opportunity to interact directly with authors of the latest research papers in railroad track structure system research.*

**Design of Asphalt Waterproofing Layer for High-Speed Railway Subgrade: A Case Study in Heilongjiang Province, China**
Song Liu, Southeast University
Jun Yang, Southeast University
Xianhua Chen, Southeast University
Meng Wang, Southeast University
Dynamic Behaviors of Track Slab Under High Speed Train Moving Loads
Xuecheng Bian, Zhejiang University

Laboratory Evaluation of Pressure Distribution under Steel and Timber Crossties in Railway Track
Weimin Song, University of Tennessee, Knoxville
Xiang Shu, University of Tennessee, Knoxville
Baoshan Huang, University of Tennessee, Knoxville
Yiren Sun, Dalian University of Technology
David Clarke, University of Tennessee, Knoxville

Concurrent Optimization of Railway Alignment and Station Locations in Mountainous Terrain
Hao Pu, Central South University
Hong Zhang, Central South University
Wei Li, Central South University
Lei Wang, Central South University
Jiaxing Xiong, Central South University

Railroad Maintenance Research and Innovations
Tuesday 10:15 AM - 12:00 PM
Session 603 | Convention Center, Hall E
Hai Huang, Pennsylvania State University, presiding

Survey about Bottom Surface Abrasion of Concrete Crossties
Shreya Vemuganti, University of New Mexico

Grid-Based Analysis of Causal Factors of Railway Rail Break Risk
Ru An, Beijing Jiaotong University
Quanxin Sun, Beijing Jiaotong University
Wenfei Bai, Beijing Jiaotong University
Rengkui Liu, Beijing Jiaotong University
Futian Wang, Beijing Jiaotong University

Optimal Maintenance Plan: Task Generation, and Assignment for Rail Infrastructure
Yung-Cheng Lai, National Taiwan University
Shao-Chi Chien, National Taiwan University

Finite Element Analysis of Rail End Bolt-Hole and Fillet Stress on Bolted Rail Joints
Kaijun Zhu, University of Illinois, Urbana Champaign
Yu Qian, University of Illinois, Urbana Champaign
J. Riley Edwards, University of Illinois, Urbana Champaign
Bassem Andrawes, University of Illinois, Urbana Champaign

Development of Track Facility Monitoring Device to Achieve Condition Based Maintenance and Future Prospects
Yasutaka Saito, East Japan Railway Company

Influence of Water Content and Triaxial Size Effects on the Behavior of Partially Saturated Naturally Fouled Ballast
Andrew Rohrman, University of Massachusetts, Amherst
Iterative Computation Method of Train-Load-Induced Uneven Settlement of High-Speed Railway Transition Zones
Yao Shan, Tongji University
Shunhua Zhou, Tongji University
Binglong Wang, Tongji University
Hechao Zhou, Tongji University
Zhongcheng Zhao, Tongji University
Yao Shu, Tongji University
Zheng YU, Tongji University

Bitumen Stabilized Ballast: A Full-Scale Investigation on its Use for Existing and Newly Constructed Railway Trackbeds
Giacomo D'Angelo, University of Nottingham
Miguel Sol-Sánchez, University of Granada, Spain
Nick Thom, University of Nottingham
Davide Lo Presti, University of Nottingham
Mª Carmen Rubio-Gámez

Three-dimensional Reconstruction Method of Rail Head Checks
Xiaofeng Zheng, Tongji University
Yu Zhou, Tongji University
Difeng Kuang, Tongji University

Development of Track Facility Monitoring Device to Achieve Condition Based Maintenance and Future Prospects
Yasutaka Saito, East Japan Railway Company

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Three-dimensional Reconstruction Method of Rail Head Checks
Xiaofeng Zheng, Tongji University
Yu Zhou, Tongji University
Difeng Kuang, Tongji University

Prioritization of Rail Defect Inspection: A Risk-Based Optimization Approach
Kang Zhou, Rutgers, The State University of New Jersey
Xiang Liu, Rutgers, The State University of New Jersey
Yu Zhou, Tongji University

Noise and Vibration Issues for Rail and Construction Projects
Tuesday 1:30 PM- 3:15 PM
Session 623 | Convention Center, 140B
Jason Ross, VHB, presiding

Prediction and Monitoring of Underwater Sound Levels from Implosion of a Reinforced Concrete Bridge Pier
Paul Donavan, Illingworth & Rodkin, Inc.

Nonballasted Track for Noise and Vibration Requirements of Tomorrow
Martin Fink, Sonneville AG
Peter Laborenz, Sonneville AG
Ingmar Stoehr, Sonneville AG

Laboratory Study of the Effect of Support Condition on Ballast Mat Bedding Modulus and Insertion Loss
Arthur de Oliveira Lima, University of Illinois, Urbana Champaign
Marcus Dersch, University of Illinois, Urbana Champaign
Erol Tutumluer, University of Illinois, Urbana Champaign
J. Riley Edwards, University of Illinois, Urbana Champaign

Recent Advancements, System Upgrades and Process Enhancements of the Toronto Transit Commissions Subway Infrastructure and Their Impact on Sound and Vibration
Tim Preager

Freight Rail Transportation Committee, AR040
Tuesday 1:30 PM- 5:30 PM
Marriott Marquis, Capitol (M4)
George Grimes, Patriot Rail Company, presiding

This half-day meeting will conduct committee business and host a presentation by Surface Transportation Board Member Deb Miller.
Current Railroad Maintenance Issues and Innovative Solutions

Tuesday 3:45 PM- 5:30 PM
Session 751 | Convention Center, 143A
Hai Huang, Pennsylvania State University, presiding
Theodore Sussmann, Office of the Assistant Secretary for Research and Technology, presiding
Joseph Smak, National Railroad Passenger Corporation (Amtrak), presiding

This session presents the latest solutions to railroad maintenance problems and issues.

Development and Validation of Switch Point Inspection Gauges
Brad Kerchof, Norfolk Southern Corporation

Nondestructive Estimation of Concrete Cross-Tie Support Conditions Using Field Bending Moments
Zhengboyang Gao, University of Illinois, Urbana Champaign
Yu Qian, University of Illinois, Urbana Champaign
J. Riley Edwards, University of Illinois, Urbana Champaign
Marcus Dersch, University of Illinois, Urbana Champaign

Ballast Real-Time Information System Based on "SmartRocks"
Shushu Liu, Pennsylvania State University

Evaluating In-Service Railroad Ballast Condition Using Machine Vision-Based Inspection Systems
Maziar Moaveni, University of Illinois, Urbana Champaign
Erol Tutumluer, University of Illinois, Urbana Champaign
Shengnan Wang, University of Illinois, Urbana Champaign
John Hart, University of Illinois, Urbana Champaign
Narendra Ahuja, University of Illinois, Urbana Champaign
Michael McHenry, Transportation Technology Center, Inc.

Railroad Accidents, Incidents, and Emergencies: Identification, Modeling, and Mitigating Strategies

Tuesday 3:45 PM- 5:30 PM
Session 752 | Convention Center, 103B
Brian Gilleran, Federal Railroad Administration (FRA), presiding
Myunghoon Ko, Texas A&M Transportation Institute, presiding

Current research in the areas of rail accidents, error identification, and emergency situation management is featured. Hazard mitigation, methods to identify and reduce errors, and statistical modeling will be discussed.

Statistical Comparison of Train Accident Rates: Methodology and Decision Support Tool
Xiang Liu, Rutgers, The State University of New Jersey
Daniel Rodriguez, Rutgers, The State University of New Jersey
Toward an Accurate Microscopic Passenger Train Evacuation Model Using MassMotion
Bani Anvari, Imperial College London
Chi Kin Nip, Imperial College London
Arnab Majumdar, Imperial College London

A Proactive Error Identification Method for High-Speed Rail Train Dispatchers in Emergency Situations
Haitao Wu, Southwest Jiaotong University
Luo Xia, Southwest Jiaotong University
Chuan Xu, Southwest Jiaotong University

Trends in U.S. Freight Train Accident Causes and Rates: A Quantitative Approach
Zhao Wang, University of Illinois, Urbana Champaign
Mohd Saat, Association of American Railroads (AAR)
Christopher Barkan, University of Illinois, Urbana Champaign
Xiang Liu, Rutgers, The State University of New Jersey
Commuter Rail Research Subcommittee, AP070(2)

*Wednesday 10:15 AM- 12:00 PM*

Marriott Marquis, Woodley Park (M3)

Thomas Cornillie, Capitol Corridor Joint Powers Authority, presiding

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Research Advances in Agricultural Transportation

*Wednesday 2:30 PM- 4:00 PM*

Session 879 | Convention Center, 143B

Jolanda Prozzi, Texas A&M Transportation Institute, presiding

**Canadian Grain Handling Supply Chain in Post-Canadian Wheat Board Era**

James Nolan, University of Saskatchewan
Derek Brewin, University of Manitoba
Richard Gray, University of Saskatchewan
Troy Schmitz, Arizona State University
Andrew Schmitz, University of Florida

**Transportation Cost Modeling of Containerized Soybean Exports in the United States**

Yun Bai, Rutgers, The State University of New Jersey
Xiang Liu, Rutgers, The State University of New Jersey
Christian Higgins, Rutgers, The State University of New Jersey
YuPo Chiu, Rutgers, The State University of New Jersey
Jihong Chen, Shanghai Maritime University

**Impact of Rural Road Conditions on Transport Price of Agricultural Products**

Emmanuel Fungo, Stellenbosch University
Stephan Krygsman, Stellenbosch University

**Activity Microsimulation Framework for U.S. Grain Transportation: Expansion to Freight Activity Microsimulation Estimator Model**

Seyed Mahmoudifard, University of Illinois, Chicago
Ramin Shabanpour, University of Illinois, Chicago
Nima Golshani, University of Illinois, Chicago
RailTEC Faculty, Staff, Students and Alumni extend our sincerest thanks to the people, partners and organizations supporting rail transportation engineering research and education at Urbana-Champaign.

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