



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

**Guide to RailTEC Presentations  
TRB 94<sup>th</sup> Annual Meeting  
Washington, D.C.  
January 11-15, 2015**



## Overview of Sessions with RailTEC Session Chairs or Presentations

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### SUNDAY

Page 3

#### **Innovative Doctoral Research from Dwight D. Eisenhower Transportation Fellowship Program**

*Sunday 9:00AM - 12:00PM - Convention Center 202A*

**Workshop 121**

#### **Crude Oil by Rail Shipments: Logistics and Community Impacts**

*Sunday 1:30PM- 4:30PM- Convention Center, 150A*

**Workshop 186**

### MONDAY

Page 4

#### **Innovations in the Passenger Rail Equipment Industry**

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

**Session 226**

#### **Freight Rail Transportation Research**

*Monday 8:30AM- 10:15AM Convention Center, Hall E*

**Session 249**

#### **Research In Railroad Operating Technologies**

*Monday 8:30AM- 10:15AM Convention Center, Hall E*

**Session 248**

#### **Railway Track Structure Maintenance and Design**

*Monday 8:30AM- 10:15AM Convention Center, Hall E*

**Session 250**

#### **Railroad Track Structure System Design Committee**

*Monday 10:15AM- 12:00PM Marriott Marquis, Mount Vernon Square (M3)*

#### **Human Factors Insights From Railroad Data Analysis**

*Monday 10:15AM - 12:00PM Convention Center, 144A*

#### **Railroad Operating Technologies Committee**

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

#### **Railroad Environmental Issues**

*Monday 1:30PM- 3:15PM Convention Center, 144C*

**Session 363**

#### **Rail Transit Efficiency and Congestion Management**

*Monday 1:30PM- 3:15PM Convention Center, 143C*

**Session 360**

### **Research Advances in Freight Rail Transportation**

*Monday 1:30PM- 3:15PM Convention Center, 145B*

**Session 364**

### **Railroad Energy Management Systems**

*Monday 3:45PM- 5:30PM Convention Center, 145B*

**Session 423**

### **Contemporary Theories and Practices in Freight Planning and Logistics**

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

**Session 449**

### **Railway Capacity Research-Advancing the State of Knowledge**

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

**Session 480**

## **TUESDAY**

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Page 11

### **Highway/Rail Grade Crossing Research**

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

**Session 506**

### **Railway Maintenance Research**

*Tuesday 8:00AM- 9:45AM Convention Center, 145B*

**Session 518**

### **Freight Rail Transportation Committee**

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

### **Railroad Wheel-Rail Interaction**

*Tuesday 1:30PM- 3:15PM Convention Center, 149*

**Session 627**

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

*Tuesday 3:45PM- 5:30PM Marriott Marquis, Independence C (M4)*

### **Intercity Passenger Rail Research Subcommittee, AR010(3)**

*Tuesday 3:45PM- 5:30PM Marriott Marquis, Treasury (M4)*

### **Railway Vibrations, Fastening Systems, Undersleeper Pads, and Ballast Modification**

*Tuesday 3:45PM- 5:30PM Convention Center, 143C*

**Session 700**

### **Transit and Logistics**

*Tuesday, January 13, 2015 7:30PM - 9:30PM Convention Center, 146A*

**Session 738**

# Schedule Details

(RailTEC faculty, staff, student and alumni presentations in blue)

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## SUNDAY

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### **Innovative Doctoral Research from Dwight D. Eisenhower Transportation Fellowship Program**

Sunday, January 11, 2015 9:00AM - 12:00PM Convention Center, 202A

#### **Workshop 121**

Fawn Thompson, Federal Highway Administration, 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 transportation topics.*

#### **Multi-Jurisdictional Planning in an Era of Local Funding**

David Philip Weinreich, University of Michigan

#### **The theory of travel decision-making: A conceptual framework of active travel behavior**

Patrick A. Singleton, Portland State University

#### **Livability Index for Transportation Infrastructure to Determine the Level of Service of Urban Spaces**

Ivelisse Gorbea Class, University of Puerto Rico, Mayaguez

#### **Estimating bicycle volumes using a combination of sensor types**

Frank Roland Proulx, UC Berkeley Safe Transportation Research and Education Center (SafeTREC)

#### **Developing Index Parameters for Cracking in Asphalt Pavements Through Black Space and Viscoelastic Continuum Damage Principles**

David J. Mensching, University of New Hampshire

#### **Cost and Delay Of Railroad Timber and Concrete Crosstie Maintenance and Replacement**

Alexander Hale Lovett, University of Illinois, Urbana-Champaign

### **Crude Oil by Rail Shipments: Logistics and Community Impacts**

Sunday, January 11, 2015 1:30PM - 4:30PM Convention Center, 150A

#### **Workshop 186**

Libby Ogard, Prime Focus LLC, presiding

*The growth in crude oil by rail has provided the rail industry with rapidly expanding marketing opportunities as well as challenges in safety and public perception. This workshop examines the petroleum industry's changing logistical patterns, operational and safety challenges, and equipment requirements, and discusses the public sector's response to the expansion of rail shipment of crude oil, including the public perception of risk and the effects on regions that receive crude oil.*

#### **Moving Crude Oil by Rail: Energy Sector Development Patterns, Railroad Developments, Risk Analysis, and Tank Car Issues**

Graham Brisben, Professional Logistics Group, Inc.

Matthew K. Rose, BNSF Railway Company

Christopher P. L. Barkan, University of Illinois, Urbana-Champaign

William Finn, Railway Supply Institute Committee for Tank Cars

#### **Public Sector Response to Crude by Rail**

Denver D. Tolliver, Upper Great Plains Transportation Institute

Jeff Plale, Wisconsin Office of the Commissioner of Railroads

Tamara Nicholson, Iowa DOT

Sarah Gulick, Pennsylvania Department of Transportation

Theodore K. Dahlburg, Delaware Valley Regional Planning Commission

# MONDAY

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## **Innovations in the Passenger Rail Equipment Industry**

Monday, January 12, 2015 8:00AM - 9:45AM Convention Center, 143B

### **Session 226**

Eloy Eugene Martinez, LTK Engineering Services, presiding

#### **Optimal Allocation of Life-Cycle Cost, System Reliability, and Service Reliability in Passenger Rail System Design**

Yung-Cheng Lai, National Taiwan University

Chia-Tsung Lu, National Taiwan University

Ya-Wen Hsu, National Taiwan University

#### **Determinants of Rolling Stock Maintenance Cost in Metros**

Ruben Brage-Ardao, Imperial College London, United Kingdom

Daniel J. Graham, Imperial College London, United Kingdom

Richard Anderson, Imperial College London, United Kingdom

#### **Procurement Auctions and Governmental Intervention: Rolling Stock Award Assessment for Madrid-Barcelona High-Speed Train**

Fernando Barreiro-Pereira, National Distance Education University, Spain

Francisco Mochon, National Distance Education University, Spain

## **Freight Rail Transportation Research**

Monday, January 12, 2015 8:30AM - 10:15AM Convention Center, Hall E - Poster Session

### **Session 249**

Christopher P. L. Barkan, University of Illinois, Urbana-Champaign, presiding

#### **Network Connectivity, Commodities, and the Adoption of Heavy Axle Loading by Short-line Railroads in Canada**

Kristen Poff, University of Manitoba, Canada

Jonathan D. Regehr, University of Manitoba, Canada

Giuseppe Grande, University of Manitoba, Canada

#### **Calculation of Line Capacity for Railways under Ice and Snow Conditions**

Jie Xu, Beijing Jiaotong University, China

Yashu Kang, University of Nebraska, Lincoln

Yao Ning, Beijing Jiaotong University

Fei Dou, Beijing Jiaotong University, China

Li Wang, Beijing Jiaotong University, China

Xuele Meng, Lanzhou Jiaotong University, China

Yong Qin, Beijing Jiaotong University, China

Limin Jia, Beijing Jiaotong University, China

#### **Effects of Geometric Characteristics on HSR Operation Delay and Capacity Loss under Degraded Operations**

Shou-Ren Hu, National Cheng Kung University, Taiwan

Shou-Shan Huang, Taiwan High Speed Rail Corporation

#### **Automatic Approval of Railway Car Requisition Plans for One Type of Car**

qiuyan PENG, Southwest Jiaotong University

Yongxiang Zhang, Southwest Jiaotong University

Chao Wen, Southwest Jiaotong University, China

LI Jianguang, Southwest Jiaotong University

jiang chaozhe, Southwest Jiaotong University, China

#### **Capacity Constrained Accessibility**

Yu Shen, Instituto Superior Técnico, Portugal

Jinhua Zhao, Massachusetts Institute of Technology

### **The Ferrobonus Incentive for Achieving Modal Shift to Rail: A Socio-Economic Evaluation**

Dimitrios A. Tsamboulas, National Technical University of Athens, Greece

Andrea Chiappetta, Universita Degli Studi di Roma

Iosif Karousos, National Technical University of Athens, Greece

Panayota Moraiti, National Technical University of Athens, Greece

### **Capacity Coordination Simulation for High-speed Rail Stations and Lines**

Li Jianguang, Southwest Jiaotong University

Chao Wen, Southwest Jiaotong University

Yu Haiqing, Southwest Jiaotong University, China

Yuhong Chen, Southwest Jiaotong University

Xiaozhu Chen, China Railway Eryuan Engineering Group Co.Ltd

peng qiuyan, Southwest Jiaotong University, China

## **Research In Railroad Operating Technologies**

*Monday, January 12, 2015 8:30AM - 10:15AM Convention Center, Hall E – Poster Session*

### **Session 248**

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

#### **Microscopic Computer-Aided Tools for Automated Railway Traffic Planning**

Nikola Besinovic, Delft University of Technology, Netherlands

Egidio Quaglietta, Delft University of Technology, Netherlands

Rob M.P. Goverde, Delft University of Technology, Netherlands

#### **Sequencing and Scheduling in Railway Classification Yards**

Haodong Li, Beijing Jiaotong University, China

Mingzhou Jin, University of Tennessee, Knoxville

Shiwei He, Beijing Jiaotong University, China

#### **Proposing a New Train Rescheduling Approach with Simultaneous Consideration of Cancelling, Delaying and Re-Ordering Policies**

Mohammad Tamannaeei, Tarbiat Modares University

Mahmoud Saffarzadeh, Tarbiat Modares University, Iran

Amin Jamili, University of Tehran

Seyedehsan Seyedabrishami, Tarbiat Modares University

Seyed Ramtin Bagheri, Tarahan Parseh Transportation Research Center

#### **Optimization of Freight Train Service Network-Design Problem with Bidirectional Service Stations**

Zhimei Wang, BJTU University, Beijing

Xingchen Zhang, BJTU University, Beijing

Avishai Ceder, University of Auckland, New Zealand

Bin Xu, BJTU University, Beijing

Yunming Zhang, University of Auckland, New Zealand

#### **New Methods for Train Operation Control in Strong Winds at East Japan Railway Company**

Yosuke Nagumo, East Japan Railway Company

Hiroto Suzuki, East Japan Railway Company

Tatsuya Kamase, East Japan Railway Company

#### **A Sensitivity Analysis of Recovery Solutions in the Case of Rail Disruption Management**

Antonio Placido, University of Naples Federico II, Italy

Luca D'Acierno, University of Naples Federico II, Italy

Marilisa Botte, University of Naples Federico II, Italy

Mariano Gallo, Universita degli Studi del Sannio, Italy

Bruno Montella, University of Naples Federico II, Italy

#### **Assessing Network Cognition in the Dutch Railway System Through Communication: Theoretical and Methodological Approaches Using Social Network Analysis**

Julia Lo, Delft University of Technology  
Sebastian Meijer, KTH Royal Institute of Technology, Sweden

## **Railway Track Structure Maintenance and Design**

*Monday, January 12, 2015 8:30AM - 10:15AM Convention Center, Hall E - Poster Session*

### **Session 250**

Dwight W. Clark, Union Pacific Railroad, presiding

[David D. Davis, Transportation Technology Center, Inc., presiding](#)

#### **Solitary Waves for the Assessment of Thermal Stress and Neutral Temperature in Slender Structures**

Abdollah Bagheri, University of Pittsburgh

Emma La Malfa Ribolla, University of Pittsburgh

Piervincenzo Rizzo, University of Pittsburgh

Leith Al-Nazer, Federal Railroad Administration

#### **Relationship Between Missing Ballast and Development of Track Geometry Defects**

Allan M. Zarembski, University of Delaware

Gregory T Grissom, Georgetown Rail Equipment Company

Todd L Euston, Georgetown Rail Equipment Company

John J Cronin, University of Delaware

#### **Bi-objective Track Inspection Scheduling: Formulation And Solution Analysis**

Hadi Farhangi, Missouri University of Science and Technology

Dincer Konur, Missouri University of Science and Technology

Suzanna Long, Missouri University of Science and Technology

Jennifer Harper, Missouri Department of Transportation

#### **Ballast Settlement Ramp to Mitigate Differential Settlement in a Bridge Transition Zone**

[Yu Qian, University of Illinois, Urbana-Champaign](#)

[Erol Tutumluer, University of Illinois, Urbana-Champaign](#)

[Youseff Hashash, University of Illinois, Urbana-Champaign](#)

[Jamshid Ghaboussi, University of Illinois, Urbana-Champaign](#)

[David D. Davis, Transportation Technology Center, Inc.](#)

#### **Railroad Concrete Tie Failure Modes and Research Needs**

Hailing Yu, Volpe National Transportation Systems Center

David Jeong, Volpe National Transportation Systems Center

Brian Marquis, Volpe National Transportation Systems Center

Michael Coltman, Volpe National Transportation Systems Center

#### **Tie-Ballast Interaction at Railroad Transitions**

[Stephen Wilk, University of Illinois at Urbana-Champaign](#)

[Timothy D. Stark, University of Illinois, Urbana-Champaign](#)

Theodore R. Sussmann, Volpe National Transportation Systems Center

#### **Quantifying Lateral Wheel Loading Variation Using Truck Performance Detectors**

[Andrew Scheppe, University of Illinois at Urbana-Champaign](#)

[J. Riley Edwards, University of Illinois, Urbana-Champaign](#)

[Marcus S. Dersch, University of Illinois, Urbana-Champaign](#)

[Christopher P. L. Barkan, University of Illinois, Urbana-Champaign](#)

#### **Examination of the Effect of Concrete Crosstie Rail Seat Deterioration on Rail Seat Load Distribution**

[Matthew Greve, University of Illinois at Urbana-Champaign](#)

[Marcus S. Dersch, University of Illinois, Urbana-Champaign](#)

[J. Riley Edwards, University of Illinois, Urbana-Champaign](#)

[Christopher P. L. Barkan, University of Illinois, Urbana-Champaign](#)

Hugh B. Thompson, II, Federal Railroad Administration

Theodore R. Sussmann, Volpe National Transportation Systems Center

Michael McHenry, Transportation Technology Center, Inc.

**The Use of Matrix Based Tactile Surface Sensors to Assess the Fine Scale Ballast-Tie Interface Pressure Distribution in Railroad Track**

Michael McHenry, Transportation Technology Center, Inc.

Michael O. Brown, Transportation Technology Center, Inc.

Joseph LoPresti, Transportation Technology Center, Inc.

Jerry G. Rose, University of Kentucky

Reginald R. Souleyrette, University of Kentucky

**Flexural Analysis of Prestressed Concrete Monoblock Crossties: Comparison of Current Methodologies and Sensitivity to Support Conditions**

Henry E. Wolf, University of Illinois, Urbana-Champaign

Steve Mattson, voestalpine Nortrak Incorporated

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

Marcus S. Dersch, University of Illinois, Urbana-Champaign

Christopher P. L. Barkan, University of Illinois, Urbana-Champaign

**Influence of Contact Loss underneath Concrete Underlayer on Dynamic Performance for Prefabricated Concrete Slab Track**

JuanJuan Ren, Southwest Jiaotong University, China

Feng Dai, Southwest Jiaotong University, China

Ping Wang, Southwest Jiaotong University, China

Xiaobo Yan, Chang zhou Rail Transit Development Company Limited

**Hanging Tie Study Using “Moving Deflection Spectrum”**

Xuecheng Bian, Zhejiang University, China

Yin Gao, Penn State University

Hai Huang, Pennsylvania State University, Altoona

Yuanchang Xie, University of Massachusetts, Lowell

**Impact of Water Level Rise on the Performance of High-Speed Railway Track Structure and Substructure: Full-Scale Experimental Investigation**

Hongguang Jiang, Zhejiang University, China

Xuecheng Bian, Zhejiang University, China

Yunmin Chen, Zhejiang University, China

Jie Han, University of Kansas

**Railroad Track Structure System Design Committee**

*Monday, January 12, 2015 10:15AM - 12:00PM Marriott Marquis, Mount Vernon Square (M3)*

David D. Davis, Transportation Technology Center, Inc., presiding

**Human Factors Insights From Railroad Data Analysis**

*Monday, January 12, 2015 10:15AM - 12:00PM Convention Center, 144A*

**Session 290**

Jennifer E. Lincoln, National Institute for Occupational Safety and Health, presiding

**Non-crossing Rail-Trespassing Crashes in the Past Decade: A Spatial Approach to Analysis of Injury Severity**

Xin Wang, University of Tennessee, Knoxville

Asad J. Khattak, University of Tennessee, Knoxville

Jun Liu, University of Tennessee, Knoxville

David B. Clarke, University of Tennessee, Knoxville

**Statistical Temporal Analysis of Freight-Train Derailment Rates in the United States: 2000 to 2012**

Xiang Liu, Rutgers, The State University of New Jersey



### **Railway Accidents due to Human Error A historic analysis of the UK railways (1945-2012)**

Miltos Kyriakidis, Delft University of Technology, Netherlands  
Kam To Pak, Centre for Transport Studies  
Arnab Majumdar, Imperial College London, United Kingdom

### **The Effects of Cognitive Distraction on Rail Operators-Experimental Results and Conclusions**

George Elsmore, GE-Safety Associates, LLC

## **Railroad Operating Technologies Committee**

*Monday, January 12, 2015 1:30PM - 3:15PM Marriott Marquis, Mount Vernon Square (M3)*

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

## **Railroad Environmental Issues**

*Monday, January 12, 2015 1:30PM - 3:15PM Convention Center, 144C*

### **Session 363**

J. Lee Hutchins, Jr., AECOM, presiding

### **Time-Based Life-Cycle Assessment for Environmental Policy Making: Greenhouse Gas Reduction Goals and Public Transit**

Alex Cano, Arizona State University  
Mikhail V. Chester, Arizona State University

### [Methods of Analyzing and Comparing Energy Efficiency of Passenger Rail Systems](#)

[Giovanni DiDomenico, University of Illinois, Urbana-Champaign](#)

[C. Tyler Dick, University of Illinois, Urbana-Champaign](#)

### **Cost-Effectiveness of Reductions in Greenhouse Gas Emissions from High-Speed Rail and Urban Transportation Projects in California**

Juan Matute, University of California, Los Angeles  
Mikhail V. Chester, Arizona State University

### **Northeast Corridor Future: Approach to Integrating Transportation Planning and National Environmental Policy Act**

Stephanie Camay, Parsons Brinckerhoff  
Ruby A. Siegel, AECOM, United Kingdom  
Rebecca Reyes-Alicea, Federal Railroad Administration  
Amishi Castelli, Volpe National Transportation Systems Center

## **Rail Transit Efficiency and Congestion Management**

*Monday, January 12, 2015 1:30PM - 3:15PM Convention Center, 143C*

### **Session 360**

Gregory L. Newmark, Center for Neighborhood Technology, presiding

### [A Coordinated Train Control Algorithm to Improve Regenerative Energy Receptivity in Metro Transit Systems](#)

[Haichuan Tang, University of Illinois, Urbana-Champaign](#)

[C. Tyler Dick, University of Illinois, Urbana-Champaign](#)

Xiaoyun Feng, Southwest Jiaotong University, China

### **Determinants of Train Service Costs in Metro Operations.**

Ruben Brage-Ardao, Imperial College London, United Kingdom  
Daniel J. Graham, Imperial College London, United Kingdom  
Richard Anderson, Imperial College London, United Kingdom

### **Mining Rail-transit Use Patterns from Mobile Phone Data: Case Study of Three Communities in Shanghai**

Weifeng Li, Tongji University, China  
Xiaoyun Cheng, Tongji University, China

Dongyuan Yang, Tongji University, China  
Zhengyu Duan, Tongji University, China  
Gaohua Guo, Tongji University, China

**Strategies To Relieve Subway Crowding: Case Study From The Toronto Context**

Becca Nagorsky, Metrolinx, Canada  
Jeffrey Casello, University of Waterloo, Canada  
Amer Shalaby, University of Toronto, Canada

**Research Advances in Freight Rail Transportation**

*Monday, January 12, 2015 1:30PM - 3:15PM Convention Center, 145B*

**Session 364**

[Christopher P. L. Barkan, University of Illinois, Urbana-Champaign, presiding](#)

**Analysis and Optimization of Railway Container Transportation Business Process**

Qiaochu Wang, Shanghai Jiao Tong University  
Hao Hu, Jiaotong University, China  
Ling Xu, Southwest Jiaotong University

**An Event-Based Model for Optimizing Shunting Yards Operations**

Mahnam Saeednia, Swiss Federal Institute of Technology, Zurich  
Dirk Bruckmann, ETH Zurich  
Ulrich Alois Weidmann, Swiss Federal Institute of Technology, Zurich

**Rail Freight Commodity Model for Iowa: Methodology & First Steps**

Mary Lupa, Parsons Brinckerhoff  
Ronald Eash, Parsons Brinckerhoff  
Phillip J. Mescher, Iowa Department of Transportation  
Jeff Tyler von Brown, Iowa Department of Transportation  
Carlee A Clymer, Parsons Brinckerhoff

**Capacity Allocation in Vertically Integrated Railway Systems: A Rubinstein Sequential Bargaining Game Approach**

Ahmadreza Talebian, University of Illinois at Chicago  
Bo Zou, University of Illinois, Chicago

**Railroad Energy Management Systems**

*Monday, January 12, 2015 3:45PM - 5:30PM Convention Center, 143A*

**Session 423**

Robert A. Kollmar, Association of American Railroads (AAR), presiding

**Strategies for Increasing the Energy Efficiency of Rail Freight Service in Switzerland**

Dirk Bruckmann, ETH Zurich  
Mahnam Saeednia, ETH Zurich  
Andrew Nash, GreenCityStreets.com  
Ulrich Alois Weidmann, Swiss Federal Institute of Technology, Zurich

**Sensitivity of Freight and Passenger Rail Fuel Efficiency to Infrastructure, Equipment and Operating Factors**

[Garrett Fullerton, University of Illinois, Urbana-Champaign](#)  
[Giovanni DiDomenico, University of Illinois, Urbana-Champaign](#)  
[C. Tyler Dick, University of Illinois, Urbana-Champaign](#)

**GE Transportation Systems' Trip Optimizer**

David A. Eldredge, GE Transportation Systems

**New York Air Brake's Locomotive Engineer Assist/Display & Event Recorder (LEADER)**

William Sturtz, New York Air Brake Corporation

## **Electro-Motive Diesel's Functionally Integrated Railroad Electronics (FIRE) System**

Dennis J. Melas, Electro-Motive Diesel, Inc.

## **Contemporary Theories and Practices in Freight Planning and Logistics**

*Monday, January 12, 2015 4:15PM - 6:00PM Convention Center, Hall E*

### **Session 449**

Xiubin Bruce Wang, Texas A&M University, presiding

#### **Grain Supply Chain Network Design and Logistics Planning for Reducing Post-Harvest Loss**

Seyed Mohammad Nourbakhsh, University of Illinois, Urbana-Champaign

Yun Bai, University of Illinois, Urbana-Champaign

Guilherme Maia, University of Illinois, Urbana-Champaign

Yanfeng Ouyang, University of Illinois, Urbana-Champaign

Luis Rodriguez, University of Illinois, Urbana-Champaign

#### **The Interdisciplinary Decision Map - A Reference Model for Production, Logistics and Traffic**

Manfred Boltze, Technische Universitaet Darmstadt

Frederik Rühl, Technische Universitaet Darmstadt

Ulrich Berbner, Technische Universitaet Darmstadt

Hanno Friedrich, Technische Universitaet Darmstadt

#### **Freight Traffic Assignment Methodology for Large-Scale Road-Rail Intermodal Networks**

Md Majbah Uddin, University of South Carolina

Nathan N. Huynh, University of South Carolina

#### **Reliable Intermodal Freight Network Expansion Considering Demand and Network**

##### **Uncertainties**

Fateme Fotuhi, University of South Carolina

Nathan N. Huynh, University of South Carolina

## **Railway Capacity Research-Advancing the State of Knowledge**

*Monday, January 12, 2015 7:30PM - 9:30PM Convention Center, 144C*

### **Session 480**

David B. Clarke, University of Tennessee, Knoxville, presiding

#### **Capacity and Level of Service Impact of Passenger Trains on Shared Rail Corridors with Multiple Types of Freight Trains**

Mei-Cheng Shih, University of Illinois, Urbana-Champaign

C. Tyler Dick, University of Illinois, Urbana-Champaign

Christopher P. L. Barkan, University of Illinois, Urbana-Champaign

#### **Influence of Siding Connection Length, Position, and Order on the Incremental Capacity of Transitioning from Single to Double Track**

Ivan Atanassov, University of Illinois at Urbana-Champaign

C. Tyler Dick, University of Illinois, Urbana-Champaign

#### **Capacity Evaluation Of Directional And Non-directional Operational Scenarios Along A Multiple-track U.S. Corridor**

Hamed Pouryousef, Michigan Technological University

Pasi Tapio Lautala, Michigan Technological University

#### **Capacity of Single-Track Railway Lines with Short Sidings to Support Operation of Long Freight Trains**

Ivan Atanassov, University of Illinois at Urbana-Champaign

C. Tyler Dick, University of Illinois, Urbana-Champaign

## TUESDAY

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### **Highway/Rail Grade Crossing Research**

*Tuesday, January 13, 2015 8:00AM - 9:45AM Convention Center, Salon B*

#### **Session 506**

Steve Laffey, Illinois Commerce Commission, presiding

#### **Analysis of Fatal Train-Pedestrian Collisions in Metropolitan Chicago 2004-2012**

Ian Savage, Northwestern University

#### **Macroscopic Models For Accident Prediction at Railroad Grade Crossings and Comparisons with the U.S. D.O.T. Accident Prediction Formula**

Juan C. Medina, University of Illinois, Urbana-Champaign

Rahim F. Benekohal, University of Illinois, Urbana-Champaign

#### **Light Rail Crossing Safety Performance Functions**

Pamela M. Fischhaber, Colorado Public Utilities Commission

Bruce N. Janson, University of Colorado, Denver

#### **First Responders' Response Time Analysis Considering At-Grade Crossing Blockage: City of Saskatoon Case Study**

Peter Y. Park, University of Saskatchewan, Canada

Wook Rak Jung, University of Saskatchewan, Canada

Godfred Yeboah, University of Saskatchewan, Canada

Garreth Rempel, Montufar Group

Dan Paulsen, Saskatoon Fire Department

Dave Rumpel, Saskatoon Fire Department

### **Railway Maintenance Research**

*Tuesday, January 13, 2015 8:00AM - 9:45AM Convention Center, 145B*

#### **Session 518**

Dwight W. Clark, Union Pacific Railroad, presiding

#### **Cost and Delay of Railroad Timber and Concrete Crosstie Maintenance and Replacement**

Alexander Hale Lovett, University of Illinois, Urbana-Champaign

C. Tyler Dick, University of Illinois, Urbana-Champaign

Conrad Ruppert, University of Illinois, Urbana-Champaign

Christopher P. L. Barkan, University of Illinois, Urbana-Champaign

#### **Maintenance Decision Indicators for Treating Squats in Railway Infrastructures**

Ali Jamshidi, TUDelft

Alfredo Nunez, Delft University of Technology, Netherlands

Zili Li, Delft University of Technology

Rolf Dollevoet, Delft University of Technology

#### **A Rail Wear Model Of High-speed Railway Based On Non-Hertz Theory**

Ye LU, Key Laboratory of Road and Traffic Engineering of the Ministry of Education, Tongji University

Yude xu, Key Laboratory of Road and Traffic Engineering of Ministry of Education of Tongji University

Ruiying CHEN, Key Laboratory of Road and Traffic Engineering of the Ministry of Education, Tongji University

Kai Wei, Key Laboratory of Road and Traffic Engineering of Ministry of Education of Tongji University

#### **Effect of Rail Profile Optimization on the Rail Head Check Initiation**

Yu Zhou, Tongji University, China

Jie Zhang, Tongji University, China

Junnan Jiang, Tongji University, China

#### **Evaluation of Tie Support at Transition Zones**

Timothy D. Stark, University of Illinois, Urbana-Champaign

[Stephen Wilk, University of Illinois at Urbana-Champaign](#)  
Theodore R. Sussmann, Volpe National Transportation Systems Center

### **Freight Rail Transportation Committee**

*Tuesday, January 13, 2015 1:30PM - 5:30PM Marriott Marquis, Chinatown (M3)*

[George Avery Grimes, Patriot Rail Corporation, presiding](#)

#### **Rail Growth: Past, Present, and Future**

Owen Zidar, Kansas City Southern Railway

#### **Current Issues in Rail Regulation**

Debra Miller, Surface Transportation Board

#### **Alternative Financing Approaches for Passenger and Freight Rail Projects - NCRRP Project 07-01**

Marc-André Roy, CPCS Transcom Ltd., Canada

### **Railroad Wheel-Rail Interaction**

*Tuesday, January 13, 2015 1:30PM - 3:15PM Convention Center, 149*

#### **Session 627**

[David D. Davis, Transportation Technology Center, Inc., presiding](#)

#### **Redesigned Number 8 and Number 10 Turnouts**

David E. Staplin, National Railroad Passenger Corporation

#### **Vehicle-Track Model: Wheel-Rail Contact Force and Ride Quality**

[Hai Huang, Pennsylvania State University, Altoona](#)

#### **Wheel-Rail Interaction at Rail Joints**

Steve Chrismer, National Railroad Passenger Corporation

#### **Interaction of Track Deflection and Wheel-Rail Forces**

Michael Thomson Hendry, University of Alberta, Canada

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

*Tuesday 3:45PM- 5:30PM Marriott Marquis, Independence C (M4)*

[Yanfeng Ouyang, University of Illinois, Urbana-Champaign, presiding](#)

### **Intercity Passenger Rail Research Subcommittee, AR010(3)**

*Tuesday, January 13, 2015 3:45PM - 5:30PM Marriott Marquis, Treasury (M4)*

Valerio Oricchio, T.Y. Lin International, presiding

#### **Forecasting High Speed Rail Ridership Using Aggregate Data: A Case Revisit of High Speed Rail in Taiwan**

Yu-Ting Hsu, National Taiwan University (NTU)

Wei-Ren Lin, National Taiwan University (NTU)

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

[Tsung-Chung Kao, University of Illinois, Urbana-Champaign](#)

### **Railway Vibrations, Fastening Systems, Undersleeper Pads, and Ballast Modification**

*Tuesday, January 13, 2015 3:45PM - 5:30PM Convention Center, 143C*

#### **Session 700**

[Hai Huang, Pennsylvania State University, Altoona, presiding](#)

#### **Calculating Critical Velocity of Trains from Rayleigh Waves Using Conventional Site Investigation Parameters**

David Connolly, Heriot-Watt University, United Kingdom

Michael Christopher Forde, University of Edinburgh, United Kingdom

#### **Quantification of Lateral Forces in Concrete Crosstie Fastening Systems**

[Brent A. Williams, University of Illinois, Urbana-Champaign](#)

[Marcus S. Dersch, University of Illinois, Urbana-Champaign](#)

J. Riley Edwards, University of Illinois, Urbana-Champaign  
Christopher P. L. Barkan, University of Illinois, Urbana-Champaign

**Effects of Under-sleeper Pads on Ballast Contact Pressure, Settlement, and Breakdown**

Hannes Gräbe, University of Pretoria, South Africa

**Stone Blowing as a Remedial Measure Mitigating Differential Settlement at Bridge Approaches**

Erol Tutumluer, University of Illinois, Urbana-Champaign

Steve Chrismer, National Railroad Passenger Corporation

**Performance of No. 20 Turnouts with Undersleeper Pads Under Heavy-Axle-Load Traffic**

David D. Davis, Transportation Technology Center, Inc.

**Transit and Logistics**

*Tuesday, January 13, 2015 7:30PM - 9:30PM Convention Center, 146A*

**Session 738**

Salvador Hernandez, Oregon State University, presiding

**Supply Chain Design under Uncertainties and Resource Competition: A Continuum Approximation Approach**

Xin Wang, University of Illinois, Urbana-Champaign

Yanfeng Ouyang, University of Illinois, Urbana-Champaign

Michael Kim Lim, University of Illinois, Urbana-Champaign

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