

# **Guide to RailTEC Student, Faculty and Staff Presentations at TRB**

*Washington, D.C.*  
*8-12 January 2023*

---

---

RailTEC is proud to be represented throughout the Rail Section of the 2023 TRB Program.

Following is a count of our presence in different aspects of the program.

## **49 Authors**

27 U of I RailTEC  
22 RailTEC Alumni

## **7 Sessions Chaired**

5 U of I RailTEC  
2 RailTEC Alumni

## **20 Committee Members**

6 U of I RailTEC  
14 RailTEC Alumni

## **3 Committee Meetings Chaired**

1 U of I RailTEC  
2 RailTEC Alumni

---

---

## Schedule of Rail Presentations & Posters by RailTEC Faculty & Students

### **International Perspectives on Strategies to Reduce Track-Caused Derailments, Part 1 (Part 2, Session 1069)**

Sunday 9:00 AM- 4:30 PM | Workshop 1035 | Convention Center, 147B

*Theodore Sussmann, OST-R/Volpe Center*

*Riley Edwards, University of Illinois, Urbana-Champaign*

#### **Session 1: Emerging Trends and Challenges**

##### **The Data Behind the Emerging Trends**

*Chris Barkan, Riley Edwards, University of Illinois, Urbana-Champaign*

*Theodore Sussmann, OST-R/Volpe Center*

### **International Perspectives on Strategies to Reduce Track-Caused Derailments, Part 2 (Part 1, Session 1035)**

Sunday 1:30 PM- 4:30 PM | Workshop 1069 | Convention Center, 147B

*Theodore Sussmann, OST-R/Volpe Center*

*Riley Edwards, University of Illinois, Urbana-Champaign*

#### **Session 3: Focus on Contributions to Track Caused Derailments from Track Components, Environment, and Operations**

##### **Session Introduction**

*Arthur Lima, University of Illinois, Urbana-Champaign*

##### **Mitigating Railway Fastening System-Caused Derailments: A Case Study on Fatigue Failed Spikes**

*Marcus Dersch, University of Illinois, Urbana-Champaign*

### **Recent Advances in Rail Infrastructure Design and Maintenance**

Monday 10:15- 12:00 PM | Poster Session 2111 | Convention Center, Hall A

*Riley Edwards, University of Illinois, Urbana-Champaign*

#### **Coupling Train-Track Model with Discrete Element Method for a More Realistic Simulation of Ballasted Track Dynamic Behavior**

*Erol Tutumluer, Zhongyi Liu & Bin Feng, University of Illinois, Urbana-Champaign*

#### **Development of a Rubberized Asphalt Concrete mix for use as an Under Tie Pad alternative in railroad applications**

*Babak Asadi & Ramez Hajj, University of Illinois, Urbana-Champaign*

#### **Degraded Ballast Stiffness Characterization Using Bender Element Field Sensor and PANDA® Penetrometer**

*Mingu Kang, Han Wang, Issam Qamhia & Erol Tutumluer, University of Illinois, Urbana-Champaign*

*Younes Haddani, Sol Solution*

*Adam Bankston, BNSF Railway*

### **Climate Change Influence on Railway Construction, Maintenance, Performance, and Safety**

Monday 1:30- 3:15 PM | Lectern Session 2140 | Convention Center, 144C

*Edna Forde, ECS Publications LLP*

*Carlton Ho, University of Massachusetts, Amherst*

*Riley Edwards, University of Illinois, Urbana-Champaign*

*Theodore Sussmann, OST-R/Volpe Center*

### **Development of Research Needs Statements for the Freight Rail Industry**

Monday 3:45- 5:30 PM | Lectern Session 2196 | Convention Center, 145B

#### **Panel Discussion**

*Rapik Saat, Association of American Railroads (AAR)*

*Anthony Klaumann, HDR*

*David Clarke, University of Tennessee*

*Pasi Lautala, Michigan Technological University*

*Avery Grimes, Patriot Rail Company*

*Jo Strang, American Short Line and Regional Rail Association*

*Christopher Barkan, University of Illinois, Urbana-Champaign*

### **Innovations in Track Structure Deterioration Modeling**

Monday 3:45-5:30 PM | Lectern Session 2197 | Convention Center, 144AB

*Riley Edwards, University of Illinois, Urbana-Champaign,*

*Radim Bruzek, ENSCO, Inc.,*

*Hamed Kashani, Loram Technologies Inc,*

*Valerie Marcolongo, ENCADA, LLC*

### **Recent Research in Freight Economics and Regulation**

Monday 3:45- 5:30 PM | Poster Session 2216 | Convention Center, Hall A

#### **Comparing Regression and Machine Learning Models for Prediction of Freight Railroad Shipping Rates**

*Diwen Shi, University of Illinois, Urbana-Champaign*

*C. Tyler Dick, University of Texas, Austin*

### **Advances in Transit Rail Infrastructure**

Tuesday 8:00- 9:45 AM | Lectern Session 3031 | Convention Center, 145B

#### **Field Verification of Elastic Modulus Measurements**

*Timothy Stark & Abedalqader Idries, University of Illinois, Urbana-Champaign*

*Theodore Sussman Jr, OST-R/Volpe Center*

*Hugh Thompson II, Federal Railroad Administration (FRA)*

*Charles Oden, Earth Science Systems, LLC*

#### **Towards Automated Field Ballast Condition Evaluation: Algorithm Development using a Vision Transformer Framework**

*Jiayi Luo, Haohang Huang, Kelin Ding, Issam Qamhia, Erol Tutumluer & John Hart, University of Illinois, Urbana-Champaign*

*Hugh Thompson II, Federal Railroad Administration (FRA)*

*Theodore Sussmann, OST-R/Volpe Center*

### **Directed Research into Urban Rail Transit Operations and Design**

Wednesday 8:00- 9:45 AM | Lectern Session 4021 | Convention Center, 147A

#### **Development of a Real-Time Wheel Load Quantification System for the Transit Environment**

*Daniel Mueller, Arthur de O. Lima, Riley Edwards, & Marcus S. Dersch, University of Illinois, Urbana-Champaign*

# Schedule of Rail Committee Meetings with RailTEC Presiding

## State Rail Transportation Programs, AR040(2), Joint Subcommittee of AR040, AR010, AR030

Tuesday 8:00 AM- 9:30 AM

*Sean Pengelly, Lake State Railway, presiding*

## Rail Capacity, AR040(1), Joint Subcommittee of AR040, AR010, AR030, AP065, AT010

Tuesday 6:00 PM- 7:30 PM

*Tyler Dick, University of Texas, Austin, presiding*

## Railroad Infrastructure Design and Maint. Committee (AR050)

Monday 8:00 AM- 9:45 AM

*Riley Edwards, University of Illinois, presiding*

*Theodore Sussmann, OST-R/Volpe Center, presiding*

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

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



AMERICAN  
PUBLIC  
TRANSPORTATION  
ASSOCIATION



ONE STEP AHEAD.



U.S. Department of Transportation



Support, Connection, Advocacy

