Guide to RailTEC Student, Faculty and Staff Presentations at TRB

Washington, D.C.
7-11 January 2024

RailTEC is proud to be represented throughout the Rail Section of the 2024 TRB Program. Following is a count of our presence in different aspects of the program.

49 Authors
30 U of I RailTEC
19 RailTEC Alumni

4 Sessions Chaired
2 U of I RailTEC
2 RailTEC Alumni

20 Committee Members
5 U of I RailTEC
15 RailTEC Alumni

3 Committee Meetings Chaired
1 U of I RailTEC
2 RailTEC Alumni
**Schedule of Rail Presentations & Posters by RailTEC Faculty & Students**

**Track Resilience: Design, Construction, and Maintenance**
Sunday 1:30 PM - 4:30 PM | Workshop 1073

- **Resilient Materials for Track Stiffness Optimization**  
  *Arthur de O. Lima, University of Illinois Urbana-Champaign*

- **Estimating Track and Ballast Modulus of Elasticity**  
  *Radim Bruzek, ENSCO, Inc.*  
  *Timothy Stark, University of Illinois Urbana-Champaign*

**Improved Risk Assessment and Analysis for Derailment Prevention**
Monday 8:00 AM - 9:45 AM | Lectern Session 2029

- **Comparative Analysis of the Effect of Distributed Power on Long-Train Derailment Characteristics**  
  *Xinhao Liu & Christopher Barkan, University of Illinois Urbana-Champaign*  
  *Chen-Yu Lin, National Yang Ming Chiao Tung University*

**Research Trends in Rail Safety**
Monday 10:15 AM - 12:00 PM | Poster Session 2118

- **Quantitative Analysis of Railroad Train Collisions in the United States**  
  *Chen-Yu Lin, National Yang Ming Chiao Tung University*  
  *Chen Song & Christopher Barkan, University of Illinois Urbana-Champaign*

**Current Research in Rail Equipment**
Monday 10:15 AM - 12:00 PM | Poster Session 2117

- **Sensitivity of Potential Battery Electric Locomotive Energy Benefits to Freight Railway Operating Characteristics and Charging Strategies**  
  *Michael Copley, University of Illinois Urbana-Champaign*  
  *Tyler Dick, University of Texas, Austin*

**Current Trends in Rail Transit Infrastructure Research**
Monday 1:30 PM - 3:15 PM | Lectern Session 2153

- **Towards Automated Field Ballast Condition Evaluation: Field Validation of the Ballast Scanning Vehicle Capabilities**  
  *Jiayi Luo, Kelin Ding, Haohang Huang, Issam Qamhia, Erol Tutumluer & John Hart, University of Illinois Urbana-Champaign*  
  *Hugh Thompson, Federal Railroad Administration (FRA)*  
  *Theodore Sussmann, OST-R/Volpe Center*

- **Towards Automated Field Ballast Condition Evaluation: Development of I-BALLAST Image Analysis Software**  
  *Kelin Ding, Jiayi Luo, Haohang Huang, John Hart, Issam Qamhia & Erol Tutumluer, University of Illinois Urbana-Champaign*  
  *Hugh Thompson, Federal Railroad Administration (FRA)*  
  *Theodore Sussmann, OST-R/Volpe Center*
Towards Large-Scale Simulation of Railroad Dynamics: Coupled Train-Track-DEM Model
Zhongyi Liu, Travis Shoemaker, Erol Tutumluer & Youssef Hashash, University of Illinois Urbana-Champaign

Recent Freight Rail Research
Monday 3:45 PM- 5:30 PM | Poster Session 2054 | Convention Center, TBD
Improving Short-Haul Intermodal Transit Times on Low-Density Rail Corridors with Platoons of Self-Propelled Autonomous Railcars (SPARCs)
Geordie Roscoe, University of Texas, Austin
Matthew Parkes, University of Illinois Urbana-Champaign
Tyler Dick, University of Texas, Austin

Railroad Infrastructure Research
Tuesday 8:00 AM- 9:45 AM | Poster Session 3060
Characterization of Degraded Ballast Strength: A Field Application of Ground Penetrating Radar and Dynamic Cone Penetration
Youngdae Kim, Robert Wiggins, Issam Qamhia & Erol Tutumluer, University of Illinois Urbana-Champaign
Yong-Hoon Byun, Kyungpook National University
Jeremy Beasley, ERDC: US Army Engineer Research and Development Center
Abby Cisko, U.S. Army Corps of Engineers (USACE)
Kevin (Hamed) Kashani, Loram Technologies Inc

New Technology in Track Condition Assessment
Tuesday 10:15 AM- 12:00 PM | Lectern Session 3153
Marcus Dersch, University of Illinois Urbana-Champaign, presiding

Resilience in the Track Structure
Tuesday 1:30 PM- 3:15 PM | Lectern Session 3152
Stephen Wilk, Association of American Railroads, presiding
Arthur de O. Lima, University of Illinois Urbana-Champaign, presiding

Enhancing Railroad Turnout Performance Through Geometry and Elasticity Optimization
Jaeik Lee, University of Illinois Urbana-Champaign
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!

---

**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 Maintenance Committee (AR050)**
Monday 8:00 AM- 9:45 AM  
Riley Edwards, University of Illinois, presiding  
Theodore Sussmann, OST-R/Volpe Center, presiding

---

Support, Connection, Advocacy