



2021 Virtual International Crosstie & Fastening System Symposium

19 May 2021 - 16 June 2021
Program



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ONE STEP AHEAD.

Welcome

The 2021 Virtual International Crosstie & Fastening System Symposium program will include more than 25 pre-recorded presentations that will be provided free of charge to attendees. Recordings of technical presentations will be released by topic area over a 5-week period for viewing throughout the remainder of 2021.

Instructions

Subscribe here to receive email announcements.

Presentation recordings and slides will be published on their scheduled Wednesday at:

<https://crosstie.railtec.illinois.edu/virtual/>

Overview

Track Inspection Advancements and Applications

19 May 2021 | Sponsored by  **EVERTRAK**

Concrete Crosstie Design and Performance

26 May 2021 | Sponsored by  **Progress Rail**
A Caterpillar Company


Resilient Materials and Crosstie Support

2 June 2021 | Sponsored by 
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Composite and Interspersed Crossties

9 June 2021 | Sponsored by  **PANDROL**
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Fastening System Design and Performance

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Track Inspection Advancements and Applications

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EVERTRAKTM

Next Generation Imaging for Crosstie Inspection

Antonio Mauricio & Jeb Belcher – Loram Technologies, Inc.

Use of Laser Triangulation and Deep Neural Networks (DNNs) for Railway Track Safety Inspections

Richard Fox-Ivey – Railmetrics

Ryan Harrington – University of Illinois Urbana-Champaign

Holland Track Testing Fastening System Inspection and the Role of GRMS in Geometry Analysis

Russ Newberg & Sabri Cakdi – Holland

Intelligent Railroad Track Components Inspection

Yu Qian & Feng Guo – University of South Carolina

Advancing GRMS Technology by Assessing Emerging Failures

Hugh Thompson – Federal Railroad Administration (FRA)

Ted Sussmann – Volpe National Transportation Systems Center

***Presentations
Available Here
19 May 2021***



Using Available Technologies to Select the Prestressing Wire Indent Characteristics to Meet the Unique Requirements of Pretensioned Concrete Railroad Ties

Bob Peterman – Kansas State University

Steve Mattson – voestalpine Nortrak

Adaptive Prestressing System for Concrete Crossties using Shape Memory Alloys

Minsoo Sung & Bassem Andrawes – University of Illinois Urbana-Champaign

The Effect of Water Flow in Cracks of Pretensioned Concrete Beams under Cyclic Loading

Josué Bastos – Technicontrol

Implementing DIC Technologies in Performance Assessment and Quality Control of Concrete Ties

Dimitris Rizos – University of South Carolina

Development of an ASTM Standard for Measurement of Key Indented Reinforcement Characteristics

Terry Beck – Kansas State University

***Presentations
Available Here
26 May 2021***

Resilient Materials and Crosstie Support

2 June 2021 | Sponsored by Union Pacific Railroad



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BNSF Experience with Resilient Materials and Track Support

Erik Frohberg – BNSF Railway

Arthur Lima – University of Illinois Urbana-Champaign

Track Geometry Errors Caused by Convex Turnout Crossties

Riku Varis & Tommi Rantala – Tampere University

Effects of Mixed Traffic Patterns and Ballast Support Conditions on Track Performance Investigated through Discrete Element Modeling

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

The Use of Under Sleeper Pads and Under Ballast Mat to Improve the Performance of Railway Transition Zones

Melina Clara Scasserra, Carlos Aprile, Pablo Cocordano, Pablo Tanaro & Nicolas Beradi – Trenes Argentinos Infraestructura

Development and Use of Tests on Under Tie Pads in Regards to the European Standard

Veronika Kollmeier – Technical University of Munich (TUM)

Quantifying Support Conditions underneath Railroad Ties using the Differential Shear Strain Approach

Deb Mishra – Oklahoma State University

Quantification of the Effect of Train Type on Concrete Sleeper Ballast Pressure using a Support Condition Back-Calculator

Riley Edwards – University of Illinois Urbana-Champaign

Presentations Available Here

2 June 2021

Composite and Interspersed Crossties

9 June 2021 | Sponsored by Pandrol



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Nonlinear Structural Analysis of Recycled Polymer Composite Crossties under Flexural and In-situ Loading Applications using Finite Element Analysis

David Jack & Daniel Pulipati – Baylor University

Evaluation of Use Concrete, Steel and Composite Crossties Interspersed with Wooden Crossties in a Brazilian General Freight Corridor

Patrick Macedo – VLI

A New Track Homologation Methodology - Polymeric Crossties Approach

Aldo Machado & R. Vargas – Braskem

A. Merheb – MRS Logística S/A

Field Assessment of Engineered Interspersed Concrete Crossties in Commuter Rail Ballasted Track

Jaiek Lee & Arthur Lima – University of Illinois Urbana-Champaign

Union Pacific Composite Tie Strategies

Rachel Beck – Union Pacific Railroad

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Effect of Fastening System Components on Spike Load Transfer

Christian Khachaturian & Marcus Dersch – University of Illinois Urbana-Champaign

Investigation of Rail Load Distribution: from Wheel Load to Spike Load

Shushu Liu – Volpe National Transportation Systems Center

Automated Broken Spike Detection Using Ultrasonic Testing

Yin Gao & Anish Poudel – Transportation Technology Center, Inc. (TTCI)

Cameron Stuart – Federal Railroad Administration (FRA)

Test and Verification Methods of Rail Fastening Systems Applied in Japan

Tadashi Deshimaru – Railway Technical Research Institute

Direct Fixation Track Fastening System Design – Field Loading Demands and Behavior, and Anchorage Structural Capacity

Arthur Lima – University of Illinois Urbana-Champaign

Direct Fixation Track: History and Development

Sheen Fong – LB Foster

Matt Gibbs – Chicago Transit Authority (CTA)

***Presentations
Available Here
16 June 2021***

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