



TRAC

The Railway Academic Conference

AREMA
EDUCATIONAL FOUNDATION

REES
2016

RAILWAY ENGINEERING
EDUCATION SYMPOSIUM



PROGRAM

July 12-14, 2016

**University of Illinois at
Urbana-Champaign (UIUC)**

**Newmark Civil Engineering Lab
Yeh Student Center
205 North Mathews Avenue
Urbana, IL 61801**

AGENDA

Tuesday, July 12th – Railway Engineering Education Symposium (REES)

- 7:45 Registration (Newmark Lab Yeh Student Center - 2nd Floor Lobby)
- 8:15 Safety Briefing (Room 2311)
 Tyler Dick, UIUC
 AREMA Welcome (Room 2311)
 Mike Pochop, Hanson Professional Services
 UIUC/NURail Welcome (Room 2311)
 Chris Barkan, NURail Center Director, UIUC
- 8:30 REES: Past, Present and Future (Room 2311)
 Pasi Lautala, Michigan Tech
- 9:00 Parallel Modules
 1. *Track Structure Design Tutorial – Conrad Ruppert, UIUC (Room 1311)*
 2. *Introduction to Motive Power – Tyler Dick, UIUC (Room 2312)*
- 10:15 Break (2nd Floor Lobby)
- 10:30 Parallel Modules
 1. *Track Geometry Tutorial – Pasi Lautala, MTU & Tyler Dick, UIUC (Room 1311)*
 2. *Train Performance Simulation Tutorial & Vehicle Dynamics Tutorial*
 – Dave Clarke, University of Tennessee - Knoxville (Room 2312)
- 11:45 Networking Lunch (NCEL Crane Bay)
- 12:45 Parallel Modules
 1. *Interactive Classroom Activities – Pasi Lautala, MTU (Moderator) (Room 1311)*
 2. *Signal & Communication Tutorial – Chris Barkan, UIUC (Room 2312)*
- 14:00 Parallel Modules
 1. *Rail Bridge Design – Mat Fletcher, Hanson & Dimitris Rizos, USC (Room 1311)*
 2. *Railway Electrical & Mechanical Engineering Course Content Development:*
 Discussion – Bryan Schlake, Penn State Altoona (Moderator) (Room 2312)
- 15:15 Break (2nd Floor Lobby)
- 15:30 Railway Curriculum and Program Development Discussion (Room 2311)
 John Betak, UT-Austin/Rutgers (Moderator)
- 17:00 Dinner and Keynote Address (Room 2311)
 Brian Lindamood, Director of Capital Projects, Alaska Railroad & AREMA President

The Railway Academic Conference

Wednesday, July 13th – REES Field Visit *(see additional information on page 6)*

- 7:30 Depart Campus (NCEL Lobby)
- 9:00 Field Visit to Railway Facilities (Norfolk Southern Yard and Dispatching Center, Decatur IL)
- 11:30 Depart Decatur for Champaign - Box lunch on the bus
- 12:00 Lab Tour-only Attendees Depart Campus – No lunch provided (NCEL Lobby)
- 12:30 UIUC RailTEC Research and Innovation Lab (RAIL) Tour (North Champaign)
- 13:30 Arrive Campus (NCEL Lobby)
- 13:30-14:30 *No events scheduled*

Developing the Next Generation of Railroaders

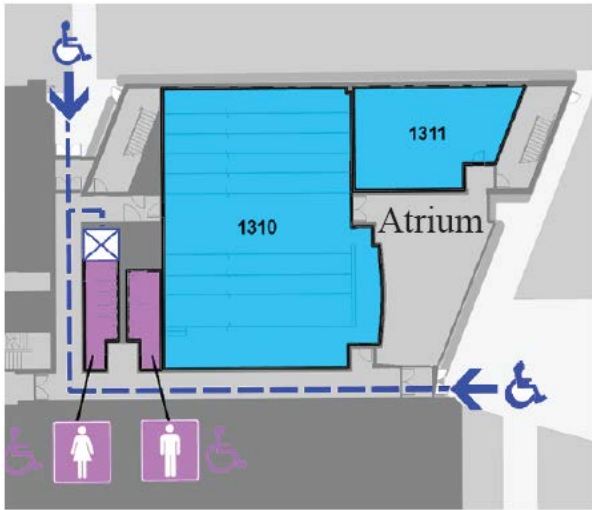
- 14:30 STEM: The Root of Railway Engineering Education (Room 2311)
Tyler Dick, UIUC
- 14:45 Outreach to Women, Minority and K-12 Students: Invited Presentations (Rm 2311)
14:45 NovaCANE & Other Outreach Programs – Leslie McCarthy, Villanova University
15:00 Minority Outreach at GSU – Ellen Foster Curtis, Governors State University
15:15 WeGoCEE – Cassandra Rutherford, UIUC
- 15:30 Outreach and Increasing Student Awareness of Railway Careers:
Discussion/Workshop (Room 2311)
Leslie McCarthy, Villanova University (Moderator)
-Interactive workshop and small group discussions
- 16:30 Break & Walk to Illini Union, Group Photo
- 17:00 Reception, Poster Session & Interactive K-12 Exhibits (Illini Union 314A/B)
- 17:45 3-Minute Thesis Competition (Illini Union 314A/B)
Conrad Ruppert, UIUC (Moderator)
Fault Tree Analysis of Adjacent Track Accidents on Shared-Use Rail Corridors –
Chen-Yu Lin, UIUC
Innovative Fully precast retaining Wall System for Highway and Railroad Applications
– Maen Farhat, University of Illinois at Chicago
Coupled Finite Element and Multibody Dynamics for Studying Bridge Approaches –
Ahmed El-Ghandour, UIC
Comparative Life Cycle Assessment of Road and Multimodal Transportation Options:
A Case Study of the Copperwood Project – Sumanth Kalluri, MTU
- 18:30 Dinner and Keynote Address (Illini Union 314A/B)
“Engineering at CSX: We Make Tomorrow’s Moves Possible”
Chuck Gullakson, Assistant Chief Engineer, CSX Transportation

Thursday, July 14th – Rail Industry & Academia: Strengthening Bonds

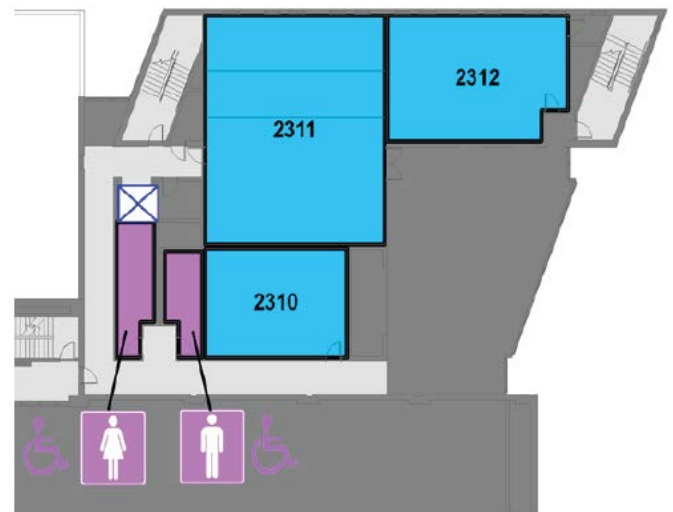
- 7:45 Safety Briefing (Room 2311)
 Conrad Ruppert, UIUC
 Opening Remarks (Room 2311)
 Chris Barkan, NURail Center Director, UIUC
- 8:00 Recruitment and Workforce Development: Discussion Panel (Room 2311)
 Pasi Lautala, MTU (Moderator)
 -Industry panel with reactions to 2015 workshop on improving coordination
 between academia and industry on student placement
- 9:45 Break (2nd Floor Lobby)
- 10:00 Experiential Learning through Collaborative Research with Industry:
 Invited Presentations (Room 2311)
 Conrad Ruppert, UIUC (Moderator)
 10:00 Collaborative Track Research at the University of Kentucky: Partnerships for
 Productivity – Reg Souleyrette, University of Kentucky
 10:20 Industry Collaboration through Senior Design/Enterprise Projects – Pasi Lautala, MTU
 10:40 NURail Collaborative Research Projects at UIC – Mohsen Issa, UIC
 11:00 RailTEC Infrastructure Group Approach to Experiential Learning – Riley Edwards, UIUC
- 12:00 Box Lunch & Student Leadership Council Update (Room 2311)
 Tyler Dick & Chen-Yu Lin, UIUC
- 13:00 “Beyond Traffic 2045” and the Future Roadmap for Railway Research:
 Discussion/Workshop (Room 2311)
 Conrad Ruppert, UIUC (Moderator)
 -Interactive workshop and small group discussions on how academic research relates
 to challenges facing the railway transportation mode over the next 30 years as
 identified by U.S. DOT in “Beyond Traffic 2045”:
 -How we move
 -How we move things
 -How we move better
 -How we adapt
- 14:15 Closing Remarks
 Chris Barkan, NURail Center Director, UIUC
- 14:20 Adjourn General Session
- 14:30 Executive Advisory Board (EAB) Meeting – Members Only (Conference Room 3350)
- 14:30 NURail PI Meeting – Closed Session (Conference Room 3218)
- 15:00 EAB & NURail PI Meeting – Closed Session (Conference Room 3350)
- 16:30 Adjourn

Newmark Civil Engineering Lab – Yeh Student Center

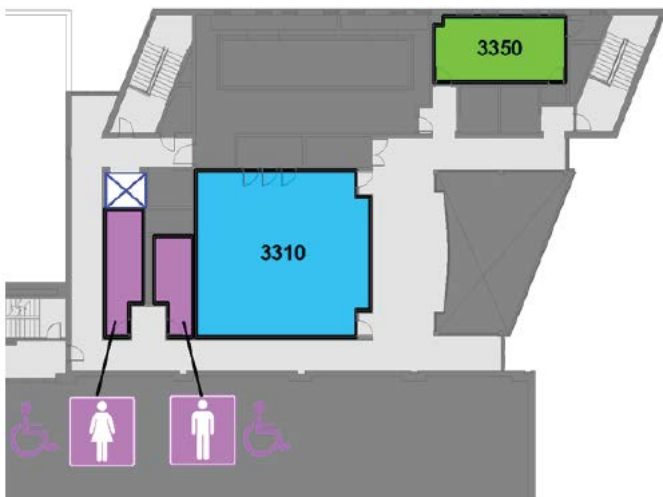
1st Floor



2nd Floor



3rd Floor



Wireless Internet Access

Each attendee will receive an individual wireless login at registration for use for the entire week. If UIUCnet is not available, connect with IllinoisNet. Please see the registration desk for additional details.

Wireless access via the “eduroam” network is also available for attendees from participating academic institutions.

Useful Telephone Numbers and Businesses

TRAC Registration Desk	217-244-4600
Hampton Inn	217-337-1100
Illini Union Hotel	217-333-3030
Towne Place Suites	217-344-1600

FedEx Office Print and Ship
524 E. Green St. #101, Champaign IL
217-344-2085

Walgreens
407 E. Green St., Champaign IL
217-344-0121

Starbucks
503 E. Green St., Champaign IL
217-344-8613

REES Field Visit

Norfolk Southern Railway Yard and Dispatching Center – Decatur, IL

The Norfolk Southern Railway terminal in Decatur, Illinois features the largest flat-switching classification yard in the United States. The facility is situated at a key gateway where NS routes from Kansas City to Detroit and other eastern destinations intersect lines to St. Louis and Chicago. The yard also supports several nearby agricultural and industrial facilities that ship by rail, including the large ADM plant, and interchange of freight traffic with other railroads serving Decatur. The NS Illinois Division train dispatching center is also located in Decatur. From this facility, NS employees control and manage railway operations on multiple NS routes across the Midwest.

UIUC RailTEC Research & Innovation Laboratory (RAIL) – Champaign, IL

In 2013, the Rail Transportation and Engineering Center (RailTEC) at University of Illinois at Urbana-Champaign embarked on a mission to design and construct a laboratory with the primary objective of improving the performance and design of railway infrastructure and its components. To achieve this objective, the 3,500 square foot Research and Innovation Laboratory (RAIL) was conceived and located in the Harry Schnabel, Jr. building on the CERL campus. RAIL currently houses multiple testing frames which provide the ability to conduct experiments on railway infrastructure and mechanical components including crossties and fastening systems. The cornerstone of RAIL is the Track Loading System (TLS) which provides researchers the ability to perform static and dynamic experimentation on railway superstructure and rolling stock mechanical components and full-depth track substructures. RAIL provides researchers with the necessary tools to study various infrastructure components at the material, component, and system levels.

Tour Schedule – Wednesday July 13th (Morning)

Bus 1 – NS and RAIL

7:30 Depart Campus (NCEL Lobby)
9:00 NS Field Visit, Decatur IL
11:30 Depart Decatur for Champaign
Box Lunch on the Bus
12:30 RAIL Tour, Champaign IL
13:30 Arrive Campus (NCEL Lobby)

Bus 2 – RAIL only

12:00 Depart Campus (NCEL Lobby)
12:30 RAIL Tour, Champaign IL
13:30 Arrive Campus (NCEL Lobby)

Notes:

Field trip attendees are required to wear closed-toe shoes (no sandals or flip flops) and long pants. Please plan accordingly. Any other required safety gear will be provided.

Non-US Citizens: A portion of the technical tour takes place on the US Army Corps of Engineers facility that houses the RailTEC Research and Innovation Laboratory (RAIL). All non-US Citizens that submitted their passports by the requested deadline (28 June 2016) MUST bring their passport on the day of this tour.

US Citizens: You MUST bring a state ID (driver's license) on the day of the tour in order to access the RailTEC Research and Innovation Laboratory (RAIL).

University of Illinois at Urbana-Champaign Campus Map



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