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Rail Track Substructure State of the Art Challenges

Ted Sussmann and Dingqing Li

Objective: Discussion of track substructure topics such as geohazards and transportation geodynamics and other state of the art issues. Special emphasis is placed on emerging failure mechanics and modeling, advanced inspection technology, and maintenance options.

Monday, May 24, 2021

All times are US Central Time

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| 8:00-8:35 | Track, Loading, and Substructure State of the Art Issues
T. R. Sussmann |
| 8:35-9:05 | Track Substructure Requirements Supporting the Fourth Industrial Revolution (RR4.0)
H. Grabe |
| 9:05-9:45 | Influence of Track Foundation on the Performance of Ballast and Concrete Slab Tracks
A. Ramos and A. Gomes Correia |
| 9:45-10:00 | Break |
| 10:00-10:35 | Defining and Managing Geohazards
M. Hendry |
| 10:35-11:05 | Track Modeling and Mechanistic Analysis and Future Applications
D. Li |
| 11:05-11:40 | Track Geodynamic Performance, Analysis, and Modeling
X. Bian |

Note: Presentations can be live or recorded.

11:40-12:30 Lunch

12:30-3:00 **Track Support and Substructure Roundtable**

Discussion of track support and substructure issues in a 10-minute introductory presentation followed by a flexible 1.5 hr interactive panel discussion.

1. Probabilistic Ballast Life Forecasting & Applications (**C. Ho & M. Forde**)
2. Optimizing Ballasted Track Maintenance Operations using Discrete Element Modeling (**Jean Francois Ferellec**)
3. British Ballast and Subgrade Advancements (**L. LePen**)
4. Track Maintenance and Inspection Advances (**A. Eriksen**)
5. Drainage Effects on Track Substructure Performance (**S. Wilk**)
6. Inspection, Detection, and Remediation of Track Substructure (**J. P. Hyslip**)

3:00-3:15 Break

3:15-3:45 Track Substructure Design Methodology and Requirements
S. M. Chrismer

3:45-4:20 Overview of Heavy Haul Experience with Ballast & Program Summary
Top Ten List
M. Ruel

4:20-4:30 Closing Remarks and Presentations
T. R. Sussmann & D. Li