

# NATIONAL WORKSHOP ON TRANSPORTATION GEOMECHANICS AND GROUND IMPROVEMENT



The workshop is hosted by the Transport Research Centre, University of Technology Sydney. The co-hosts are the Australian Geomechanics Society, and the technical committees TC202: Transportation Geotechnics and TC211: Ground Improvement of ISSMGE.

A broad range of topics will be presented covering emerging themes and advances in the areas of Transport Geotechnics and Ground Improvement, including:

- *From Theory to Practice in Transportation Geomechanics*
- *Challenges and Innovations in Earthworks Controls for Transport Infrastructure*
- *Soft Ground Improvement*
- *Tunnelling in Soft Ground*
- *Effect of Jointed Rock Mass Instability on Transport Corridors*
- *TBMs and Field Data Interpretations*
- *Innovations in Earthworks Controls*
- *Waste Materials in Road and Rail Substructure*
- *Port Reclamation*
- *AI and Machine Learning Applications*
- *Use of Geosynthetics*
- *Soft Soil Instability and Mud Pumping under Cyclic Loads*
- *Environmental Impact Assessment, among others*

The presentations will focus on innovative R&D outcomes, practices, technological applications and case studies to allow the audience to learn about new tools and techniques relevant to their work.



**Thursday**  
**24 November 2022**



**Novotel Sydney on**  
**Darling Harbour**

More information and registration

<https://events.humanitix.com/trc22workshop>

Contact Person [Van.Le@uts.edu.au](mailto:Van.Le@uts.edu.au)

Register with payment options at <https://events.humanitix.com/trc22workshop>

**24 NOVEMBER 2022 | 8:00AM to 7:00PM**

**Novotel Sydney on Darling Harbour, 100 Murray St, Pyrmont NSW 2009**

# National Workshop on Transportation Geomechanics and Ground Improvement

**Special presentations from academia and industry include:**

Dr Richard Kelly (SMEC)

Prof Anna Giacomini (UoN)

Ms Gina Peña Rincón (Aurecon)

Dr Dominic Trani (SLR)

Dr Thirukumaran Sivanathan (Jacobs)

Dr Udeshini Pathirage (WSP)

A/Prof Chaminda Gallage (QUT) among others.

Mr David Piccolo (PSM)

Prof Buddhima Indraratna (UTS)

Dr AHM Kamruzzaman (TfNSW)

Prof Daichao Sheng (UTS)

Dr Tony Zhu (Arup)

TWO Bright Spark Lectures for young professionals - selected by Transport Research Centre

- Dr Rakesh Malisetty  
"Role of train speed in track design and its effects on long-term ballast performance."
- Ms. Liuxin Chen  
"Integrated simulation of variable cyclic loading in road construction and operation."

**Early Bird Discount Rates, incl. GST (before 24 October 2022): is closed**

**General Rates (after Early Bird closed), incl. GST:**

General Registration: \$440

Student Registration: \$275

**Register with payment options at <https://events.humanitix.com/trc22workshop>**

**EXHIBITION OPPORTUNITIES:** Exhibition space 2m x 2m - Price \$3,300 incl. GST  
Companies interested in booking space are urged to contact Van.Le@uts.edu.au.

**Technical Program Coordinator:**

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HOSTED BY:



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CO-HOSTS:



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| Time  | WORKSHOP PROGRAM   |
|-------|--|
| 8:00  | Registration, Tea/coffee on arrival  |
| 9:00  | Professor Michael Blumenstein (Associate Dean - Research & Innovation, FEIT, UTS)<br>“WelcomeAddress”  |
| 9:05  | Dist. Professor Buddhima Indraratna (Director, UTS Transportation Research Centre)<br>“A Vision for Transportation Geotechnics through a circular economy”   |
| 9:20  | Prof Anna Giacomini (University of Newcastle),<br>“Instability of jointed rock mass along transport corridors”   |
| 9:35  | Dr Thirukumaran Sivanathan (Jacobs),<br>“Successful design of large span caverns in the challenging ground conditions”   |
| 9:50  | Q&A  |
| 10:00 | Morning tea  |
| 10:30 | <b>Session 1: Soft and Weak Subgrade Implications and soil improvement</b><br>ISSMGE Bright Spark Lecture: Dr Rakesh Malisetty<br>“Role of train speed in track design and its effects on long-term ballast performance” |
| 10:45 | Dr Richard Kelly (SMEC),<br>“Challenging current thinking in earthworks design with special reference to Transport Corridors”  |
| 11:00 | Dr AHM Kamruzzaman (Zaman) – (TfNSW),<br>“Ground improvement techniques - Lessons learnt from projects”  |
| 11:15 | David Piccolo (PSM),<br>“Improvements and Innovations in Earthworks Management”  |
| 11:30 | Dist. Prof Daichao Sheng (University of Technology Sydney),<br>“Smart Construction: Forecast TBM performance in real time”   |
| 11:45 | Dr Ali Parsa (JK Geotechnics), “Analysing ground deformation data to predict characteristics of smear zone induced by vertical drain installation for soft soil improvement”   |
| 12:00 | Sponsor presentation by Bestech  |
| 12:15 | Q&A  |
| 12:30 | Lunch  |
| 13:30 | <b>Session 2: Monitoring, Data Analysis and Interpretation</b><br>ISSMGE Bright Spark Lecture: Ms. Liuxin Chen<br>“Integrated simulation of variable cyclic loading in road construction and operation”                  |
| 13:45 | Gina Peña Rincón (Aurecon),<br>“Case studies of road/rail substructure design capturing AI-based Data Analytics”   |
| 14:00 | Dr Tony Zhu (ARUP),<br>“Managing long term settlement for rail project in design – two project examples”   |
| 14:15 | Dr Danial Armaghani (University of Technology Sydney)<br>“AI and Machine Learning Techniques for Evaluating Rail Track Characteristics”  |
| 14:30 | Dr Dominic Trani (SLR Consulting),<br>“Subgrade Soil Deformation and Design Implications”  |
| 14:45 | A/Prof Chaminda Gallage (Queensland University of Technology)<br>“Geotextiles in Pavement structures”  |
| 15:00 | Q&A  |
| 15:30 | Afternoon Tea  |
| 16:00 | <b>Session 3: Perspectives of Circular Economy and Environmental Implications</b><br>Dr Udeshini Pathirage (Golder Associates), Environmental Impact on Transportation Infrastructure”                                   |
| 16:15 | A/Prof Jayan S. Vinod (University of Wollongong),<br>“Utilisation of Steel and Coal Industry Waste mixtures for Road Construction and Port Reclamation”  |
| 16:30 | Chathuri Arachchige (University of Technology Sydney)<br>“Utilization of Recycled Rubber and Granular Wastes for Rail Substructure”  |
| 16:45 | Q&A  |
| 17:00 | Panel Discussion: Michael Moffatt (ARRB), Amir Shahkolahi (Global Synthetics), Puvaneswary Rajarathnam (AECOM)<br>“Future Design based on Traditional Methods vs Observational Methods through AI and Data Analytics”    |
| 17:30 | Prof Hadi Khabbaz (University of Technology Sydney)<br>Closing Remarks   |
| 17:40 | Networking event with Cocktails  |