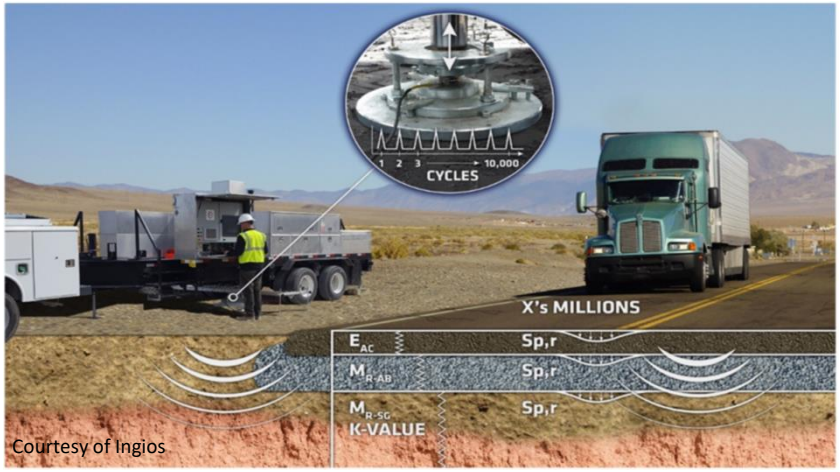
TIME CAPSULE PROJECT

TC 202 TRANSPORTATION GEOTECHNICS



Courtesy of Ingios

Erol Tutumluer, Ph.D., M. ASCE
Chair of ISSMGE TC 202
Abel Bliss Professor in Engineering
Paul F. Kent Endowed Faculty Scholar

tutumlue@illinois.edu
University of Illinois at Urbana-Champaign

TC202 Technical Focus

- **PAST :** What are the key developments and milestones in TG?
  - Historical Overview of Road Pavements
  - Historical Overview of Railway Track
  - Historical Overview of Transportation Earthwork
  - Committee Activity – Historical Overview
- **PRESENT :** What are the significant gaps between SOA and SOP in TG?
  - Role of TC202 Transportation Geotechnics (TG)
  - Survey Summary for TG
- **FUTURE :** What will be the future of TG?
  - Researcher Network for Technology Succession
  - Education and Recruitment of Young Researchers & Engineers

TC202 Technical Focus

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Historical Overview of Road Pavements

Lectures/Committee Materials

ASCE Geo-Institute 2021 Carl L. Monismith Lecture
Presenter: **Prof. Erol Tutumluer**, University of Illinois at Urbana-Champaign, USA
Title: Unbound Aggregate Pavement Layers – Dynamic Loading Behavior and its Characterization
Date: Delivered on 21 March 2022
https://www.eng.hokudai.ac.jp/labo/geomech/ISSMGE%20TC202/archive/Time%20Capsule%20Project/Road%20Pavement/Monismith%20Lecture.pdf
https://youtu.be/tO5LgUtADvs

TRB 2021 Annual Meeting "Geotechnology Accomplishments – A Historical Review and Future Outlook"
Presenter: **Prof. Andrew Dawson**, University of Nottingham, UK
Title: Developing our Understanding of Aggregates and Granular Materials for Highway Construction
Date: Delivered on 26 January 2021
https://www.eng.hokudai.ac.jp/labo/geomech/ISSMGE%20TC202/archive/Time%20Capsule%20Project/Road%20Pavement/TRB2021-post%20meeting.pdf

Historical Overview of Railway Track

Lectures/Committee Materials

ISSMGE 2016 1st Proctor Lecture

Presenter: **Prof. Buddhima Indraratna**, University of Technology Sydney, Australia

Title: Railroad Performance with Special Reference to Ballast and Substructure Characteristics

Date: Delivered on 21 March 2022

https://www.eng.hokudai.ac.jp/labo/geomech/ISSMGE%20TC202/proctor/1st%20Ralph%20Protor%20Lecture.pdf

ISSMGE 2021 3rd Proctor Lecture

Presenter: **Prof. William Powrie**, University of Southampton, UK

Title: "Railway Track Substructure: Recent Research and Future Directions"

Date: Delivered on 25 May 2021

https://www.eng.hokudai.ac.jp/labo/geomech/ISSMGE%20TC202/proctor/3rd%20Ralph%20Protor%20Lecture.pdf

Historical Overview of Transportation Earthwork

Lectures/Committee Materials

ISSMGE 2017 2nd Proctor Lecture

Presenter: **Prof. António Gomes Correia**, University of Minho, Portugal

Title: From Fundamentals to Applications in Compaction: Recent Developments in Embankments and Structural Layers of Pavements and Railways

Date: Delivered on 18 September 2017

https://www.eng.hokudai.ac.jp/labo/geomech/ISSMGE%20TC202/proctor/2nd%20Ralph%20Protor%20Lecture.pdf

http://virtualuniversity.issmge.org/courses/course-v1:ISSMGE+ICSMGE19107+2017/courseware/bc86e653d5ce463481a961b0e198bf87/e2428c483fc84bc69383f7edb0af5ee7/1?activate_block_id=block-v1%3AISSMGE%2BICSMGE19107%2B2017%2Btype%40vertical%2Bblock%4073cf0c7cd151490bac77d6348b1dbe98

TRB 2021 Annual Meeting "Geotechnology Accomplishments – A Historical Review and Future Outlook"

Presenter: **Prof. Jie Han**, The University of Kansas, USA

Title: Transportation Earthworks: A Perspective at the TRB Centennial

Date: Delivered on 26 January 2021

https://www.eng.hokudai.ac.jp/labo/geomech/ISSMGE%20TC202/archive/Time%20Capsule%20Project/Transportation%20Earthwork/Transportation%20Earthworks.pdf

Committee Activity – Historical Overview

History 1994-2001

- European Technical Committee (ETC 11) dealing with "**Geotechnical aspects in pavement design and construction**" has been set up in **1994**. **1994-1998**: Chairman: Prof. Steve Brown (University Nottingham, UK).
  - 1994-1997: Vice President Europe: Prof. W.F. Van Impe; President ISSMGE: Prof. M. Jamiolkowski
- ETC 11 "**Geotechnical aspects in design and construction of pavements and railtracks" 1998-2001:** Chairman: Prof. António Gomes Correia (Technical University of Lisbon-IST, Portugal).
  - 1997-2001: Vice President Europe: Prof. H. Brandl; President ISSMGE: Prof. K. Ishiara

The main objectives of ETC 11 (1998-2001) were to move from merely empirical rules used in design and construction of pavements and rail tracks to a more scientific approach in practice. The focus areas included: geotechnical properties of geomaterials for rational design and construction, compaction technology, grain crushing, freezing and thawing, and embankments for highways and high-speed trains. Contributed to technical sessions and workshops in ICSMGE events.

Committee Activity – Historical Overview

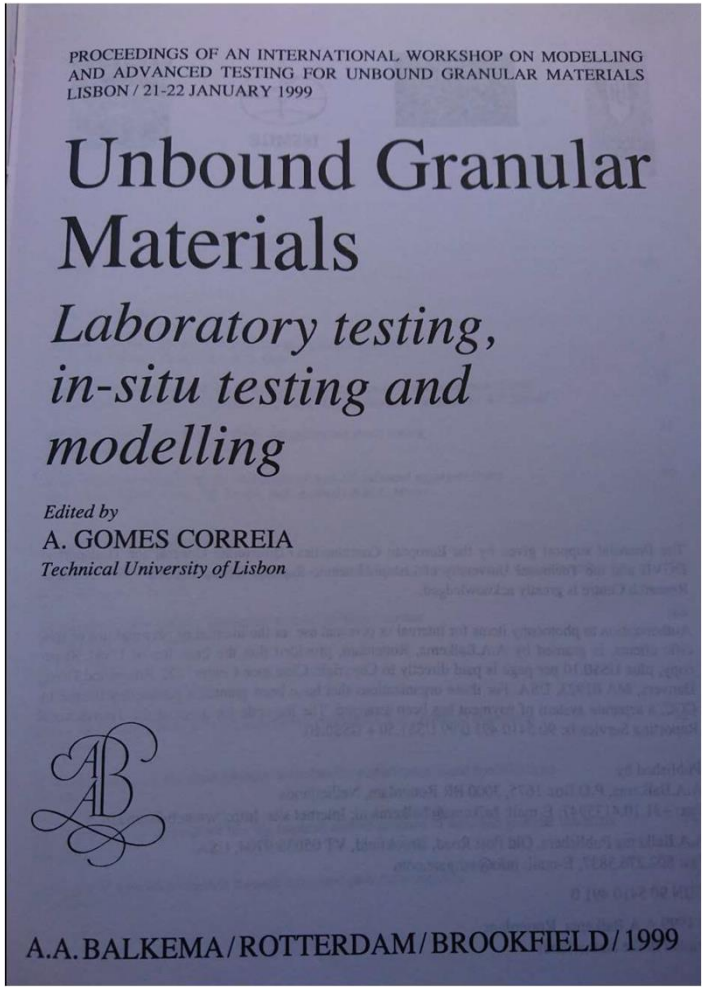
Activities/Publications

ETC11 1998-2001

The goal of the workshop Modelling and Advanced Testing for Unbound Granular Materials is to provide an international overview of the more recent advances in modelling and laboratory as well as in-situ testing for unbound granular materials. This outcome is a major input to the COST 337 Unbound Granular Materials for Road Pavements and to the ETC 11 of the ISSMGE dealing with Geotechnical Aspects in Pavement Design and Construction.

The present book includes 4 special lectures and 13 selected papers. The subjects covered include: Laboratory and in-situ advanced testing: Modelling of unbound granular materials and Pavement design and modelling.

In consequence, the proceedings are an excellent source of novel and innovative ideas related to unbound granular materials characterisation and advanced interpretation applied to pavement modelling and design. The information supplied is of special value to researchers and practising engineers worldwide.



Committee Activity – Historical Overview

Activities/Publications

ETC11 1998-2001

2000-05-19
Workshop during INTERMAT Paris

Société Internationale de Mécanique des Sols et de Géotechnique

Comité ETC 11 - Aspects géotechniques dans la conception et la construction des chaussées et des voies ferrées

LE COMPACTAGE DES SOLS ET DES MATERIAUX GRANULAIRES

Propriétés des matériaux
Gestion du compactage et contrôle en continu

COMPACTION OF SOILS AND GRANULAR MATERIALS

Properties of compacted materials
Management of compaction and continuous control

PARIS - 19 Mai 2000

A. GOMES CORREIA
A. QUIBEL, éditeurs

«PUBLISHED BY PRESSES DE L'ECOLE DES PONTS ET CHAUSSÉS »

Committee Activity – Historical Overview

Activities/Publications

ETC11 1998-2001

Amsterdam, Netherlands, 7-10 June 1999

Workshop in the **XIIth European Conference on Soil Mechanics and Geotechnical Engineering** in Amsterdam (Barends et al., 1999). The main topics were: An overview of the contribution of soil mechanics to pavement and rail track foundations, the use of theoretical approaches at construction and service stages of pavement structures, simulation tools for automated compaction procedures, the continuous compaction optimisation and control, modelling of dynamic problems, non-destructive quality control of roads and railway structures by SASW and Georadar, the use of in-situ dilatometer testing for layer evaluation, simulation of the mechanical behaviour of unbound granular materials by means of the distinct element method. Finally, the requirements of future research were discussed.

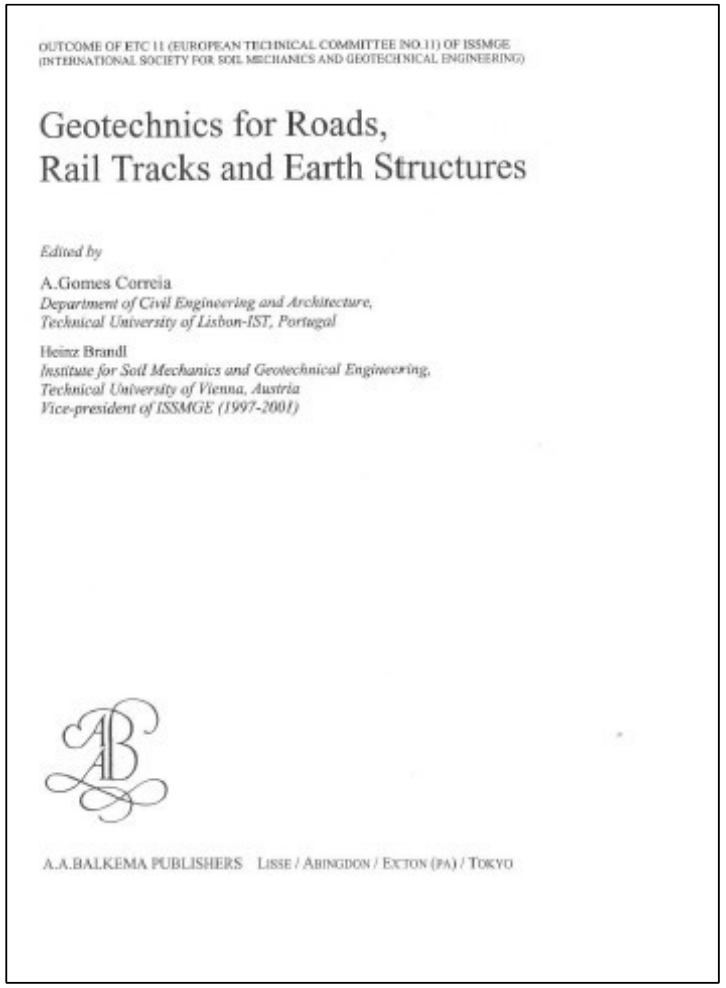
Committee Activity – Historical Overview

Activities/Publications

ETC11 1998-2001

Geotechnics for roads, rail tracks and earth structures: outcome of ETC 11 (European Technical Committee No. 11) of ISSMGE (International Society for Soil Mechanics and Geotechnical Engineering)

The intent of this work was to present an international overview of advances in geotechnical engineering referring to design and construction of road pavements and rail tracks for high-speed trains.


OUTCOME OF ETC 11 (EUROPEAN TECHNICAL COMMITTEE NO.11) OF ISSMGE
(INTERNATIONAL SOCIETY FOR SOIL MECHANICS AND GEOTECHNICAL ENGINEERING)

Geotechnics for Roads,
Rail Tracks and Earth Structures

Edited by

A.Gomes Correia
Department of Civil Engineering and Architecture,
Technical University of Lisbon-IST, Portugal

Heinz Brandl
Institute for Soil Mechanics and Geotechnical Engineering,
Technical University of Vienna, Austria
Vice-president of ISSMGE (1997-2001)

A.A.BALKEMA PUBLISHERS LISSE / ABINGDON / EXTON (PA) / TOKYO

Committee Activity – Historical Overview

History 2001-2013

- **TC 3 "Geotechnics of pavements" 2001 – 2005**; Chairman: Prof. António Gomes Correia (Technical University of Lisbon-IST/ from 2003 University of Minho, Portugal).
  - 2001-2005: President ISSMGE: Prof. W.F. Van Impe
- **TC 3 "Geotechnics of pavements" 2005 – 2009**; Chairman: Prof. António Gomes Correia (University of Minho, Portugal).
  - 2005-2009: President ISSMGE: Prof. P.S. Pinto
- **TC 202 "Transportation Geotechnics" 2009 – 2013**; Chairman: Prof. António Gomes Correia (University of Minho, Portugal).
  - 2009-20013: President ISSMGE: Prof. J-L Briaud

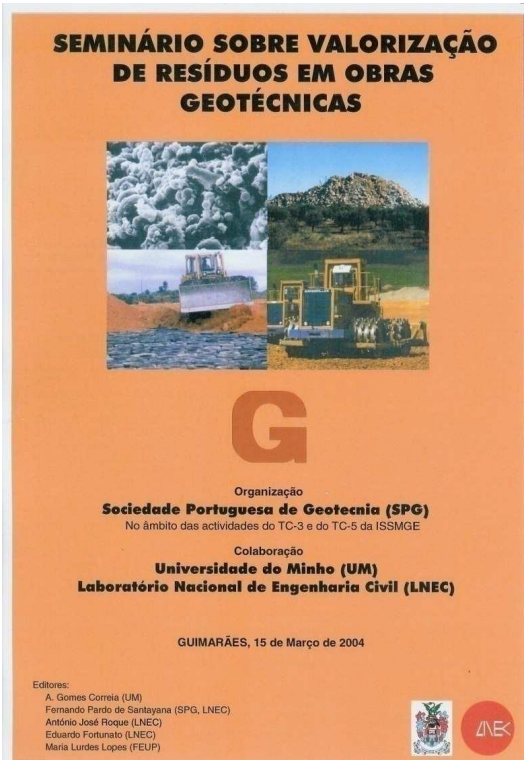
The TC 202 committee should consider in a broad engineering perspective bridging the gap between Pavement/Railway Engineering and Geotechnical Engineering. The main task is to promote co-operation and exchange of information and knowledge about the geotechnical aspects in design, construction, maintenance, monitoring and upgrading of roads, railways and airfields. It will also cover the related environmental aspects.

Committee Activity – Historical Overview

Activities/Publications TC3 2001-2004

(2004/03/15)

"Promotion of waste materials in Geotechnical Engineering", Guimarães - Portugal



(2004/10/24)

International WORKSHOP on: "Pavement Engineering from a Geotechnical Perspective", Québec - Canada

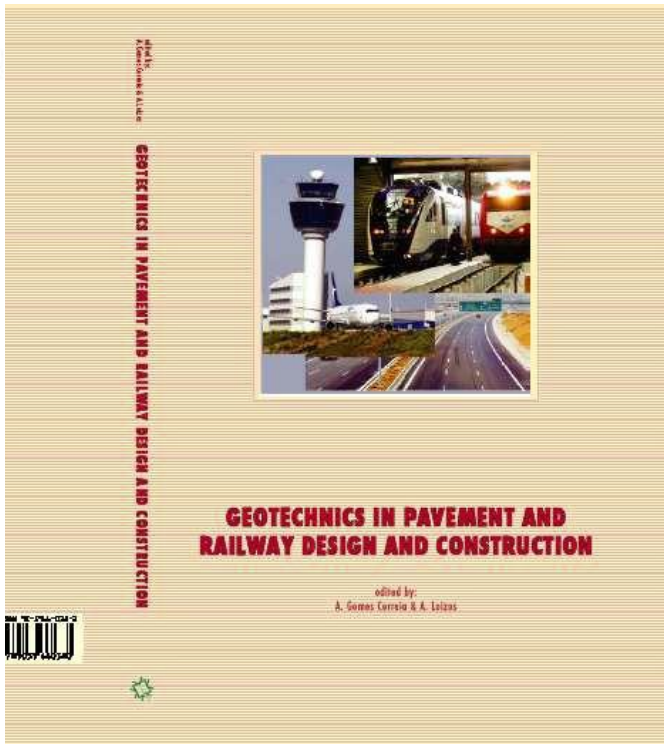
Committee Activity – Historical Overview

Activities/Publications

TC3 2001-2004

(2004/10/24)

International Seminar on: "Geotechnics in pavement and railways design and construction", Athens - Greece

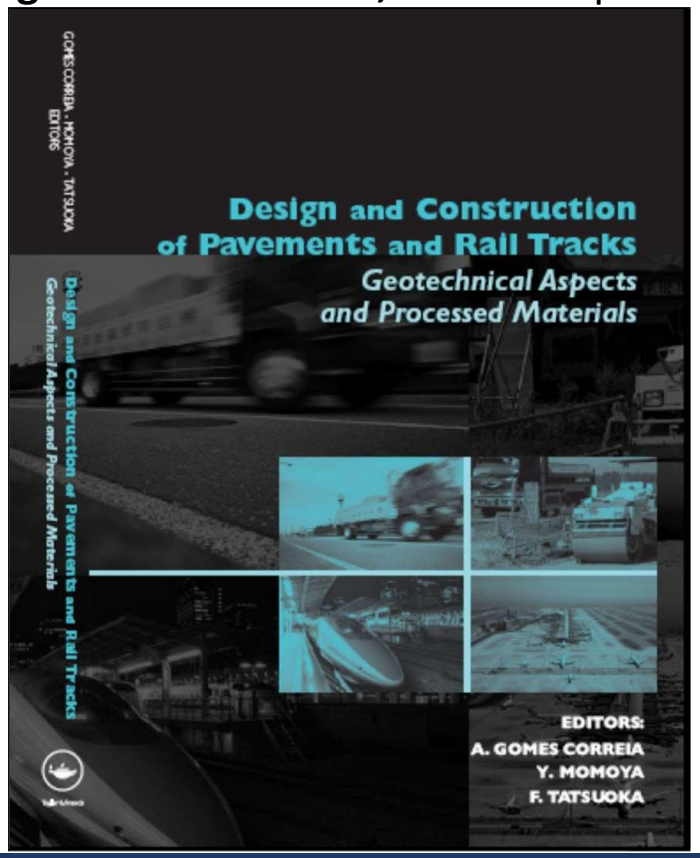


Committee Activity – Historical Overview

Activities/Publications TC3 2004-2009

(2005/09/14)

Workshop on: "Geotechnical aspects related to foundation layers of pavements and rail tracks" during the 16th ICSMGE, Osaka - Japan



Roller-integrated continuous compaction control (CCC). Technical contractual provisions & recommendations, by D. Adam

Committee Activity – Historical Overview

Activities/Publications

TC3 2004-2009

XIV European Conference on Soil Mechanics and Geotechnical Engineering

Management of materials for infrastructures in urban environments

Chairman: *A. Gomes Correia*

Co-chairman: *F. Pardo de Santayana*

Secretary: *H. Cano Linares*

MADRID 2007

ISSMGE - TC 3 Geotechnics of Pavements

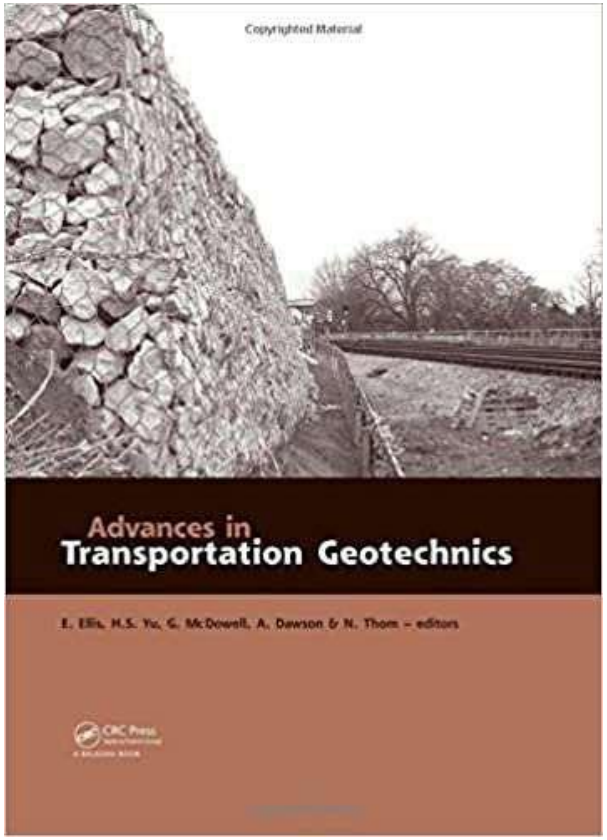
Committee Activity – Historical Overview

Activities/Publications
TC202 2009-2013

IC Transportation Geotechnics Series

(2008/08/25-27)

1st International Conference on Transportation Geotechnics (1st ICTG), Nottingham - UK



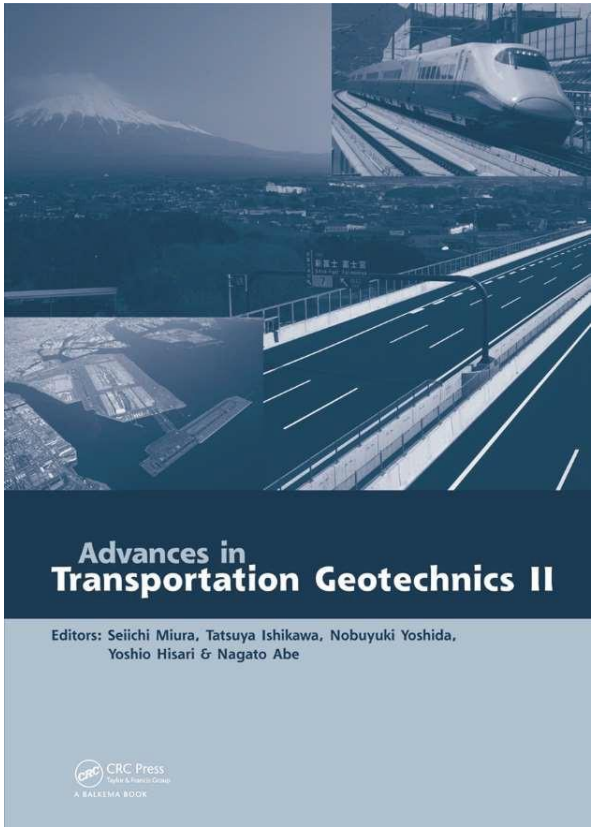
Committee Activity – Historical Overview

Activities/Publications
TC202 2009-2013

IC Transportation Geotechnics Series

(2012/09/10-12)

2nd International Conference on Transportation Geotechnics (2nd ICTG), Sapporo - Japan



Committee Activity – Historical Overview

Activities/Publications

TC202 2009-2013

ISSMGE – Webinar (2nd) Intelligent Compaction

Presenter: A. Gomes Correia and George Chang

Title: Intelligent Compaction

Date of recording: 25 November 2011

Duration: 01:44:14

http://www.issmge.org/en/resources/recorded-webinars/552-intelligent-compaction

The work of ISSMGE TC3 (Geotechnics of pavements) and how it links to earthworks

A. Gomes Correia, A. Quibel, M. Winter

Geological Society, London, Engineering Geology Special Publications

2012, v.26; p67-77.

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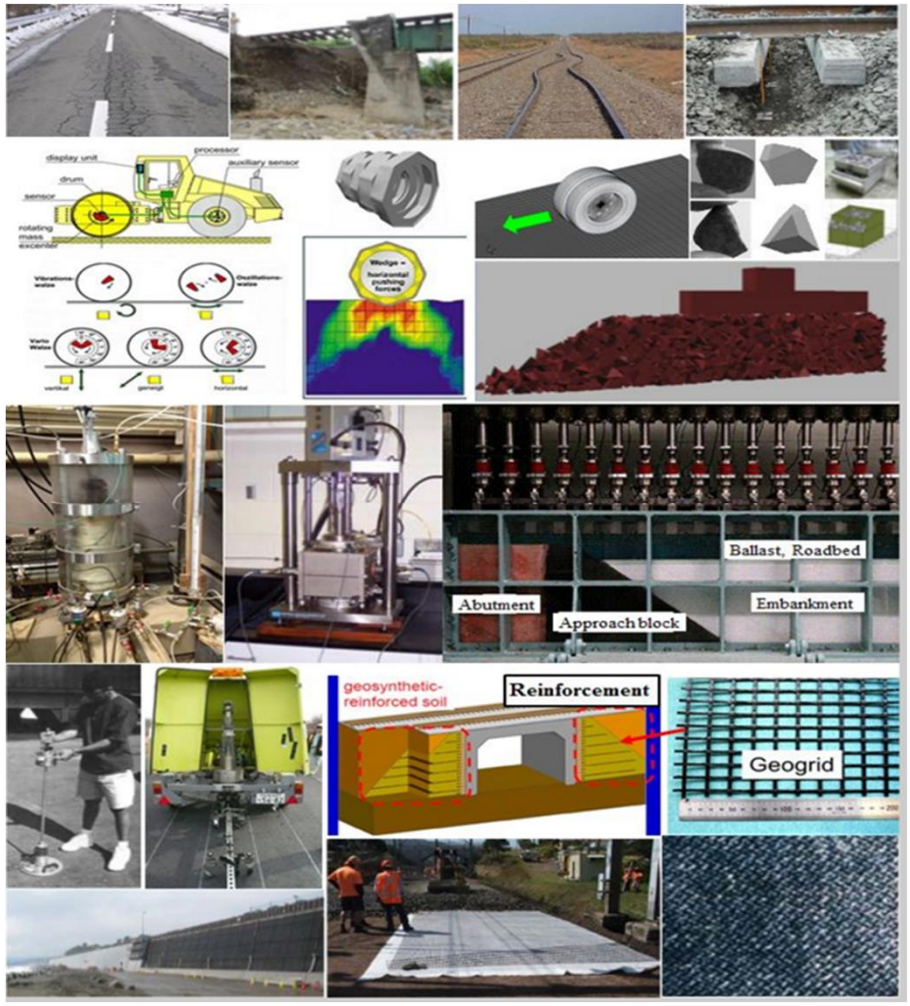
Role of TC202 (TG) – TC202 (2013-2021) –

Activities/Publications

TC202 2013-2021

Technical Committee 202 (formerly TC-3) of the ISSMGE was established in 2001 in accordance with the proposal approved by the ISSMGE Board serving the 2001-2005 term. The Committee completed three 4-year terms under the leadership of Professor Antonio Gomes Correia as Chairman (2001-2013). Professor Erol Tutumluer is the current Chairman of TC202 serving the two 4-year terms (2013-2021).



Role of TC202 (TG) – TC202 membership –

TC202 Executive Group Members (2017 – 2021 term)

Chair:
Prof. Erol Tutumluer
University of Illinois at Urbana-Champaign, USA

Secretary:
Prof.
Tatsuya Ishikawa
Hokkaido University, Japan

Founding Chair:
Prof. António Gomes Correia
University of Minho, Portugal

Prof. Andreas Loizos
National Technical University of Athens, Greece

Prof. Bernardo Caicedo
Los Andes University, Colombia

Prof. Buddhima Indraratna
University of Technology Sydney, Australia

Prof. Mike Winter
Winter Associates, UK

Prof. Seong-Wan Park
Dankook University, S. Korea

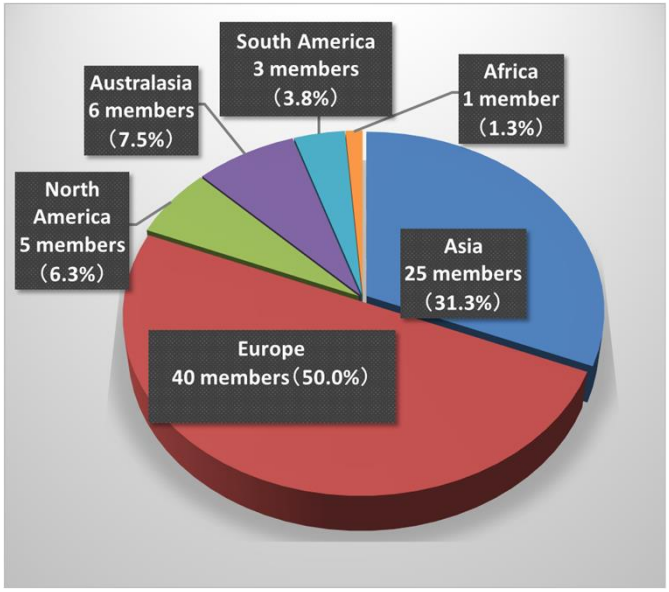
Prof. Soheil Nazarian
The University of Texas at El Paso

Prof. William Powrie
The University of Southampton, UK

Prof. Xuecheng Bian
Zhejiang University, China

Prof. Yu-Jun Cui
Ecole des Ponts ParisTech (ENPC), France

Total: 80 members (30 countries) covering a good majority of ISSMGE member societies



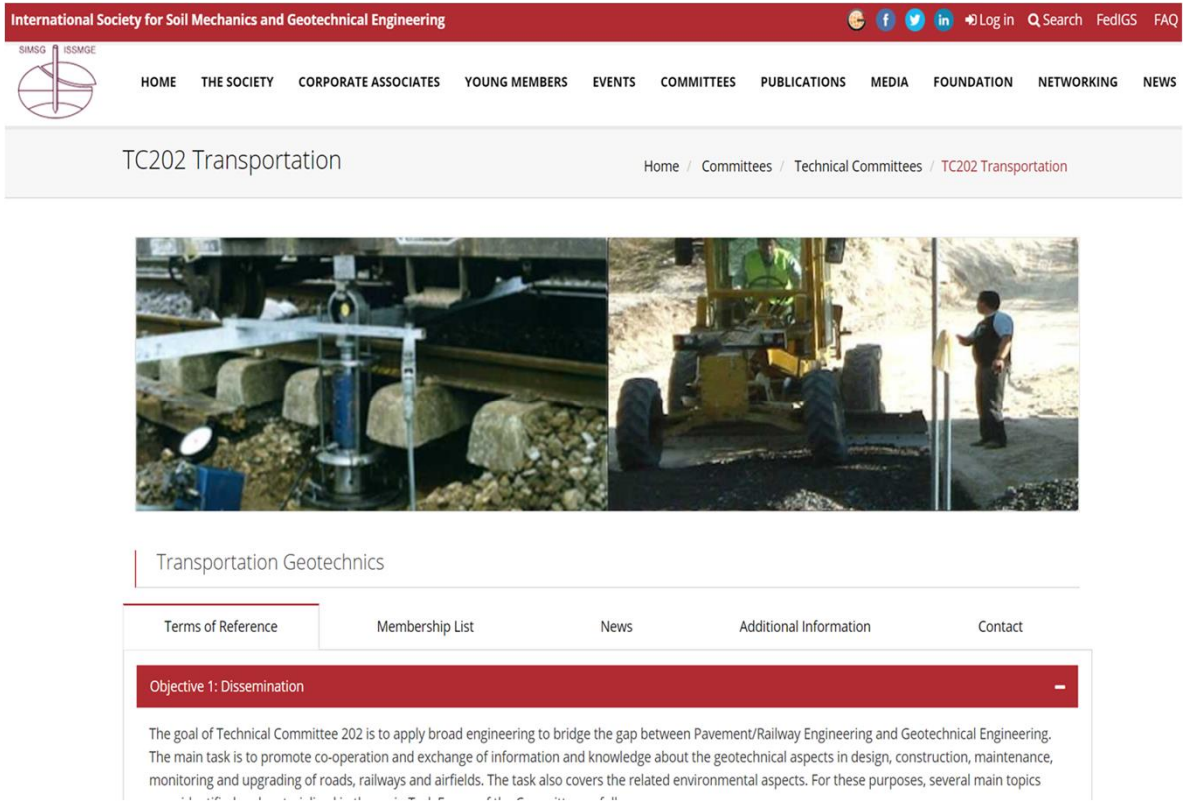
Role of TC202 (TG) – TC202 Terms of Reference –

The goal of Technical Committee (TC) 202 is to apply broad engineering to *bridge the gap between Pavement/Railway Engineering and Geotechnical Engineering*. The main task is to promote co-operation and exchange of information and knowledge about the geotechnical aspects in design, construction, maintenance, monitoring and upgrading of roads, railways, airfields and harbor facilities. The task also covers the related environmental aspects. For these purposes, several main topics were identified and materialized in the main Task Forces of the Committee as follows:

TF 1. Promote of use of nontraditional materials in embankments and structural layers.
TF 2. Stabilization and reinforcement of geomaterials and its implications in pavement and rail track design.
TF 3. Intelligent construction in earthworks, development of guidelines, codes and specifications for effective use of IC technologies in earthworks.
TF 4. Rail track substructures, including transition zones, and transportation geodynamics.
TF 5. Harbor geotechnics.
TF 6. Subsurface sensing for transportation infrastructure condition diagnostics among others.
TF 7. Climatic effects on geomaterial behavior related to mechanics of unsaturated transportation foundations.
TF 8. Organization of ICTG, TC202-hosted Conferences, Workshops, and Webinars.
TF 9. Transportation Geotechnics; Elsevier journal of TC202. Editors-in-Chief: António Gomes Correia; Erol Tutumluer, and Yunmin Chen.
http://www.journals.elsevier.com/transportation-geotechnics/

Role of TC202 (TG) – Information service for TG –

ISSMGE Official Website for TC202



http://www.issmge.org/committees/technical-committees/applications/transportation-

TC202 Original Website

http://www.eng.hokudai.ac.jp/labo/geomech/ISSMGE%20TC202/

Committee Activity (2013-2021)

Detailed List of Activities TC202 2013-2021

1st China-Japan Mini Workshop on High-Speed Railway Geotechnics, Beijing, China, 14-15 Dec. 2015. This mini workshop was supported by ISSMGE TC202.

XV PanAmerican Conference on Soil Mechanics and Geotechnical Engineering, Buenos Aires, Argentina, 15-18 Nov. 2015. Professors Gomes Correia presented a keynote Lecture and Professor Tutumluer presented in invited Panel on "Thinking Outside the Box: Emerging Geotechnical Engineering Theories and their Contribution to Transportation Systems."

XV Asian Regional Conference on Soil Mechanics and Geotechnical Engineering, Fukuoka, Japan, 9-13 Nov. 2015. This conference was supported by ISSMGE TC202. There were two special sessions organized by TC202 members/friends.

2nd International Symposium on Transportation Soil Engineering in Cold Regions, Novosibirsk, Russia, 24-26 Sep. 2015. This symposium was supported by ISSMGE TC202.

XVI European Conference on Soil Mechanics and Geotechnical Engineering, Edinburgh, UK, 13-17 Sep. 2015. A Keynote Lecture was given by Prof. Antonio Gomes Correia on the Geotechnical Engineering for Sustainable Transportation Infrastructure. A Workshop on Railroad Geotechnics was organized by TC202 members/friends.

4th GeoChina International Conference, Shandong, China, 25-27 Jul. 2016. This conference was supported by ISSMGE TC202. A special session was organized by TC202 members/friends.

Inaugural Transportation Research Congress (TRC), Beijing, China, 6-8 Jun. 2016. This conference was supported by ISSMGE TC202. Sessions were organized and contributed by TC202 members/friends.

6th European Geosynthetics Congress, Ljubljana, Slovenia, 25-28 Sep. 2016
This conference is supported by ISSMGE TC202. There will be two specialty sessions on Geosynthetics in Road Construction organized by Professor Erol Tutumluer (http://www.eurogeo6.org/en/)

ISEV & Transportation Geodynamics Conference 2016, Hangzhou, China, October 28-30, 2016
This conference is supported by ISSMGE TC202. There will be keynote lectures delivered by TC202 members/friends (http://isev2016.org/)

Committee Activity (2013-2021)

Detailed List of Activities TC202 2013-2021

10th International Conference on the Bearing Capacity of Roads, Railways and Airfields, Athens, Greece, 28-30 Jun. 2017. This conference is supported by ISSMGE TC202. Special sessions organized by TC202 members/friends (http://www.bcrra2017.com/)

3rd International Symposium on Transportation Soil Engineering in Cold Regions (TRANSOILCOLD2017), Guide, Qinghai, China, July 6-7, 2017. This conference is supported by ISSMGE TC202. Special sessions will be organized by TC202 members/friends (http://transoilcold2017.applinzi.com/)

GeoMEast 2017, Sharm Elsheikh, Egypt, July 15-19, 2017. This conference is supported by ISSMGE TC202. Special sessions will be organized by TC202 members/friends (http://www.geomeast2017.org/)

Advances in Materials and Pavement Performance Prediction, Doha, Qatar, 16-18 Apr. 2018
This conference is supported by ISSMGE TC202. Special sessions will be organized by TC202 members/friends (http://www.am3p.com/)

GeoShanghai International Conference 2018, Shanghai, China, 27-30 May 2018
This conference is supported by ISSMGE TC202. Special sessions will be organized by TC202 members/friends (http://www.geo-shanghai.org/)

International Geotechnical Symposium on Geotechnical Construction of Civil Engineering & Transport Structures of The Asian-Pacific Region, Yuzhno-Sakhalinsk, Russia, 4-7 Jul. 2018. This conference is supported by ISSMGE TC202. Special sessions will be organized by TC202 members/friends (http://gccets.com/)

5th GeoChina International Conference 2018, HangZhou, China, 23-25 Jul. 2018
This conference is supported by ISSMGE TC202. Special sessions will be organized by TC202 members/friends (http://geochina2018.geoconf.org/)

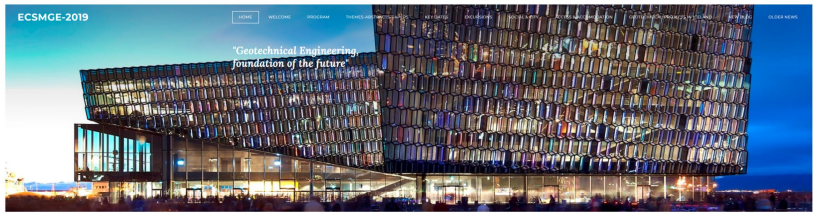
Railways 2018, Barcelona, Spain, 3-7 Sep. 2018
This conference is supported by ISSMGE TC202. Special sessions will be organized by TC202 members/friends (http://www.railwaysconference.com/)

IS-Atlanta 2018 - International Symposium on Geo-Mechanics from Micro to Macro in Research and Practice, Atlanta, Georgia USA, 9-12 Sep. 2018
This symposium is supported by ISSMGE TC202. Special sessions will be organized by TC202 members/friends (http://is-atlanta-2018.ce.gatech.edu/)

8th International Symposium on Environmental Vibration and Transportation Geodynamics & 2nd Young Transportation Geotechnics Engineering Meeting, Changsha, China, 26-28 Oct. 2018
Chaired by Erol Tutumluer, Keynote Lectures will be given by TC202 Executive Group Members, Sessions will be organized by TC202 members/friends (https://www.isev2018.cn/)

Committee Activity (2013-2021)

Highlighted Activities TC202 2013-2021



TC202 Workshop on "NDT Technologies and Innovations in Transportation Geotechnics"

XVII ECSMGE-2019, Reykjavik, Iceland

Sunday, September 1, 2019

Venue: Harpa Concert Hall and Conference Center

Seoul 2017 19th ICSMGE

19th International Conference on Soil Mechanics and Geotechnical Engineering

17 - 22 September 2017 / COEX, Seoul, Korea

Welcome to TC202 Workshop:

"Moisture & Compaction Measurements of Subgrade Soils & Road Infrastructure Materials"

Erol Tutumluer, Chair

University of Illinois at Urbana-Champaign

SIMSG ISSMGE

Technical Committee 202

Transportation Geotechnics

Committee Activity (2013-2021)

Highlighted Activities TC202 2013-2021

ISGTI 2018

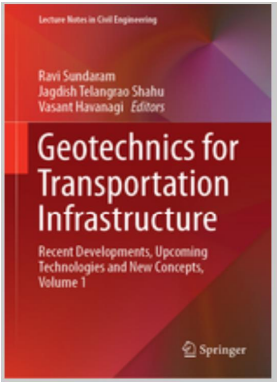
Welcome to ISGTI 2018!

Prof. Erol Tutumluer, Chair

University of Illinois at Urbana-Champaign

Technical Committee 202

Transportation Geotechnics



ISGTI **2018**
Geotechnics for Transportation Infrastructure: Recent Developments, Upcoming Technologies and New Concepts, Volume 1&2
Delhi, India

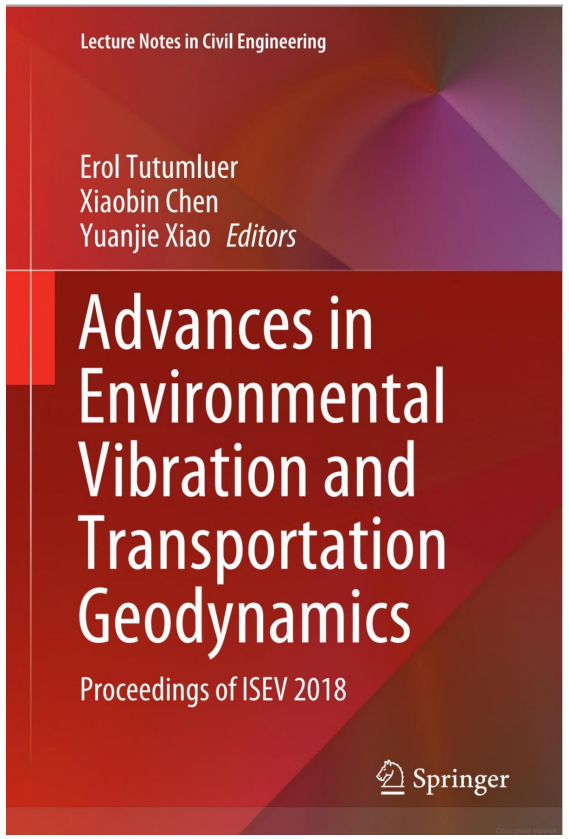
Edited by Ravi Sundaram, Jagdish Shahu, Vasant Havanagi

IICTG **2019**
International Intelligent Construction Technologies Group
Delhi, India

Edited by Ravi Sundaram, Jagdish Shahu, Vasant Havanagi

Committee Activity (2013-2021)

Highlighted Activity/Publication TC202 2013-2021



Survey Summary for TG – Assignments –

Goal of TC202

To apply broad engineering to bridge the gap between Pavement/Railway Engineering and Geotechnical Engineering.

Hot issues for Transportation Geotechnics

a. Use of nontraditional (such as recycled, large-sized or byproduct) materials
b. Longevity of road design life and sustainable construction
c. Intelligent Compaction (IC) applications and earthwork design
d. Reinforcement / Stabilization of geomaterials and its implications in pavement and rail track design
e. Subsurface sensing for transportation infrastructure condition diagnostics

Key findings

- Current ongoing work in applying existing standards to nontraditional materials
- Sustainable practices are not yet widespread. More emphases needed for both achieving longevity in road design and preserving environment in transportation infrastructures
- Gap between SOA and SOP is in the availability of specifications for the use of IC technologies
- Significant gaps between SOA and SOP in the assessment of existing transportation infrastructure (pavement foundation or track substructure layer) condition
- Insufficient knowledge of practitioners about the influences of geotechnical inputs on the pavement and rail track designs

Survey Summary for TG – Solutions –

Potential opportunities to achieve goals

- Develop well-established guidelines, codes and specifications for effective use of geomaterials and IC technologies in transportation infrastructure to formulate complex solutions into simpler workable solutions for practitioners
- Disseminate the SOA in longevity of road design life and sustainable construction practices for pavements and railroad track substructure to practitioners in order to link it to the SOP
- Explain clearly the importance of geotechnical inputs on superior pavement and railway track designs to practitioners
- Develop efficient management tools, including methodologies for the condition rating and performance evaluation of transportation assets, e.g., subsurface sensing for transportation infrastructure condition diagnostics

Path Forward

Continue to promote co-operation and exchange of information and knowledge about the geotechnical aspects in design, construction, maintenance, monitoring and rehabilitation of roads, railways and airfields

- TC 202 organizes discussion sessions and workshops on the latest SOA & SOP related to the above-mentioned potential opportunities to bridge the gaps between SOA & SOP in conferences and symposia sponsored/co-sponsored by TC202. In addition, Proctor Lecture series delivers the SOA and SOP on needed and timely topics to help TC202 to achieve its primary mission or goal.

TC202 Technical Focus

- **PAST :** What are the key developments and milestones in TG?
  - Historical Overview of Road Pavements
  - Historical Overview of Railway Track
  - Historical Overview of Transportation Earthwork
  - Committee Activity – Historical Overview
- **PRESENT :** What are the significant gaps between SOA and SOP in TG?
  - Role of TC202 Transportation Geotechnics (TG)
  - Survey Summary for TG
- **FUTURE :** What will be the future of TG?
  - Researcher Network for Technology Succession
  - Education and Recruitment of Young Researchers & Engineers

Technology Succession – ICTG –

International Conference on Transportation Geotechnics (ICTG)

The Transportation Geotechnics International Conference series began under the auspices of ISSMGE Technical Committee (TC) 3 and was initiated in 2008 at the University of Nottingham, UK, as an international event designed to address the growing requirements of infrastructure for societies. The 2nd International Conference on Transportation Geotechnics (ICTG) took place in Sapporo, Japan in 2012 under the ISSMGE-TC202 that followed the TC3 activities for the period 2009-2013, and the 3rd ICTG was organized in Guimarães, Portugal in September 2016. Following this 3rd successful conference, the 4th ICTG in 2021 continued to promote co-operation and exchange of information and knowledge about the geotechnical aspects and address challenges in design, construction, maintenance, monitoring and upgrading of roads, railways, airfields and harbor facilities and other ground transportation infrastructure with the goal of providing safe, economic, environmental, reliable and sustainable infrastructures.

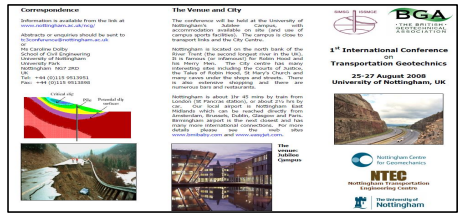
Conference Themes

- Mechanistic-empirical design (road, railways, airfields, waterways and harbor facilities)
- Optimized geomaterial (including hydraulically bound materials and asphalt mixtures) use, reuse and recycling in road embankments and structural layers
- Sustainability in transportation geotechnics
- Harbour geotechnics
- Track Geomechanics
- Airfields and Pavement structures
- Rail track substructures, including transition zones
- Stabilization and reinforcement of geomaterials
- Geosynthetics in transportation applications
- Geotechnics in underground transportation
- Geotechnical-seismic vulnerability of transportation infrastructures
- Subsurface sensing for transportation infrastructure
- Intelligent construction in earthworks technology and management
- Climatic effects on geomaterial behaviour
- Unsaturated subgrade and compacted fills
- Slope stability and risk management
- Transport asset management
- Tunnels, shafts and deep foundations
- Retaining walls for transport corridors
- Case histories and field performance evaluation
- Big data, Machine learning and sensor technology

Technology Succession – ICTG –

International Conference on Transportation Geotechnics (ICTG)

1st ICTG August 25-27, 2008, Nottingham - UK
140 participants from 26 countries registered to the Conference,
and the proceedings containing 100 papers



2nd ICTG September 9-12, 2012, Sapporo - Japan
238 participants from 30 countries registered to the Conference,
and the proceedings containing 140 papers

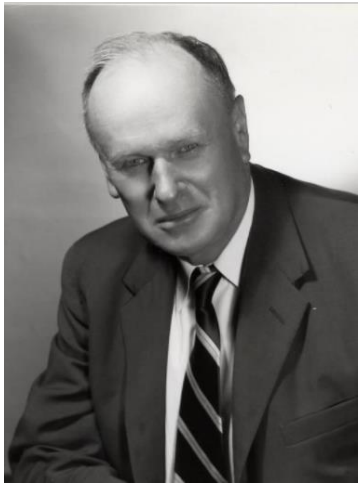
3rd ICTG September 4-7, 2016, Guimarães - Portugal
273 participants from 40 countries registered to the Conference,
and the proceedings containing 182 papers

4th ICTG May 24-27, 2021, Virtual (Chicago, IL) - USA
389 participants from 44 countries registered to the Conference,
and the proceedings containing 233 papers

Technology Succession – Proctor Lecture –

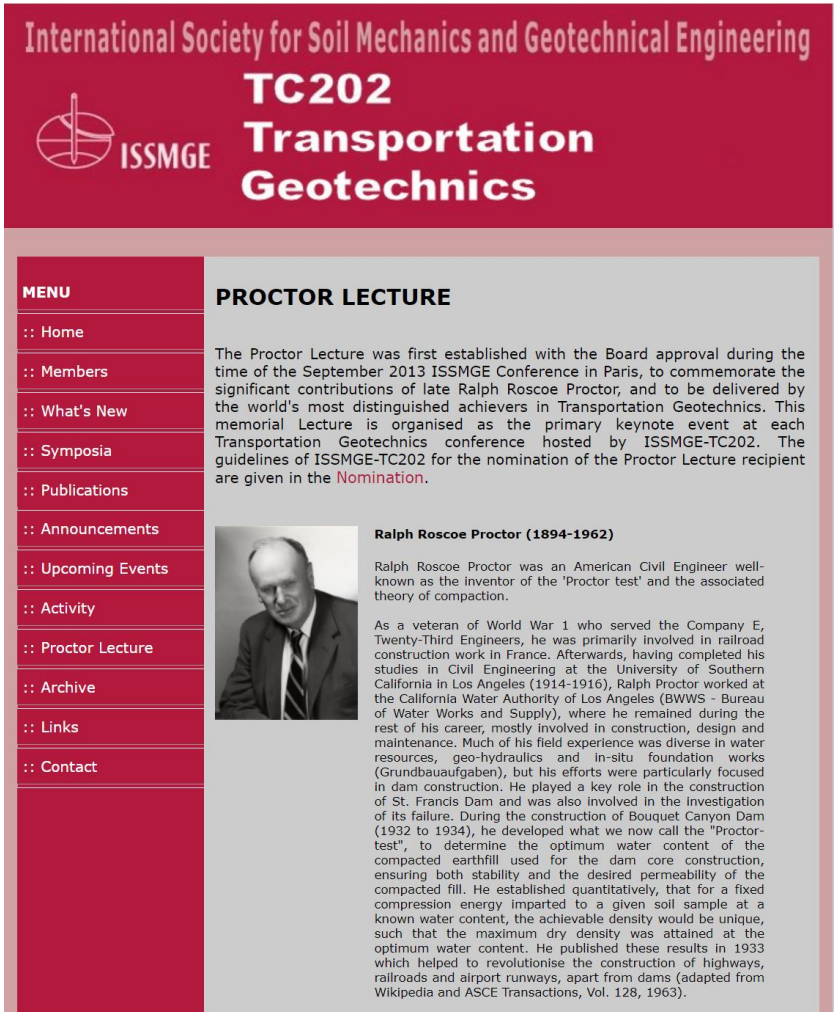
ISSMGE TC202 Honor Lecture : Proctor Lecture

The Proctor Lecture was first established with the Board approval during the time of the September 2013 ISSMGE Conference in Paris, to commemorate the significant contributions of late Ralph Roscoe Proctor, and to be delivered by the world's most distinguished achievers in Transportation Geotechnics. This memorial Lecture is organized as the primary keynote event at each Transportation Geotechnics conference hosted by ISSMGE TC202.



Ralph Roscoe Proctor (1894-1962)

Ralph Roscoe Proctor was an American Civil Engineer well-known as the inventor of the 'Proctor test' and the associated theory of compaction.



Technology Succession – Proctor Lecture –

Proctor Lecture Award Recipients

1st Proctor Lecture Recipient

Prof. Buddhima Indraratna
University of Technology Sydney, Australia

Railroad Performance with Special Reference to Ballast and Substructure Characteristics

3rd ICTG, September 5, 2016, Guimarães, Portugal

2nd Proctor Lecture Recipient

Prof. António Gomes Correia
University of Minho, Portugal

From Fundamentals to Applications in Compaction: Recent Developments in Embankments and Structural Layers of Pavements and Railways

19th ICSMGE, September 18, 2017, Seoul, Korea

3rd Proctor Lecture Recipient

Prof. William Powrie
University of Southampton, UK

"Railway Track Substructure: Recent Research and Future Directions"

4th ICTG, May 25, 2021, Virtual, USA

4th Proctor Lecture Recipient

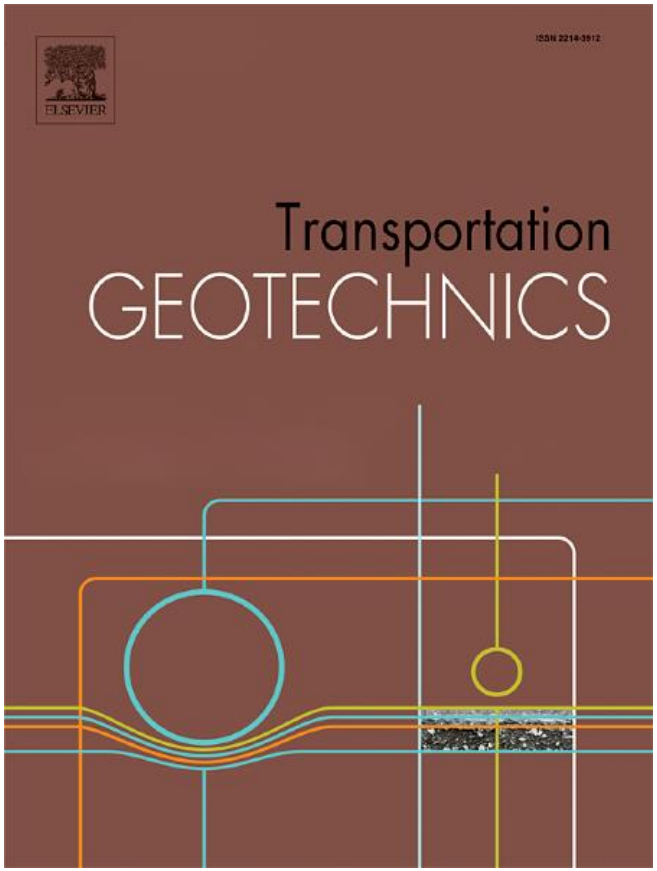
Prof. Soheil Nazarian
The University of Texas at El Paso, El Paso, USA

Building Better Road Foundations by Taking Advantage of Emerging Technologies

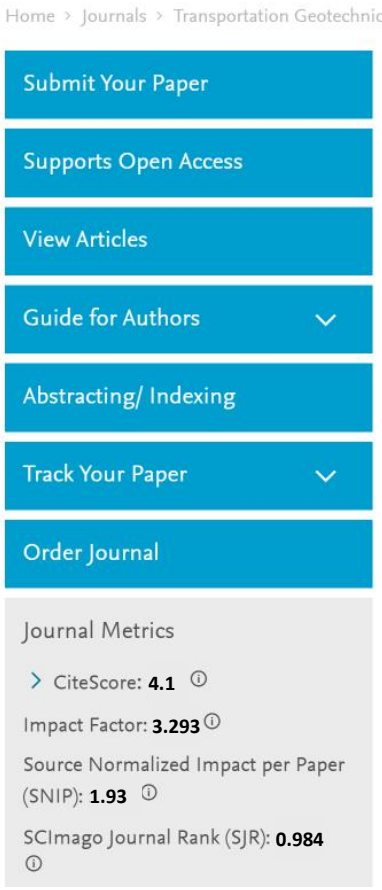
20th ICSMGE, May 4, 2022, Sydney, Australia

Technology Succession – International Journal –

Transportation Geotechnics aims to publish high quality, theoretical and applied papers on all aspects of geotechnics for roads, highways, railways and underground railways, airfields and waterways.



First volume was published in 2014.
Total volume number : 35.



https://www.journals.elsevier.com/transportation-geotechnics

Education for Young Researchers – YTGE –

Young Transportation Geotechnics Engineers (YTGE) Meeting

This meeting series of the Young Transportation Geotechnics Engineers was initiated in 2016 to cover all disciplines in transportation geotechnics (roads, highways, bridges, airports, railways, waterways, canals and terminals-harbors) and serve as a forum for knowledge exchange among young engineers from both academic and industrial backgrounds.

The main goal is to provide a forum to promote and increase the attractiveness of the transportation geotechnics field for younger generations of engineers (less than 35 years old), whilst contributing to strengthen the role of young engineers in society. Latest and most advanced practices in the transportation geotechnics field worldwide are discussed in workshop sessions. The meeting provides an opportunity as an international forum for doctoral and post-doctoral students as well as research and practicing engineers from all over the world involved in innovation in transportation geotechnics to present and discuss their research and practice findings and at the same time identify future research and engineering practice needs.

Education for Young Researchers – YTGE –

Young Transportation Geotechnics Engineers (YTGE) Meeting

1st YTGE September 4, 2016, Guimarães - Portugal

In total 20 contributions were submitted from all over the world (covering 10 different countries) with 38 participants attended from 17 different countries.

2nd YTGE October 26, 2018, Changsha - China

In total 16 presentations were delivered by young transportation geotechnics engineers from all over the world with approximately 40 participants attended.

3rd YTGE May 24, 2021, Virtual - USA

In total 15 presentations were delivered by young transportation geotechnics engineers from all over the world with 30 participants attended.

Zhen Zhang

Chair of the 2nd YTGE

Education for Young Researchers – BSL –

ISSMGE Bright Spark Lectures in Transportation Geotechnics

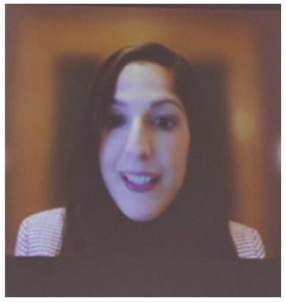
The Bright Spark Lecture Award was created to promote young members of ISSMGE by the President of ISSMGE to play a major role in various international and regional conferences. To exemplify mature research or practice for young engineers, three recipients delivered their Bright Spark Lectures at the International Young Professionals Workshop on Rail-Road Infrastructure Workshop (IYPWRI), Sydney, Australia (hybrid) on November 26, 2021. This International Workshop was organized by the Transportation Research Centre, University of Technology Sydney (UTS), and the Chair was Distinguished Professor Buddhima Indraratna.

Bright Spark Lecture Award Recipient

Dr. Thanh Nguyen
University of Technology Sydney, Australia

Role of drainage in the stability of railway foundation: Site, Laboratory and Analytical Analyses

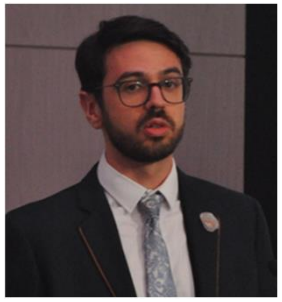
Bright Spark Lecture Award Recipient



Dr. Fernanda Ferreira
University of Porto, Portugal

Application of synthetic inclusions for minimizing track deformation and degradation under high cyclic and impact loads

Bright Spark Lecture Award Recipient



Dr. Manuel Neves
Golder Associates, Australia

Geotechnical challenges of improvements to existing railway assets