

NORDIC GROUTING SYMPOSIUM 2019

SEPTEMBER 2-3, 2019

HELSINKI, FINLAND

WWW.NGS19.FI

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Maanalaisten Tilojen Rakentamisyhdistys
Finnish Tunnelling Association

ORGANIZED BY



ASSOCIATION
INTERNATIONALE DES TUNNELS
ET DE L'ESPACE SOUTERRAIN

AITES

ITA

INTERNATIONAL TUN
AND UNDERGROUND
ASSOCIATION



Suomen Kalliomekaniikkatoimikunta
Finnish National Group of ISRM



ISRM

ENDORSED BY

NORDIC GROUTING SYMPOSIUM 2019

MONDAY, SEPTEMBER 2

▼ 11.30

11.30 REGISTRATION OPENS AND LUNCH

12.30 **Opening session**
Opening by Finnish Tunneling Association

Session chaired by Janne Lehto, Finnish Tunneling Association / Oy Forcit Ab

12.40 **Keynote presentation: Eivind Grøv**

13.10 **Keynote presentation: Jari Heikkilä**

13.40 **Optimization of Grouting Material by the Analytic Hierarchy Process**
Hanna Lehtonen (Pöyry Finland Oy, Finland)

13.55 **An experimental study of 2D radial flow of a yield stress fluid between parallel disks**
John Shamu (KTH, Sweden)

14.10 **Sponsor presentation by Epiroc**
Patrik Ericsson (Epiroc)

14.20 BREAK AND EXHIBITION



EIVIND GRØV



JARI HEIKKILÄ

▼ 16.20

Session chaired by Ilkka Satola, City of Helsinki

16.20 **Characterisation of colloidal silica grout under saline groundwater – Overall results for 3-year research project**
Masakuni Tsuji (Shimizu Corporation, Japan)

16.35 **Identifying jacking and fracturing of soil and rock mass**
Philipp Maroschek (Eguana GmbH, Austria)

16.50 **Automation and digitization of chemical grouting for sealing rock mass**
Sewerin Sabew (Renesco GmbH, Germany)

17.05 **Characterisation of colloidal silica grout under saline groundwater – Penetration theory and injection tests in a fracture test system**
Jari Martikainen (AINS Group, Finland)

17.20 **Digital Documentation- and Data management for Grouting Measures**
Michael Ouschan (Eguana GmbH, Austria), Leopold Winkler (Technical University of Vienna, Austria)

17.35 **A Laboratory Study on grouting in Vibratory Host Rock**
Ali Nejad Ghafar (RISE Research Institutes of Sweden, Sweden)

17.50 **Sponsor presentation by Normet**
Lawrence Halls (Normet)

18.00 **Sponsor presentation by Häny / Semtu / Tradecc**
Elise Corens (Tradecc)

18.10 BREAK AND EXHIBITION

18.30 Bus transportation from the venue to Dinner

19.00 DINNER
Restaurant Kappeli
Address, ETELÄESPLANADI 1, Helsinki

▼ 14.40

Session chaired by Erik Johansson, AINS Group

14.40 **Characterization of effective transmissivity for cement grout flow in rock fractures**
Liangchao Zou (KTH, Sweden)

14.55 **Hydraulic Jacking and Pressure Distribution During Rock Mass Grouting With Cement Based Grouts**
Martin Hovda Haugsand (COWI, Norway)

15.10 **Rock excavation cycle and its effect on grouting**
Johan Funehag (Luleå University of Technology, Sweden)

15.25 **Physical Modeling of Grout Spreading in Discrete Fractured Rocks**
Masoud Torkan (Aalto University, Finland)

15.40 **Sponsor presentation by Mapei**
Davide Michelis (Mapei)

15.50 COFFEE AND EXHIBITION

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TUESDAY, SEPTEMBER 3

▼ 8.30

Session chaired by Pekka Särkkä, Concave Oy

- 8.30 **Keynote presentation: Thomas Dalmalm**
- 9.00 **Invited Lecture: Minimal flow criterion for RTGC**
Mohamed El Tani (Rockgro, Lebanon)
- 9.30 **Physical Properties of Polymer-Based Emulsion: A Unique Flexible Grout Used for Water-Sealing**
William Goodman (Sovereign Hydro, Australia)
- 9.45 **Leaky rock bolt hole, investigation of cause and development of measures to minimize its occurrence**
Hossein Khodaverdian (Abeis Konsult AB, Sweden)
- 10.00 **Analysis and Application of Laboratory and Field Data to Improve Rock Mass Grouting**
Martin Hovda Haugsand (COWI, Norway)
- 10.15 **Strategies for designing a prognosis of grouting classes**
Magnus Zetterlund (Norconsult AB, Sweden),
Sara Kvartsberg (Norconsult AB, Sweden)
- 10.30 **Grouting Strategy: Experiences, Principles & Suggestions Towards Increasing Grouting's Efficiency**
Ioannis Konstantas (Kalliosuunnittelu Oy Rockplan Ltd, Finland)
- 10.45 **Sponsor presentation by Sandvik**
Ari Laitinen (Sandvik)

10.55 COFFEE AND EXHIBITION



THOMAS DALMALM

▼ 11.25

Session chaired by Visa Myllymäki, YIT Finland Ltd.

- 11.25 **Pre-grouting in a TBM bored tunnel - experience from the Follo Line Railway Project**
Anne Kathrine Kalager (BANE Nor, Norway)
- 11.40 **Pre-grouting of large rock caverns in the Oslo Field**
Kristine Sæthern (NGI, Norway)
- 11.55 **Post-grouting in aggressive environment: case Ring Rail Line**
Klaus Einsalo, Pöyry Finland Oy, Finland
- 12.10 **Sponsor presentation by Sovereign**
William Goodman (Sovereign Hydro, Australia)
- 12.20 **Sponsor presentation by Eguana**
Philipp Maroschek (Eguana GmbH, Austria)
- 12.30 **Post-grouting in Suomenlinna maintenance tunnel**
Klaus Einsalo (Pöyry Finland Oy, Finland)
- Closing words and announcement of NGS 2022
- 13.00 LUNCH**
- 13.45 EXCURSION TO SUOMENLINNA TUNNEL**
Sponsored by YIT
- 17.45 END OF EXCURSION AT AIRPORT**

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