



## KTH Civil and Architectural Engineering - Soil and Rock Mechanics



**Stefan Larsson**

**Professor**

**Born: 1968**

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I have 35 years of experience as civil engineering contractor, consultant and scholar in the construction sector, and thus involved in many infrastructure projects and research. Since 2010, I am a Full Professor in Geotechnology and Head of the Division Soil- and Rock Mechanics at KTH. Before that, I had a shared position as Associate professor and as Technical Manager of the Foundation Region at Skanska Sweden AB. I have also worked as a consultant for 10 years at Tyréns as specialist and researcher. My research interests are mainly related to ground improvement methods, risk and reliability analysis for design and construction in soil and rock, and more recently discrete element modelling of railway embankments, artificial intelligence and LCC/LCCA for geotechnical constructions. The division works on a wide front and has many funders such as the Swedish Transportation Administration, SBUF - the construction industry's organisation for research and development, BeFo - Rock Engineering Research Foundation, SVC- Swedish Hydropower Centre, SKB - Swedish Nuclear Fuel and Waste Management Co, The Swedish Research Council Formas and several consultant and contractor companies. I have been supervisor for 20 degreeed PhD- and Licentiate students. I have also been supervisor and examiner for 130 MSc thesis works, responsible for several courses at undergraduate, graduate och doctoral level. I am presently Deputy Director of Third Cycle Education at the School of Architecture and the Built Environment (ABE) and Head of the Doctoral Program in Civil and Architectural Engineering.

### CURRENT POSITIONS

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2010 - present Professor in Geotechnology and Head of the Division Soil- and Rock Mechanics, the Department of Civil and Architectural Engineering, School of Architecture and the Built Environment, KTH Royal Institute of Technology, Stockholm.

### EDUCATION

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2007 Docent in Geotechnical Engineering, KTH Royal Institute of Technology, Stockholm  
2003 PhD in Soil and Rock Mechanics, KTH Royal Institute of Technology, Stockholm.  
1994 MSc in Civil Engineering, KTH Royal Institute of Technology, Stockholm.  
1988 High school engineer in Civil Engineering, Wenströmska skolan, Västerås.

### PREVIOUS EMPLOYMENTS

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2008 - 2010 Technical manager at Skanska Foundation Region, Solna, Sweden (half-time).  
2005 - 2007 Lecturer (half-time) at the Division of Soil- and Rock Mechanics.  
2005 Paternity leave for 6 months

- 2003 Paternity leave for 6 months
- 1997 - 2008 Geotechnical consultant. Industrial PhD-student (half time, 1997-2003). Tyréns AB, Stockholm (leave of absence half-time 2005-2008)
- 1996 - 1997 PhD-student at the Division of Soil- and Rock Mechanics, KTH, Stockholm
- 1990 - 1996 Project engineer, Tender engineer, Site manager. Siab Civil Engineering (Siab Anläggning), Västerås (partly leave of absence for studies 1990-1994).
- 1990 - 1994 MSc-student at KTH, Stockholm
- 1989 - 1990 Military service. Specialist, explosive ordnance disposal. The Engineering Troops.
- 1988 - 1991 Technical project engineer. NPL Civil Engineering (NPL-Bygg), Västerås (leave of absence for military service 1989-1990).

#### COMMISSIONS OF TRUST

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- 2023 - Deputy Director of Third Cycle Education at the School of Architecture and the Built Environment (ABE) .
- 2023 - Member of the editorial board for Underground Space.
- 2022 - Group leader of the Theme group Geotechnology, Swedish Universities of the Built Environment (SBU), <https://www.sverigesbygguniversitet.se/en/>
- 2018 - 2023 Director of the PhD education program Civil and Architectural Engineering at The School of Architecture and the Built Environment at KTH.
- 2016 - 2022 Board member, Swedish Hydropower Center (SVC), <http://www.svc.nu>
- 2015 - 2020 Member of the editorial board for ICE – Geotechnical Engineering.
- 2014 - Board member, Better Interaction in Geotechnics (BIG), The Swedish Transport Administration research fund for geotechnical engineering, <http://www.big-geo.se/>
- 2014 - 2015 Pedagogical developer for The School of Architecture and the Built Environment.
- 2011 - 2013 Appointments Committee ABE, Deputie member.
- 2010 - 2022 Member of the Theme group Geotechnology, Swedish Universities of the Built Environment (SBU), <https://www.sverigesbygguniversitet.se/en/>
- 2010 - Teacher representative at docent lectures, external expert for professorships at Chalmers, City Univ Hong Kong, NTNU and member of the grading board or opponent at dissertations at Aalto, Chalmers, LTU, KTH, Cambridge and Delft.
- 2009 - 2010 Commission for implement of European Geotechnical Standards (IEG)- representative in NSG- Network Swedish Foundation.
- 2008 - 2010 Board member, Swedish Society of Engineering Geology (BGS).
- 2006 - 2008 Adjunct member of SIS/TK25 Geotechnical Engineering.
- 2005 - 2011 Board member, Commission for implement of European Geotechnical Standards (IEG), <http://www.ieg.nu/>
- 2001 - 2004 Convener of the Swedish Mirror Group, CEN TC 288 - EFFC Working Group 10, Deep Soil Mixing.
- 2000 - 2012 Secretary, 2000-2004, Board member 2004-2010, Chairman 2010-2012, Swedish Geotechnical Society, Committee - Ground Improvement. <http://www.sgf.net/>

#### AWARDS AND RECOGNITION

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- 2018 The Laurits Bjerrum Lecture from NGI in Oslo Norway
- 2008 Elected into the Don-order by the board of the student organisation of the School of Architecture and the Built Environment. (Samhällsbyggnadssektionen).
- 2006 Awarded the teacher of the year by the students at the Civil Engineering program (Samhällsbyggnadssektionen) at KTH.

#### TEACHING AT PRESENT

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- Geoscience and Geotechnical Engineering AL1302 (Year 2).

- Degree Project in Built Environment, First Cycle, AF102X. (Year 3).
- Soil Mechanics and Foundation Engineering, AF1601 (Year 3).
- Foundation Engineering, AF2609 (Year 4).
- Geotechnical Engineering, Advanced Course, AF2611 (Year 5).
- Degree Project in Soil and Rock Mechanics, Second Cycle, AF263X. (Year 5).
- Research within Civil and Architectural Engineering, AF3008 (Mandatory course in the PhD program).
- Soil Mechanics FAF3604 (PhD course in the specialisation Soil- and Rock Mechanics).
- Project in Soil and Rock Mechanics FAF3608 (PhD course)

Total number of supervised MSc thesis students: 130.

#### SUPERVISOR FOR DOCTORAL STUDENTS

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| 2023 | - present | NN (not yet appointed). Developed soil compaction control for future quality assurance  |
| 2022 | - present | Chiara Cannizzaro. Piling in soil with high boulder content: systematic study of pile refusal in different soil type. Assistant supervisor.   |
| 2020 | - present | Alireza Ahmadi. Design of transition zones for high-speed railway with fixed track.   |
| 2018 | - present | Ida Samuelsson. Development of LCA and LCCA for geotechnical structures.  |
| 2017 | - 2022    | Francisco Rios Bayona. Method for determination of large-scale shear strength for natural rock fractures. Assistant supervisor.   |
| 2017 | - 2022    | Davi Rodrigues Damasceno. Possibilities and challenges related to underground storage of hydrogen in hard rock. Assistant supervisor.   |
| 2019 | - 2022    | Editha Ehrmantraut. Increased productivity for deep foundations using acoustic methods.   |
| 2016 | - 2021    | Tafadzwa John Shamu. Rheology of cement grouts determined by ultrasound.  |
| 2019 | - 2021    | Mats Tidlund. Industrial PhD student at Skanska Sverige AB, Solna. Geotechnical risk management using the observational method.   |
| 2014 | - 2020    | William Bjureland. Reliability-based design of rock tunnel support.   |
| 2013 | - 2020    | Ricardo de Frias Lopez. DEM Modelling of unbound granular materials for transport Infrastructures. Assistant supervisor.  |
| 2013 | - 2019    | Anders Prästings. Managing uncertainties in geotechnical parameters: From the perspective of Eurocode 7.  |
| 2012 | - 2018    | Ali Ghafar. An experimental study to Measure grout penetrability, improve the grout spread, and evaluate the Real Time Grouting Control theory.                                       |
| 2012 | - 2018    | Razvan Ignat. Industrial PhD student at Skanska Sverige AB, Solna. Ground Improvement by Dry deep mixing lime-cement column panels as Excavation Support.                             |
| 2012 | - 2016    | Alexandra Krounis Guerrero. Sliding stability re-assessment of concrete dams with bonded concrete-rock interfaces.  |
| 2012 | - 2016    | Johan Spross. Toward a reliability framework for the observational method.  |
| 2011 | - 2016    | Carl Wersäll. Frequency optimization of vibratory rollers and plates for compaction of granular soil.   |
| 2012 | - 2015    | Mwajuma Ibrahim Lingwand. In collaboration with University of Dar es Salaam. In-situ penetration as alternative to extensive boreholes and lab testing for exploration in sandy soil. |
| 2011 | - 2015    | Md. Mashuqur Rahman. Rheology of cement grout : Ultrasound based in-line measurement technique and grouting design parameters.  |
| 2011 | - 2015    | Jalaleddin Yaghoobi Rafi. Study of pumping pressure and stop criteria in grouting of rock fractures.  |
| 2013 | - 2014    | Pin Zhou. Elastic behavior of the jointed rock mass with respect to the scale effect.   |
| 2009 | - 2014    | Niclas Bergman. Aspects of probabilistic serviceability limit state design of deep mixing columns.  |

- 2008 - 2013 Rasmus Müller. Industrial PhD student at Tyréns AB, Borlänge. Probabilistic stability analysis of embankments founded on clay.
- 2008 - 2012 Mohammed Al-Naqshabandy. Reliability-based ultimate limit state design of lime-cement columns.

#### SELECTED RECENT RESEARCH PROJECTS

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Discreet element modelling of transition zones between embankment-bridge embankments. The Swedish Transportation Administration.

Improved decision-making for sustainable and cost-efficient underground construction: Risk-based optimization in modelling geological properties. Swedish Research Council for Sustainable Development.

Uncertainty models for geotechnical constructions. The Swedish Transportation Administration (BIG) and Sven Tyréns Foundation.

Modeling of soil-, rock- and ground water levels with artificial intelligence. The Swedish Transportation Administration (BIG), The Rock Engineering Research Foundation (BeFO) and Sven Tyréns Foundation.

Development of LCC and LCCA for geotechnical engineering. The Swedish Transportation Administration (BIG) and Sven Tyréns Foundation.

Large scale underground hydrogen storage. Part of the HYBRIT project that is funded by Swedish Energy Agency, SSAB, LKAB and Vattenfall.

Development of methodologies for rational and fast evaluations of geotechnical investigations. Swedish Research Council for Sustainable Development and Sven Tyréns Foundation.

Observational method and reliability analysis tools to understand rock mass behavior. Swedish Research Council for Sustainable Development, Rock Engineering Research Foundation (BeFo) and Swedish Hydropower Centre (SVC).

Design of rock support according to Eurocode using reliability-based design methods. The Construction Industry's Organisation for Research and Development (SBUF), Rock Engineering Research Foundation (BeFo), Swedish Nuclear Fuel and Waste Management Co (SKB), Swedish Hydropower Centre (SVC) and Besab.

#### SELECTED LARGER PROJECTS AS CONTRACTOR OR CONSULTANT

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I have more than 20 years of experience (1988-2010) as civil engineering contractor and consultant in the construction sector, and thus involved in many infrastructure projects in different stages. Some of the larger projects are listed below.

- 2009 - 2010 E45 - European Road 45, Bohus-Nödinge, National Transport Administration, Technical specialist.
- 2009 - 2010 NLS2, Northen Link Stockholm, National Road Administration, Technical specialist.
- 2006 - 2008 Ådalsbanan Railroad Line, National Railroad Administration, Technical specialist.
- 2004 - 2005 Bergsslagen Railroad Line, National Railroad Administration, Geotechnical handing engineer and Design engineer.
- 2001 - 2005 Brista Fuel Station, Fortum, Geotechnical handing engineer and Design engineer.
- 2001 - 2004 European Road 18, Hjulsta – Kista, National Road Administration, Geotechnical design engineer.
- 2001 European Road 20, Härad-Järsta, National Road Administration, Geotechnical design engineer.
- 1999 - 2001 Botnia Rail Link, National Railroad Administration, Geotechnical design engineer.
- 1998 - 2001 Road 73, Nynäshamn, National Road Administration, Geotechnical design engineer.

Listed below is more than 150 publications in international scientific journals, conference proceedings, and in national branch journals. Of these, 66 papers are published mainly in Geotechnical Engineering, Rock Engineering, and in Engineering Geology scientific journals. Current H-index is 26 according to Google Scholar.

**International scientific journal papers peer review**

1. Hov, S. and Larsson, S. (2023) Strength and stiffness properties of laboratory-improved soft Swedish clays. *International Journal of Geosynthetics and Ground Engineering* 9:11.
2. Ahmadi, A., Larsson, S. and Wersäll, C. (2023) Scaling granular material with polygonal particles in discrete element modeling. *Particuology* 75: 151-164.
3. Ghaderi, A., Shahri, A.A. and Larsson, S. (2022) A visualized hybrid intelligent model to delineate Swedish fine-grained soil layers using clay sensitivity. *Catena* 214: 106289.
4. Abbaszadeh Shahri, A., Shan, C. and Larsson, S. (2022) A Novel Approach to Uncertainty Quantification in Groundwater Table Modeling by Automated Predictive Deep Learning. *Natural Resources Research* 31, pages1351–1373.
5. Tidlund, M., Spross, J. and Larsson, S. Observational Method as Risk Management Tool: the Hvalfjörður Tunnel Project, Iceland. *Georisk: Assessment and Management of Risk for Engineered Systems and Geohazards. Latest Articles*.
6. Draganović, A., Karamanoukian, A., Ulriksen, P. and Larsson, S. (2022) Ultrasonic dispersion of hard dispersed ultrafine milled cement-based grout for water sealing of fractured hard rock. *Construction and Building Materials* 317 (January 2022): 125869.
7. Abbaszadeh Shahri, A., Shan, C., Zäll, E. and Larsson, S. (2021) Spatial distribution modeling of subsurface bedrock using a developed automated intelligence deep learning procedure: A case study in Sweden. *Journal of Rock Mechanics and Geotechnical Engineering* 13(6): 1300-1310.
8. De Frias Lopes, R., Larsson, S. and Silfwerbrand, J. A. (2021) Discrete element modelling of rockfill railway embankments. *Granular Matter* 23:58.
9. Hov, S., Prättings, A., Persson, E. and Larsson S. (2021) On empirical correlations for normalised shear strengths from fall cone and direct simple shear tests in soft Swedish clays. *Geotechnical and Geological Engineering* 39: 4843–4854.
10. Spross, J., Bergman, N. and Larsson, S. (2021) Reliability-based verification of serviceability limit states of dry deep mixing columns. *ASCE Journal of Geotechnical and Geoenvironmental Engineering* 147(3): 04020183.
11. Spross, J. and Larsson, S. (2021) Probabilistic observational method for design of surcharges on vertical drains. *Geotechnique* 71(3): 226–238.
12. Draganović A., Karamanoukian A., Ulriksen P. and Larsson S. (2020) Dispersion of microfine cement grout with ultrasound and conventional laboratory dissolvers. *Construction and Building Materials* 251(10): 119068.
13. Abbaszadeh Shahri, A., Larsson, S. and Renkel, C. (2020) Artificial intelligence models to generate visualize bed rock level- A case study in Sweden. *Modeling Earth Systems and Environment* 6: 1509–1528.
14. Bjureland, W., Johansson, F., Spross, J., Larsson S. (2020) Influence on spatially varying thickness on load-bearing capacity of shotcrete. *Tunnelling and Underground Space Technology* 98: 103336.
15. Wang, D., Wang, H., Larsson, S., Benzerzour, M., Maherzi, W. and Amar, M. (2020) Effect of basalt fiber inclusion on the mechanical properties and microstructure of cemented clay. *Construction and Building Materials* 241: 118085.
16. Ignat, R., Baker, S., Karstunen, M., Liedberg, S. and Larsson, S. (2020) Numerical analyses of an experimental full scale excavation supported by panels of lime-cement columns. *Computers and Geotechnics* 118: 103296.
17. Wersäll, C., Nordfelt, I. and Larsson, S. (2020) Roller compaction of rock-fill with automatic frequency control. *ICE - Geotechnical Engineering* 173(4): 339-347.
18. Wang, D., Gao, X., Wang, R., Larsson, S. and Benzerzour, M. (2020) Elevated curing temperature-associated strength and mechanisms of reactive MgO-activated industrial by-products solidified soils. *Marine Georesources & Geotechnology* 38:6: 659-671.

19. Abbaszadeh Shahri, A., Spross, J., Johansson F. and Larsson, S. (2019) Landslide susceptibility hazard map in southwest Sweden using artificial neural network. *Catena* 183: 104225.
20. De Frias Lopes, R., Larsson, S. and Silfwerbrand, J. (2019) A discrete element material model including particle degradation suitable for rockfill embankments. *Computers and Geotechnics* 115: 103166.
21. Ignat, R., Baker, S., Holmén, M. and Larsson, S. (2019) Triaxial Extension and Tension behavior of lime-cement improved clay. *Soils and Foundations* 59(5): 1399-1416.
22. Bjureland, W., Johansson, F., Sjölander, A., Spross, J. and Larsson, S. (2019) Probability distributions of shotcrete parameters for reliability-based analyses of rock tunnel support. *Tunneling and Underground Space Technology* 87: 15-26.
23. Prästings, A., Spross, J. and Larsson, S. (2019) Characteristic values of geotechnical parameters in Eurocode 7. *ICE – Geotechnical Engineering* 172(4): 301–311. Most downloaded paper in the journal 2019.
24. Ghaderi, A., Abbaszadeh Shahri, A. and Larsson, S. (2019) An artificial neural network based model to predict spatial soil type distribution using piezocone penetration test data (CPTu). *Bulletin of Engineering Geology and the Environment* 78: 4579–4588.
25. Wonglert, A., Jongpradist, P., Jamsawang, P. and Larsson, S. (2018) Bearing capacity and failure behaviors of floating stiffened deep cement mixing columns under axial load. *Soils and Foundations* 58(2): 446-461.
26. Wersäll, C., Nordfelt, I. and Larsson, S. (2018) Resonant roller compaction of gravel in full-scale tests. *Transportation Geotechnics* 14: 93–97.
27. Nejad G, A., Ali Akbar, S., Al-Naddaf, M., Draganovic, A. and Larsson, S. (2018) Uncertainties in Grout Penetrability Measurements; Evaluation and Comparison of Filter pump, Penetrability meter and Short slot. *Geotechnical and Geological Engineering* 36(2): 747–762.
28. Bjureland, W., Spross, J., Johansson, F., Prästings, A. and Larsson, S. (2017) Reliability aspects of rock tunnel design with the observational method. *International Journal of Rock Mechanics and Mining Sciences* 98: 102-110.
29. Prästings, A., Müller, R., Larsson, S., Spross, J., Bjureland, W and Johansson, F. (2017) Implementing the extended multivariate approach in design with partial factors for a retaining wall in clay. *ASCE-ASME Journal of Risk and Uncertainty in Engineering Systems, Part A: Civil Engineering*, 3(4): 04017015.
30. Ghafar, A.N., Sadrizadeh, S., Magakis, K., Draganovic, A. and Larsson, S. (2017) Varying Aperture Long Slot (VALS), a method for studying grout penetrability into fractured hard rock. *Geotechnical Testing Journal* 40(5): 871-882.
31. Krounis, A., Johansson, F., Spross, J. and Larsson, S. (2017) Influence of cohesive strength in probabilistic sliding stability reassessment of concrete dams. *ASCE Journal of Geotechnical and Geoenvironmental Engineering* 143(2): 04016094-1.
32. Wersäll, C., Nordfelt, I. and Larsson, S. (2017) Soil compaction by vibratory roller with variable frequency. *Géotechnique* 67(3): 272-278.
33. Lingwanda, M., Prästings, A., Nyaoro, D. and Larsson, S. (2017) Comparison of geotechnical uncertainties linked to different soil characterization methods. *Geomechanics and Geoengineering* 12(2): 137-151.
34. Place, J., Ghafar, A.N., Malehmir, A., Draganovic, A. and Larsson, S. (2016) On using the thin fluid layer approach at ultrasonic frequencies for characterising grout propagation in an artificial fracture. *International Journal of Rock Mechanics and Mining Science* 89: 68-74.
35. Ignat, R., Baker, S., Liedberg, S. and Larsson, S. (2016) Behavior of braced excavation supported by panels of deep mixing columns. *Canadian Geotechnical Journal* 53(10): 1671-1687.
36. Abbaszadeh Shahri, A., Larsson, S. and Johansson, F. (2016) Updated relations for the uniaxial compressive strength of marlstones based on P-wave velocity and point load index test. *Innovative Infrastructure Solutions* 1:17.
37. Ghafar, A.N., Mentesisidis, A., Draganovic, A. och Larsson, S. (2016) An experimental approach to the development of dynamic pressure to improve grout spread. *Rock Mechanics and Rock Engineering* 49(9): 3709–3721.
38. Krounis, A., Johansson, F. and Larsson, S. (2016) Shear strength of partially bonded concrete-rock interfaces for application in dam stability analyses. *Rock Mechanics and Rock Engineering* 49(7): 2711–2722.
39. Prästings, A., Müller, R. and Larsson, S. (2016) Multivariate approach in reliability-based design of a sheet pile wall. *Transportation Geotechnics* 7: 1-12.

40. Müller, R., Larsson, S. and Spross, J. (2016) Multivariate stability assessment during a staged construction. *Canadian Geotechnical Journal* 53(4): 603-618.
41. Palmén, A., Price, G., Axelsson, M. and Larsson, S. (2016) A laboratory study on low temperature calcite preparation in well graded sand using CIPS. *ICE - Ground Improvement* 169(1): 36-41.
42. Krounis Guerrero, A., Johansson F. and Larsson, S. (2015) Effects on dam sliding stability from spatial variation in cohesion over the concrete-rock interface. *Rock Mechanics and Geotechnical Engineering* 7(6): 659-667.
43. Lingwanda, M., Larsson, S. and Nyaoro, D. (2015). Correlations of SPT, CPT and DPL data for a sandy soil in Tanzania. *Geotechnical and Geological Engineering* 33(5): 1221-1233.
44. Larsson, S. and Bergman, N. (2015). Probabilistic design of dry deep mixing using an observational approach. *ICE – Ground Improvement* 168(4): 300-311.
45. Westerberg, B., Müller, R. and Larsson, S. (2015) Evaluation of undrained shear strength of Swedish fine-grained sulphide soils. *Engineering Geology* 188: 77-87.
46. Ignat, R., Baker, S., Larsson, S. and Liedberg, S. (2015) Two- and three-dimensional analyses of excavation support with rows of dry deep mixing columns. *Computers and Geotechnics* 66: 16-30.
47. Wersäll, C., Larsson, S., Rydén, N. and Nordfelt, I. (2015) Frequency Variable Surface Compaction of Sand Using Rotating Mass Oscillators. *ASTM Geotechnical Testing Journal* 38(2):1-10.
48. Larsson, S., Åhnberg, H., Ignat, R., and Baker, S. (2015). "Discussion of "Numerical Modeling of Geotextile-Reinforced Embankments over Deep Cement Mixed Columns Incorporating Strain-Softening Behavior of Columns" by N. N. S. Yapage, D. S. Liyanapathirana, H. G. Poulos, R. B. Kelly, and C. J. Leo." *International Journal of Geomechanics* 15(4), 07014008.
49. Prästings, A., Müller, R. and Larsson S. (2014) The observational method applied to a high embankment founded on sulphide clay. *Engineering Geology* 181: 112-123.
50. Spross, J. and Larsson, S. (2014) On the observational method for groundwater control in the Northern Link tunnel project. *Bulletin of the Engineering Geology and the Environment* 73(2): 401-408.
51. Müller, R., Larsson S. and Spross, J. (2014) Extended multivariate approach for uncertainty reduction in the assessment of undrained shear strength in clays. *Canadian Geotechnical Journal* 51(3): 231-245.
52. Spross, J. Johansson, F. and Larsson, S. (2014) The use of pore pressure measurements in reassessments of concrete dams founded on rock. *Georisk* 8(2): 117-128.
53. Bergman, N. and Larsson, S. (2014) Comparing column penetration and total-sounding data for lime-cement columns. *ICE – Ground Improvement* 167(4): 249-259.
54. Wersäll, C. and Larsson, S. (2013). Small-Scale Testing of Frequency-Dependent Compaction of Sand using Vertically Vibrating Plate. *ASTM Geotechnical Testing Journal* 36(3): 394-403.
55. Al-Naqshabandy, M. and Larsson, S. (2013) Effects of uncertainties of improved soil shear strength on the reliability of embankments. *ASCE Journal of Geotechnical and Geoenvironmental Engineering* 139(4): 619-632.
56. Bergman, N. Al-Naqshabandy, M. and Larsson, S. (2013). Variability of strength and deformation properties in lime-cement columns evaluated from CPT and KPS measurements. *Georisk*: 7(1): 21-36.
57. Müller, R., Larsson, S. and Westerberg, B. (2013) Stability of a high embankment founded on sulphide clay. *ICE - Geotechnical Engineering* 166(1): 31-48.
58. Larsson, S., Malm, R., Charbit, B. and Ansell, A. (2012). Finite element modelling of laterally loaded lime-cement columns using a damage plasticity model. *Computers and Geotechnics* 44: 48-57.
59. Müller, R., Larsson, S. (2012). Hydraulic conductivity and coefficient of consolidation of two sulphide clays in Sweden. *Geotechnical and Geological Engineering* 30(1): 173-186.
60. Al-Naqshabandy, M., Bergman N. and Larsson, S. (2012) Strength variability in lime-cement columns based on CPT data. *ICE - Ground Improvement* 165(1): 1-15.
61. Larsson, S., Rothhämel, M. and Jacks, G. (2009) A laboratory study on strength loss in kaolin surrounding lime-cement columns. *Applied Clay Science* 44(1-2): 116-126.
62. Larsson, S., Dahlström, M. and Nilsson, B. (2005) A complementary field test on the uniformity of lime-cement columns. *Ground Improvement* 9(2): 67-77.
63. Larsson, S., Stille, H. and Olsson, L. (2005) On horizontal variability in lime-cement columns in deep mixing. *Géotechnique* 55(1): 33-44.

64. Larsson, S., Dahlström, M. and Nilsson, B. (2005) Uniformity of lime-cement columns for deep mixing: a field study. *Ground Improvement* 9(1): 1-15.
65. Larsson, S. (2001) Binder distribution in lime-cement columns. *Ground Improvement* 5(3): 111-122.

#### Conference papers

1. Cannizzaro, C., Beijer-Lundberg, A., Larsson, S. and Spross, J. (2023) Pile drivability assessment in soil with high boulder content. Swedish Foundation Engineering Day 2023. Swedish Geotechnical Society.
2. Spross, J., Hintze, S. and Larsson, S. (2022) Optimization of LCC for soil improvement using Bayesian statistical decision theory. Proceedings of the 8th International Symposium on Reliability Engineering and Risk Management, Hannover, Germany.
3. Samuelsson, I., Spross, J. and Larsson, S. (2022) Assessment of climate impact and costs comparing two railway embankment fill methods. 5<sup>th</sup> International Conference on New Developments in Soil Mechanics and Geotechnical Engineering, Nicosia, Cyprus.
4. Shan, C., Shahri, A.A., Larsson, S., Zäll, E., (2021) Uncertainty analysis of an optimum predictive neural network model in subsurface bedrock level modeling. MLRA202, Mashine Learning and Risk Assessment, Wroclaw.
5. Shan, C., Shahri, A.A., Larsson, S., Zäll, E., (2021) Artificial intelligence-based models to predict the spatial bedrock levels for geoengeering application. 3<sup>rd</sup> Conference of the Arabian Journal of Geosciences. CAJG-2020-P856.
6. Larsson, S. (2021) The Nordic dry deep mixing method: Best practice and lessons learned. Deep Mixing - An Online Conference, DFI Deep Foundation Institute, article #3967, 30 p.
7. Larsson, S., Nilsson, G. and Jelusic, N. (2021) Development of soil-rock total sounding for production control of dry deep mixing columns. Deep Mixing - An Online Conference, DFI Deep Foundation Institute, article #3914, 8 p.
8. Spross, J., Bergman, N. and Larsson, S. (2021) Toward reliability-based serviceability limit state verification. Deep Mixing - An Online Conference, DFI Deep Foundation Institute, article #3869, 10 p.
9. Samuelsson, I., Larsson, S. and Spross, J. (2021) Life cycle assessment and life cycle cost analysis for geotechnical engineering: review and research gaps. 18th Nordic Geotechnical Meeting, Helsinki, Finland. IOP Conference Series: Earth and Environmental Science 710: 012031.
10. Bjureland, W., Johansson, F., Spross, J. och Larsson, S. (2020) Dimensionering av sprutbetongförstärkning för lösa block med sannolikhetsbaserade metoder. Bergdagarna 2020, BeFo - Swedish Rock Engineering Association.
11. Draganović, A., Karamanoukian, A., Ulriksen, P. och Larsson, S. (2020) Dispergering av mikrocement-baserat bruk med ultraljud och med konventionella laboratorieblandare. Bergdagarna 2020. BeFo - Swedish Rock Engineering Association.
12. Spross, J., Larsson, S. (2020). Sannolikhetsbaserad dimensionering av överlast med observationsmetoden. Grundläggningdagen 2020. SGF – Svenska Geotekniska föreningen.
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