

# TECHNICAL PROGRAM

## Geomechanics and Engineering

(Co-organized by the Korean Geotechnical Society (KGS)

Young Geotechnical Engineers (YGE) forum committee and North America (NA) committee)

| Session T0A                                                                                                                                                                                                                | 09:00 - 10:00 | Room A: #515 |
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| <b>Session Title: Advancements in Geomechanics and Engineering (4th US-Korea Geotechnical Workshop) I</b><br><b>Chairman: Jongwan Eun</b><br><a href="#">Zoom ID: 821 217 3937 PW: 000222</a>                              |               |              |
| <b>Subsurface Anomaly Detection Utilizing Synthetic GPR Images and Deep Learning Model;</b> Sung-Hee/Sonny Kim, Ahmad Abdelmawla* (GE2177_7296)                                                                            |               | Zoom         |
| <b>Effect of rainfall characteristics on slope stability;</b> Jeong-Yeon Yu*, Jong-Won Woo, Kyung-Nam Kang, Ki-II Song (GE2177_7292)                                                                                       |               | Onsite       |
| <b>Fast Detection of Anomalies in A Model Earth Dam Based on A Distributed Temperature Sensing Data integrated with Artificial Intelligence;</b> Binyam M. Bekele, Chung R. Song*, Jongwan Eun, Seunghee Kim (GE2177_7305) |               | Zoom         |
| <b>Compressibility of biogenic and clastic fine-grained sediments in response to pore water salinity changes;</b> Junbong Jang*, Handikajati Kusuma Marjadi, Willam F. Waite (GE2177_7339)                                 |               | Onsite       |
| <b>Hydraulic Properties of Unsaturated Clay Shale;</b> Ana Lanza Hernandez, Soonkie Nam*, Xiaoming Yang (GE2177_7377)                                                                                                      |               | Zoom         |
| <b>Numerical study on stability and deformation of retaining wall with groundwater drawdown;</b> Hyunsung Lim*, Jongjeon Park, Junyoung Ko (GE2177_7443)                                                                   |               | Zoom         |
| <b>Thermal-Hydraulic-Mechanical-Biochemical Processes in Municipal Solid Waste Landfills;</b> M. Sina Mousavi, Jongwan Eun*, Boo-Hyun Nam (GE2177_7386)                                                                    |               | Zoom         |

### KEYNOTE LECTURES (III & IV)

(T1 10:00 – 10:30)

8/18 Thur

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|-----------------------------------------------------|-------------|------------------------------------|
| <b>SESSION T1A</b>                                  | 10:00-10:30 | Room A, #515                       |
| Chairman: Ilhan Chang                               |             | (Zoom ID: 821 217 3937 PW: 000222) |
| <b>ICGE22 Keynote Lecture;</b> Gye-Chun Cho (Korea) |             |                                    |

| Session T2A                                                                                                                                                                                                                               | 10:30 - 11:20 | Room A: #515 |
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| <b>Session Title: Advancements in Geomechanics and Engineering (4th US-Korea Geotechnical Workshop) II</b><br><b>Chairman: Soonkie Nam</b><br><a href="#">Zoom ID: 821 217 3937 PW: 000222</a>                                            |               |              |
| <b>Use of accelerated calcite precipitation to investigate a clogging potential of RCA;</b> Jinwoo An, Boohyun Nam* (GE2177_7374)                                                                                                         |               | Zoom         |
| <b>Investigation of Sand-Biochar Mixtures as a Potential Roadway Fill Material;</b> Katia / Lélé Lagmago, Joon Soo Park*, Hai Lin (GE2177_7345)                                                                                           |               | Zoom         |
| <b>Theoretic Evaluation of Development of Soil Plug in Driving Open-Ended-Pile;</b> Young U Kim, Kab B Kim* (GE2177_7447)                                                                                                                 |               | Onsite       |
| <b>Investigation on the chemical and mechanical effects of paper sludge ash as a replacement of stabilizer in soft cohesive soil with seasonal variability;</b> Jinwoo An*, Kyungwon Park, Boo Hyun Nam (GE2177_7393)                     |               | Zoom         |
| <b>Application of UAV images for rainfall-induced slope stability analysis in urban areas;</b> Dohyun Kim, Junyoung Ko, Jaehong Kim* (GE2177_7359)                                                                                        |               | Zoom         |
| <b>Deeply embedded ring anchor for floating offshore wind turbines and corresponding mooring systems;</b> Junho Lee*, Krishnaveni Balakrishnan, Charles Aubeny, Sanjay Arwade, Don DeGroot, Alejandro Martinez, Ryan Beemer (GE2177_7342) |               | Zoom         |

# TECHNICAL PROGRAM

| Session T3A                                                                                                                                                                                                                        |  | 11:30 - 13:00 | Room A: #515 |
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| <b>Session Title: Advancements in Geomechanics and Engineering (4th US-Korea Geotechnical Workshop) III</b><br><b>Chairman: Ilhan Chang</b><br><a href="#">Zoom ID: 821 217 3937 PW: 000222</a>                                    |  |               |              |
| <b>Unconfined Compression Strength of Soil using Gene Expression Programming;</b> Muhammad Naqeeb Nawaz*, Song-Hun Chong, Muhammad Muneeb Nawaz, Safeer Haider, Waqas Hassan (GE2177_7291)                                         |  |               | Zoom         |
| <b>New energy partitioning method in essential work of fracture (EWF) concept for 3-D printed high density polyethylene blends;</b> Ahmet Oruc, Claire Fulks, Travis Adams, Dal Hyung Kim, Sungmin Youn, Sukjoon Na* (GE2177_7320) |  |               | Zoom         |
| <b>Efficiency of Urea Hydrolysis by Ureolytic Bacteria under Different Solvent Conditions;</b> Sojeong Kim*, Jinung Do (GE2177_7310)                                                                                               |  |               | Onsite       |
| <b>Prediction of karst subsidence and sinkhole collapse using machine learning methods;</b> Yong Je Kim*, Boo Hyun Nam (GE2177_7376)                                                                                               |  |               | Zoom         |
| <b>A geospatial liquefaction probability models for the 2017 M5.4 Pohang, South Korea, earthquake;</b> Hwanwoo Seo, Han-Saem Kim, Byungmin Kim* (GE2177_7396)                                                                      |  |               | Zoom         |
| <b>Estimation of elastic modulus and liquid limit of cohesive soil using vision-based vibrometry;</b> Matthew Sands, Soonkie Nam, Xiaoming Yang, Jinki Kim* (GE2177_7379)                                                          |  |               | Zoom         |
| <b>Stability analysis of infinite slopes in rock with strength governed by the Hoek-Brown failure criterion;</b> Dowon Park* (GE2177_7361)                                                                                         |  |               | Onsite       |
| <b>Effects of activated carbon on the compressive strength and air content of Portland cement concrete;</b> Andrew Ball, Sungmin Youn, Sukjoon Na* (GE2177_7422)                                                                   |  |               | Zoom         |
| <b>Effect of anionic xanthan gum on the sedimentation of kaolinite;</b> Yeong-Man Kwon*, Gye-Chun Cho, Ilhan Chang (GE2177_7354)                                                                                                   |  |               | Onsite       |
| <b>Eccentric undrained load capacity of a deeply embedded ring anchor in clay;</b> Junho Lee*, Charles Aubeny (GE2177_7341)                                                                                                        |  |               | Zoom         |
| <b>Behavioral studies on inclined or rounded tip piles using 3D printed samples and FE analysis;</b> Jaehong Kim, Junyoung Ko, Dohyun Kim* (GE2177_7358)                                                                           |  |               | Onsite       |
| Session T4A                                                                                                                                                                                                                        |  | 14:00 - 15:30 | Room A: #515 |
| <b>Session Title: Advancements in Geomechanics and Engineering (4th US-Korea Geotechnical Workshop) IV</b><br><b>Chairmen: Ilhan Chang, Yeong-Man Kwon</b><br><a href="#">Zoom ID: 821 217 3937 PW: 000222</a>                     |  |               |              |
| <b>Surface erosion behavior of MICP-treated sands: Experimental study and numerical modeling;</b> Soo-Min Ham*, Min-Kyung Jeon, Tae-Hyuk Kwon (GE2177_7448)                                                                        |  |               | Onsite       |
| <b>Prediction of CBR for coarse- and fine-grained soils using the GMDH model;</b> Mintae Kim, Osman Okuyucu*, Ertugrul Ordu, Seyma Ordu, Ozkan Arslan, Junyoung Ko (GE2177_7360)                                                   |  |               | Zoom         |
| <b>Cation-crosslinked biopolymer soil treatment and field implementation for slope surface protection;</b> Minhyeong Lee*, Ilhan Chang, Gye-Chun Cho (GE2177_7366)                                                                 |  |               | Onsite       |
| <b>Utilization of carrageenan as alternative eco-biopolymer for improving the strength of liquefiable soil;</b> Regina Aprilia Zulfikar*, Hideaki Yasuhara, Naoki Kinoshita, Heriansyah Putra (GE1169_7399)                        |  |               | Zoom         |
| <b>Machine learning for geotechnical properties and soil type mapping;</b> Hyeong-Joo Kim, Kevin Bagas Arifki Mawuntu*, Hyeong-Soo Kim, Tae-Woong Park, James Vincent Reyes, Jun-Young Park, Yeong-Seong Jeong (GE1167_7264)       |  |               | Onsite       |
| <b>Fixation of soybean extract method for biocatalyst in calcite precipitation method;</b> Heriansyah Putra*, Baiq Heny Sulistiawati, Hideaki Yasuhara, Minson Simatupang, Dede Heri Yuli Yanto (GE1150_7300)                      |  |               | Onsite       |
| <b>Dynamic behavior of shore connection of submerged floating tunnel under dynamic load;</b> Seok-Jun Kang*, Gye-Chun Cho (GE1162_7275)                                                                                            |  |               | Zoom         |
| <b>Triaxial Test Behavior of CSA-treated Sand with High Confining Pressur;</b> James Innocent Ocheme*, Ruslan Khamitov, Alfrendo Satyanaga, Jong Kim, Sung-Woo Moon (GE1169_7274)                                                  |  |               | Zoom         |

# TECHNICAL PROGRAM

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| <b>Stability analysis of the final slope for Highwall mining by empirical and numerical modeling;</b> Zulfahmi Zulfahmi*, Mas Agus Azizi (GE1160_7340)                                     | Onsite |
| <b>Modelling temperature &amp; relative humidity effects in construction project duration in Muscat;</b> Maryam Al-Ajmi, Mubarak Al Alawi*, Issa Al-Harthy, Khalifa Al-Jabri (GE1167_7263) | Zoom   |
| <b>Experimental study on cyclic shear behavior of biopolymer treated soils;</b> Dong-Yeup Park*, Ilhan Chang, Gye-Chun Cho (GE2177_7451)                                                   | Onsite |

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| <b>Session T5A</b>                                                                                                                                                                                                                                                                                      | <b>15:40 - 17:10</b> | <b>Room A: #515</b> |
| <b>Session Title: Advancements in Geomechanics and Engineering (4th US-Korea Geotechnical Workshop) V</b>                                                                                                                                                                                               |                      |                     |
| <b>Chairman: Yeong-Man Kwon</b>                                                                                                                                                                                                                                                                         |                      |                     |
| Zoom ID: 821 217 3937 PW: 000222                                                                                                                                                                                                                                                                        |                      |                     |
| <b>Experimental study on the BPST effect on penetration resistance and load of pile foundations;</b> Mintae Kim*, Suhyuk Park, Ilhan Chang (GE2177_7388)                                                                                                                                                | Onsite               |                     |
| <b>Characterizing the Lateral Behavior of Helical Piles from Correlated CPT Results Using Modified p-y Springs and Strain Gauge Instrumentation;</b> Hyeong-Joo Kim, James Vincent Reyes*c, Hyeong-Soo Kim, Peter Rey Dinoy, Yeong-Seong Jeong, Jun-Yong Park, Kevin Bagas Arifki Mawuntu (GE1160_7258) | Onsite               |                     |
| <b>Harsh stress level design for accelerated life test of HLW repository monitoring sensor;</b> Changhee Park*, Hyun-Joong Hwang, Chang-Ho Hong, Gye-Chun Cho (GE1158_7482)                                                                                                                             | Onsite               |                     |
| <b>Effect of Particle Shape Factor on Abrasive Kinetic Energy;</b> Hyun-Joong Hwang*, Yohan Cha, Tae-Min Oh, Gye-Chun Cho (GE1172_7459)                                                                                                                                                                 | Onsite               |                     |
| <b>Numerical Evaluation of Segmental Lining System with Compressible Layer in Deep Soft Rock;</b> Joohyun Park*, Seok-Jun Kang, Jun-Beom An, Gye-Chun Cho (GE2177_7381)                                                                                                                                 | Zoom                 |                     |
| <b>Numerical evaluation of ground settlements induced by groundwater inflow to the tunnel;</b> Jun-Beom An*, Joohyun Park, Hyun-Joong Hwang, Gye-Chun Cho (GE2177_7457)                                                                                                                                 | Onsite               |                     |
| <b>Crack Quantification Method for Concrete Tunnels with RGB-D;</b> Jin Kim*, Seungbo Shim, Gye-Chun Cho (GE2177_7439)                                                                                                                                                                                  | Onsite               |                     |
| <b>Analysis of Axially Loaded Large Capacity Helical Piles using the Load Transfer Method;</b> Hyeong-Joo Kim, Peter Rey Dinoy*, Hyeong-Soo Kim, James Vincent Reyes, Tae-Woong Park, Yeong-Seong Jeong, Jun-Young Kim (GE1164_7298)                                                                    | Poster               |                     |

## Geomechanics and Engineering (Pre-recorded session)

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| <b>Case Studies on Numerical Analysis of Slope Stability of National Expressway in Northern Taiwan;</b> Shong-Long Chen*, Yi-Hao Tsai, Xiao-ling Zhang, Shen-Chung Lee, Chih-Yu Chu (GE1168_7369) | Video |
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