The Korean Geotechnical Society-North America (KGS-NA) Distinguished Lecture Series

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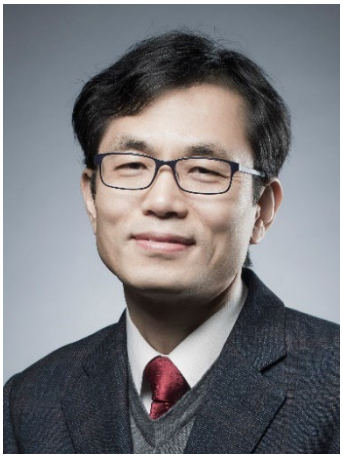
https://georgiasouthern.zoom.us/j/8544563643?omn=85128623823

Slime Characterization of Drilled Shafts

Abstract: The bases of bored piles are typically laden with soil particles during the drilling of boreholes as well as afterward. This accumulation, referred to as "slime," contributes to increased pile settlement when loads are applied. Consequently, to ensure the ultimate bearing capacity of bored piles, it is essential to precisely determine the thickness of the slime. Traditionally, the slime thickness has been assessed empirically using a weighted pendulum. To quantitatively evaluate this parameter, we have developed a slime-meter that continuously measures the electrical resistivity along the depth of the borehole. Initially introduced in a cone-type design in 2013, the instrument evolved into a bell-type in 2014 and subsequently into a wedge-type in 2016. Furthermore, in 2024, an upgraded version equipped with an ultrasonic transducer was developed, enabling the measurement of borehole verticality through a distance-axis approach. The slime-meter presented in this study is thus capable of effectively assessing both slime thickness and verticality.

Bio: Dr. Jong-Sub Lee is a Professor at the School of Civil, Environmental, and Architectural Engineering at Korea University (KU), and had served as an Associate Dean at the Graduate School, KU. Dr. Lee received his bachelor's degree in Civil and Environmental Engineering from KU in 1991 and his master's degree in Civil and Environmental Engineering from KAIST in 1993. After working for the Hyundai Engineering and Construction Company for seven years (1993-1999) as a research engineer, he entered the Civil and Environmental Engineering graduate program at the Georgia Institute of Technology (Georgia Tech) in 2000. In 2003, he received his Ph.D. from Georgia Tech. In 2005, he was hired as an Assistant Professor at Korea University, where he is currently a professor. He is a Principal Investigator (PI) of Hyper-converged Forensic Research Center for Infrastructure. He delivered many keynote lectures in international conferences including the 19th International Conference on Soil Mechanics and Geotechnical Engineering (ICSMGE) and the 17th Asian Regional Conference (ARC) on Soil Mechanics and Geotechnical Engineering. He is a fellow of the National Academy of Engineering of Korea. He published more than 305 journal papers (191 international SCI or SCIE, and 114 national) and 350 conference papers. He has been selected as one of the World's Top 2% Scientists. His research interests are non-destructive testing and evaluation with advanced sensing, in-situ subsurface characterization, and foundations.



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