



Stony Brook University

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SEMINAR

Applications of Imaging in Geotechnical Engineering

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Abstract. Traditionally, the size distribution of soil particles larger than 0.075 mm is determined by sieve tests. However, sieving is time consuming, energy intensive, and relatively costly in terms of equipment maintenance and replacement of damaged sieves. Sieving is also unattractive from the perspective of the laboratory environment; it is noisy, dusty, and generates vibrations. By contrast, image-based techniques are rapid, sustainable, and environmentally friendly.

Taking advantage of recent advances in camera technology and image analysis methods, two new image-based analyzers were developed that do not require physical separation of particles prior to image capture. For sand particles smaller than 2 mm, the system is called Sedimaging. For larger sands and gravels, a Translucent Segregation Table (TST) is used. The two systems are briefly described and future research directions implementing imaging technology will be discussed.

Biography. Dr. Hyon-Sohk Ohm received his Ph.D. in Civil Engineering from the University of Michigan in 2013. Dr. Ohm is currently a Research Fellow at the University of Michigan where he is working on an NSF research grant entitled *Optical Characterization of Intrinsic Properties and Fabric of Coarse-Grained Soils*. Through this project, Dr. Ohm is acquiring experience on field-testing such as cone penetrometer, seismic penetrometer, and vision cone penetrometer testing. Both the M.S. and Ph.D. degrees that Dr. Ohm earned prepared him for this role as he fully understands the applicability and use of sensors such as accelerometers, ultrasonic transducers, and geophones through his research on non-destructive testing and vibration monitoring. Dr. Ohm can easily characterize particle size and shape as well as soil fabric due to his Ph.D. research on image-based characterization of soil and gravel.

