This presentation includes two application examples of the particle filter (PF) to practical problems in geotechnical engineering. In the first example, deformation behavior of Kobe Airport island constructed on a reclaimed land were analyzed by using a soil-water coupled finite element method with a elasto-plastic constitutive model called Cam-clay model, and the elasto-plastic parameters of the model were identified by the PF. Second example focuses on the consolidation behavior of clay foundation improved by a vacuum consolidation method which is a typical remedial measure for long-term settlement of clay foundation. Identified parameters by the PF were applied to future predictions for deformation behavior of foundation grounds, and the practicability of the PF was discussed by comparing prediction results with the corresponding observation data. Apart from the inverse analyses, our latest topics regarding a particle method (Moving Particle Semiimplicit method, MPS) are also demonstrated in the presentation.

Guests are welcome!