

COLLABORATIVE RESEARCH CENTER 837

INTERACTION MODELING IN
MECHANIZED TUNNELING

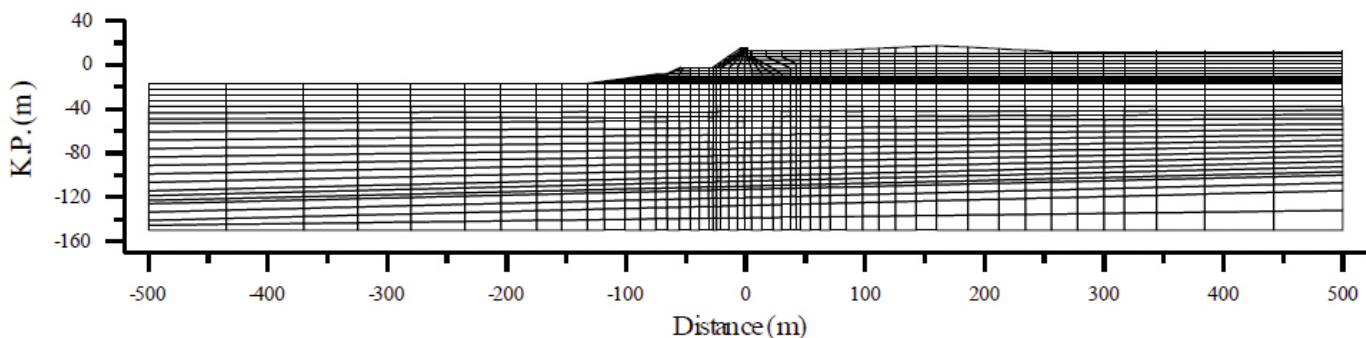
RUB

Applications of the Particle Filter to some practical Problems in Geotechnical Engineering

Assist. Prof. Takayuki Shuku

Okayama University, Japan

31.03.2014 – 13:30 – Room IC 03/604



Finite element mesh of Kobe Airport Island

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 consoli-

dation 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!