

Speaker : Tomoki Izumi (Ehime University)

Title : Seepage experiment and numerical analysis for non-Darcy flow through coarse porous media

It is known that water flow through coarse porous media and/or under high hydraulic gradient often becomes non-Darcy flow which is not governed by Darcy' s law. In this workshop, the results of seepage experiments and those numerical simulations are presented. The seepage experiments are conducted in soil layers filled with four kinds of soil materials and mixed ones. A numerical model for non-Darcy flow is applied to the results of the seepage experiments. In the model, governing equation is composed of continuity equation and momentum equation which is Navier-Stokes equation added Forchheimer' s law as a nonlinear resistance term, and is discretized by use of MPS (moving particle simulation) method. After model parameters included in Forchheimer' s law are discussed, reproducibility of the numerical model is presented.