

《論文獎》

利用滲透試驗探討雙層土壤之滲流沖蝕行為及其數值模擬

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摘 要 滲流沖蝕係指土壤中的細顆粒因地下水流驅動通過較大顆粒間之孔隙，被帶離坡面後，會由坡面向坡體內部分發展出漸進式破壞，進而引發邊坡問題，故對邊坡滲流沖蝕行為的瞭解有其必要性。因此，本研究根據現地調查結果，於室內利用滲透試驗儀器進行滲流沖蝕試驗，以了解不同情形下各試體之沖蝕行為。而後，為了解數值軟體用於模擬滲流沖蝕行為之可行性，故嘗試採用有限差分法軟體—FLAC5.0 進行模擬，以期能作為未來用於滲流沖蝕模擬之參考。

關鍵詞：飽和水力傳導係數、雙土層、滲流沖蝕、有限差分法。

A Study on Seepage Erosion Behavior within Two Lay-ers using Permeability Tests and FDM

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ABSTRACT Seepage erosion occurs when finer particles are dragged out from other soil particles by water. This type of erosion causes progressive failure inward into the slopes and slope instabilities. Therefore, it is necessary to explore the behavior of seepage erosion in order to prevent such failure in slopes. According to results of field investigations, we do seepage erosion experiments in a laboratory to understand the erosion behavior. After that, we utilize FEM soft-ware – FLAC5.0 in order to determine the feasibility of numerical analysis in simulating seepage erosion behavior.

Key Words : Hydraulic conductivity, two layers, seepage erosion, FEM.