

INTISARI

Dual Reciprocity Boundary Element Method untuk solusi masalah infiltrasi saluran irigasi disertai *root-water uptake* di beberapa jenis tanah homogen

Oleh

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Di dalam tesis ini, dibahas tentang *Dual Reciprocity Boundary Element Method* (DRBEM) untuk masalah infiltrasi saluran irigasi dengan *root-water uptake* di beberapa jenis tanah homogen. Infiltrasi pada tanah homogen dibangun dari Persamaan Richards. Persamaan Richards ini kemudian ditransformasikan menjadi Persamaan Helmholtz termodifikasi. Selanjutnya dengan DRBEM, solusi numerik diperoleh dari Persamaan Helmholtz termodifikasi. Menggunakan solusi numerik yang diperoleh, dapat dihitung nilai numerik dari *suction potential*.

Kata kunci: infiltrasi, Persamaan Richards, Persamaan Helmholtz termodifikasi, DRBEM.

ABSTRACT

**Dual Reciprocity Boundary Element Method for infiltration problem
solution of irrigation channels with *root-water uptake* in different types of
homogeneous soil**

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In this thesis we discuss about Dual Reciprocity Boundary Element Method (DRBEM) for infiltration problems of irrigation channels with root water uptake in different types of a homogeneous soils. Infiltration in homogeneous soil is governed by the Richards equation. Then this Richard equation is transformed into a type of modified Helmholtz equation. Furthermore with DRBEM, numerical solution from modified Helmholtz equation is obtained. Using the obtained solutions, numerical values of the suction potential are then computed.

Keywords: infiltration, Richards equation, the modified Helmholtz equation, *root-water uptake*, DRBEM.