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The method of fundamental solutions for the solution of steady-state free boundary problems. (English) Zbl 0745.65075

J. Comput. Phys. 98, No. 1, 119-128 (1992).

The author discusses the method of fundamental solutions and its application to free boundary problems. He gives the results obtained by using the method for a problem with a known exact solution and compares the results, and notes that a drawback is that boundary singularities tend to move to the interior of the domain under consideration. Solutions, in the form of graphs are given for three problems: seepage through a rectangular porous dam, Riabouchinsky cavity flow and flow over a weir. He points out that where there are boundary singularities, it may be necessary to use a very large number of degrees of freedom.

Reviewer: Ll.G.Chambers (Bangor)

MSC:

65Z05 Applications to the sciences
35R35 Free boundary problems for PDEs
76S05 Flows in porous media; filtration; seepage
76B10 Jets and cavities, cavitation, free-streamline theory, water-entry problems, airfoil and hydrofoil theory, sloshing

Cited in **1** Review
Cited in **10** Documents

Keywords:

method of fundamental solutions; free boundary problems; boundary singularities; seepage; cavity flow

Full Text: DOI

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