

عنوان مقاله:

Estimation of the Strength of the Time-dependent Heat Source Using Temperature Distribution at a Point in a Three Layer System

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خلاصه مقاله:

In this paper, the conjugate gradient method coupled with adjoint problem is used in order to solve the inverse heat conduction problem and estimation of the strength of the time- dependent heat source using the temperature distribution at a point in a three layer system. Also, the effect of noisy data on final solution is studied. The numerical solution of the governing equations is obtained by employing a finite-difference technique. For solving this problem, the general coordinate method is used. We solve the inverse heat conduction problem of estimating the strength of the transient heat source, inside an irregular region. The irregular region in the physical domain (r, z) is transformed into a rectangle in the computational domain (x, h) . The present formulation is general and can be applied to the solution of inverse heat conduction problems inside any region that can be mapped into a rectangle. The obtained results for few selected examples show the good accuracy of the presented method. In addition, the solutions have good stability even if the input data includes noise

کلمات کلیدی:

Time- dependent Heat Source, Inverse Heat Conduction Problem, General Coordinate, Three Layer System

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