

AN ABSTRACT OF A THESIS

THE USE OF OPTIMUM-SEEKING METHODS TO SOLVE THE SYSTEM OF DESIGN EQUATIONS FOR A MULTIPLE-EFFECT EVAPORATOR

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The main objective of this study was to use two unconstrained optimum-seeking methods, the Powell method and the Rosenbrock method, to solve the system of equations of a multiple-effect evaporator system and to determine the effect of changing search parameters on the required number of functional evaluations.

The results were compared with the results of the Hooke-Jeeves method which was used to solve the same problem.

It has been demonstrated in this particular study that the Powell method converged very rapidly and only 85 functional evaluations were required, compared with 173 for the method of Hooke-Jeeves. The Rosenbrock search method proved to be unsatisfactory because the solution could not be obtained even after 1000 functional evaluations.

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