

Bounded Solution Method for Geometric Programming Problem with Varying Parameters

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Abstract : Geometric programming problem (GPP) is a well-known non-linear optimization problem having a wide range of applications in many engineering problems. The structure of GPP is quite dynamic and easily fit to the various decision-making processes. The aim of this paper is to highlight the bounded solution method for GPP with special reference to variation among right-hand side parameters. Thus this paper is taken the advantage of two-level mathematical programming problems and determines the solution of the objective function in a specified interval called lower and upper bounds. The beauty of the proposed bounded solution method is that it does not require sensitivity analyses of the obtained optimal solution. The value of the objective function is directly calculated under varying parameters. To show the validity and applicability of the proposed method, a numerical example is presented. The system reliability optimization problem is also illustrated and found that the value of the objective function lies between the range of lower and upper bounds, respectively. At last, conclusions and future research are depicted based on the discussed work.

Keywords : varying parameters, geometric programming problem, bounded solution method, system reliability optimization

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