Optimum Design of Space Trusses using Water Cycle Algorithm

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ABSTRACT

In this paper the water cycle algorithm (WCA) is utilized for sizing optimization of space trusses. Finding the optimum design of 3-D structures is a difficult task as the great number of design variables and design constraints are present in optimization of these type of structures. The efficiency of the WCA are demonstrated for truss structures subject to multiple loading conditions and constraints on member stresses and nodal displacement. Numerical results are compared with those reported in the literature where the obtained statistical results demonstrate the efficiency and robustness of WCA where it provided faster convergence rate as well as it found better global optimum solution compared to other metaheuristic algorithms.

Keywords: