

## عنوان مقاله:

A New Hybrid PSOAOA Algorithm for Optimum Design of Structures

## محل انتشار:

سیزدهمین کنگره بین المللی مهندسی عمران (سال: 1402)

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## خلاصه مقاله:

Structural Optimization has always been a principal chapter of a desirable design and metaheuristic algorithms are a beneficial means in this regard. Particle Swarm Optimization (PSO) is a powerful nature-inspired metaheuristic algorithm that is based on the social behaviors of some animals and simulates the movement of organisms inside a bird flock or fish school. The high convergence speed of PSO in collaboration with the intensity of this algorithm in solving different kinds of problems makes this algorithm susceptible to stuck in local optima at the early stages of the search process. Therefore, in this paper, we proposed a new metaheuristic algorithm called PSOAOA conducting a mathematical approach inspired by Arithmetic Optimization Algorithm (AOA). Arithmetic Optimization Algorithm (AOA) is a population-based metaheuristic in which the exploration and exploitation phases are modeled utilizing the Arithmetic Operators in Math. Three structural optimization problems are solved by exerting this new approach and the results are compared with several recently proposed algorithms in order to validate the capability of the algorithm proposed in this research.

## کلمات کلیدی:

.Metaheuristic Algorithms, Particle Swarm Optimization, Arithmetic Optimization Algorithm, Structural Optimization

## لینک ثابت مقاله در پایگاه سیویلیکا:

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