

عنوان مقاله:

OPTIMIZATION OF AN OFFSHORE JACKET-TYPE STRUCTURE USING META-HEURISTIC ALGORITHMS

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خلاصه مقاله:

Offshore jacket-type towers are steel structures designed and constructed in marine environments for various purposes such as oil exploration and exploitation units, oceanographic research, and undersea testing. In this paper a newly developed meta-heuristic algorithm, namely Cyclical Parthenogenesis Algorithm (CPA), is utilized for sizing optimization of a jacket-type offshore structure. The algorithm is based on some key aspects of the lives of aphids as one of the highly successful organisms, especially their ability to reproduce with and without mating. The optimal design procedure aims to obtain a minimum weight jacket-type structure subjected to API-RP 2A-WSD specifications. SAP2000 and its Open Application Programming Interface (OAPI) feature are utilized to model the jacket-type structure and the corresponding loading. The results of the optimization process are then compared with those of Particle Swarm Optimization (PSO) and its democratic version (DPSO).

کلمات کلیدی:

.structural optimization, offshore structures, jacket-type platforms, cyclical parthenogenesis algorithm, CPA

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