عنوان مقاله:

OPTIMAL MODEL OF THE CONTACT FORCE FOR THE COLLISION BETWEEN TWO SOLID BODIES BY ICACO

محل انتشار:

مجله بهینه سازی در مهندسی عمران, دوره 14, شماره 1 (سال: 1402)

تعداد صفحات اصل مقاله: 19

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خلاصه مقاله:

A collision between bodies is an important phenomenon in many engineering practical applications. The most important problem with the collision analysis is determining the hysteresis damping factor or the hysteresis damping ratio. The hysteresis damping ratio is related to the coefficient of restitution in the collision between two solid bodies. In this paper, at first, the relation between the deformation and its velocity of the contact process is presented. Due to the complexity of the problem under study, a new powerful hybrid metaheuristic method is used to achieve the optimal model. For this purpose, by using imperialist competitive ant colony optimization algorithm, for minimizing the root mean square of the hysteresis damping ratio, the optimal model is determined. The optimal model is entirely acceptable for the wide range of the coefficient of restitution. So, it can be used in hard and soft impact problems.

کلمات کلیدی:

Optimal model, Hybrid metaheuristic method, Collision, Contact force model, Hysteresis damping ratio.