

عنوان مقاله:

INVESTIGATING APPLICATION OF IMPACT DAMPERS USING HOMOTOPY PERTURBATION AND GENETIC ALGORITHM

محل انتشار:

یازدهمین کنفرانس ملی مهندسی ساخت و تولید ایران (سال: 1389)

تعداد صفحات اصل مقاله: 8

نویسندگان:

Anoushiravan Farshidianfar - Associate Professor, Faculty of Engineering, Ferdowsi University of Mashhad

Aref Afsharfard - M Sc. Student, Faculty of Engineering, Ferdowsi University of Mashhad

Kaveh Kamali^۳ - M Sc. Student, Faculty of Engineering, Ferdowsi University of Mashhad

Vaheed Maleki^۳ - Postgraduate, Azad University of Mashhad

خلاصه مقاله:

In different applications, optimal values of an impact damper parameters (impact mass, elastic coefficient of barrier etc.) should be found in order to damp undesired vibrations efficiently. The main target of this work is modeling and investigating the behaviour of a kind of impact dampers. Our model incorporates Hertzian contact between the impact mass and the barrier. In next step, due to the strong non-linearity of the model, the homotopy perturbation method is used to solve the governing equation of the main mass motion. To confirm the accuracy of this method, results are compared with numerical solutions. Next, a systematic approach based on a genetic algorithm optimization method is used to determine the best design parameters for suppressing vibrations. Finally, optimum parameters for complete quenching of vibrations are obtained.

کلمات کلیدی:

Impact damper, Homotopy perturbation method, Hertzian contact, Genetic algorithm

لینک ثابت مقاله در پایگاه سیویلیکا:

<https://civilica.com/doc/98018>

