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COMPARISON OF NUMERICAL AND EXPERIMENTAL RESULTS OF THE MODAL ANALYSIS OF A SHIP DECK PANEL

Summary

In order to avoid resonances and consequently excessive vibrations, special attention is dedicated to modal analysis, with the aim of determination of natural frequencies and mode shapes of the structure. The objective of this paper is to perform numerical modal analysis of a ferry deck panel as well as compare obtained results with previously available experimental data. Finite element analysis of the stiffened plate was performed in the software Ansys using shell elements for the plate and stiffeners. Final comparisons show good agreement of numerical and experimental data.

Key words: modal analysis, finite elements, experiment

USPOREDBA NUMERIČKIH I EKSPERIMENTALNIH REZULTATA MODALNE ANALIZE PANELA BRODSKE PALUBE

Sažetak

Kako bi se izbjegla rezonancija, a time i pojačane vibracije neke strukture, posebna se pažnja posvećuje modalnoj analizi sa ciljem određivanja vlastitih frekvencija i formi vibriranja strukture. Cilj ovog rada je provesti modalnu numeričku analizu panela trajektne palube, kao i usporediti dobivene rezultate s dostupnim eksperimentalnim podacima. Konačno elementna analiza ukrućene ploče je provedena u softveru Ansys primjenom plošnih elemenata za ploču i ukrepe. Završne usporedbe pokazuju dobro podudaranje numeričkih i eksperimentalnih podataka.

Ključne riječi: modalna analiza, konačni elementi, eksperiment