DİNAMİK YÜKLERİ ALTINDA MÜHENDİSLİK YAPILARINDA HASAR ANALİZİ

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Anahtar Kelimeler: izotropik, kinematik pekleşme, hibrid-gerilme sonlu elemanlar modeli

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Abstract

Damage Assessment of Civil Engineering Structures Under Extreme Dynamic Loads

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In this work, we present a phenomenological constitutive model which is capable of coupling two basic inelastic behavior mechanisms, plasticity and damage. The model is targeting cyclic loading applications. Thus, in either plasticity or damage part, both isotropic and linear kinematic hardening effects are taken into account. The main advantage of the model is the use of independent plasticity versus damage criteria for describing the inelastic mechanisms. Another advantage concerns the numerical implementation of such model provided in hybrid-stress variational framework, resulting with very enhanced accuracy and efficient computation of stress and internal variables in each element. Several illustrative examples are presented in order to confirm the accuracy and efficiency of the proposed formulation in application to cyclic loading.

Keywords: isotropic, kinematic hardening, hybrid-stress finite element model

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