عنوان مقاله:

Nonlinear dynamics and stability of a homogeneous model of tall buildings under resonant action

محل انتشار:

مجله مکانیک کاربردی و محاسباتی, دوره 7, شماره 0 (سال: 1400)

تعداد صفحات اصل مقاله: 15

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خلاصه مقاله:

A homogeneous model of beam-like structure, roughly portraying the mechanical behavior of a tall building, is considered to address nonlinear dynamic response in case of external resonant excitation. A symmetric layout of the building is considered, so as to allow the existence of an in-plane response, whose features are evaluated by means of the Multiple Scale Method and accounting for internal resonance, necessarily occurring in the model. Furthermore, to take into account the three-dimensional nature of the problem, stability of the in-plane response to out-of-plane disturbances is addressed, solving the associated parametrically excited linear system.

کلمات کلیدی:

Homogeneous model, tall building, Nonlinear dynamics, Stability, perturbation methods