عنوان مقاله:

IMPROVED NUM ERICAL INTEGRATION PROCED URE FOR APPLICATION TO SEISMIC HYBRID SIMULATION

محل انتشار:

هفتمین کنفرانس بین المللی زلزله شناسی و مهندسی زلزله (سال: 1394)

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خلاصه مقاله:

Hybrid simulation is a pow erful test method for evaluating the seismic peerformance of structural systems.Thismethod makes it feasible that only critical components of structure be tested experimentally while the rest of the structure is n umerically modelled. This paper presents a new ly proposed integration algorithm for seismic hybrid simul ation which is aimed to extend the capabilities o f hybrid simulation to a wide range of systems where existi ng methods encounter some limitations. In the proposed methodwhich is termed Variable Time Step (VTS) integration method, an implicit scheme is employed for hybrid simulation by eliminating the iterative phase on experimental element, the phase which is nece ssary in regular implicit applications.In order to study the e ffectiveness of the VTS method, a series of num erical investigations are conducted, in them the restoring fo rce of the column is assumed to be achieved ex perimentally. The results show the successfulness of VTS m ethod in obtaining accurate, stable and converged responses.Also in a comparative approach, the improv ed accuracy of VTS method over commonly used integration methods isdemonstrated utilizing two error in dicators.

کلمات کلیدی:

Seismic Hybrid Simulat ion, Numerical Integration, Accuracy, Error Index