عنوان مقاله:

A New Stress Based Approach for Nonlinear Finite Element Analysis

نویسنده:

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خلاصه مقاله:

This article demonstrates a new approach for nonlinear finite element analysis. The methodology is very suitable and gives very accurate results in linear as well as in nonlinear range of the material behavior. Proposed methodology can be regarded as stress based finite element analysis as it is required to define the stress distribution within the structural body with structural idealization and modelling assumptions. The methodology eliminates the lengthy and tedious procedure of step by step and then iterative procedure adopted classically for nonlinear analysis problems. One dimensional problem of a simple bar loaded axially is solved to formulate the basic principles. Two dimensional problem of a cantilever beam bending and a torsional problem are solved for further demonstrating and strengthening the method. Results of torsional problem are verified with experimental results. The method is applicable for material nonlinear analysis only.

کلمات کلیدی:

Computational procedures, Non-linear analysis, material nonlinear analysis, Finite element method

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