Author(en) des Beitrags:
Kizio, S.; Schweizerhof, K.; Duester, A.; Rank, E.

Titel des Beitrags:
Benchmark Computations of low and high order Shell Elements on adaptively generated FE Meshes

Abstract:
Low order shell and more recently so-called solid-shell elements are very popular in finite element computations of shell structures. Meshes for low order elements can easily be generated and due to the small bandwidth of the system matrix the solution effort is relatively low. In addition they are numerically very robust for nonlinear and large deformation problems. At a first look a major disadvantage is that many locking phenomena occur which however, can be reduced and often removed by various modifications. An often overlooked problem of low order elements is their reduced capacity to capture the geometry of curved shell structures and their deficiencies in nonregular meshes. Subject of this study is the comparison of different modifications of low order solid-shell elements by means of numerical examples using adaptively generated meshes including arbitrary shapes of the elements. A particular focus is on the comparison of low order elements with high order elements.

Kongress- / Buchtitel:
Proceedings of 10. Dresdner Baustatik-Seminar

Verlag / Institution:
TU Dresden, Institut für Statik und Dynamik der Tragwerke

Jahr:
2006

Occurences:
· Einrichtungen > Fakultäten > Ingenieurfakultät Bau Geo Umwelt > Lehrstühle > Leonhard Obermeyer Center > Lehrstuhl für Computation in Engineering (Prof. Rank) > Konferenzbeiträge > Proceedings