عنوان مقاله:

Non-linear Analysis of Double-layer Dome Space Structures by Ansys Software

محل انتشار:

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خلاصه مقاله:

Humans have recognized the power of arched structures for a long time and have used them in different places including the body of old bridges, arches of historic buildings and the covers of old houses. Arched structures Due to their special geometrytransfer the forces in the best manner and present good strength and rigidity. The domes are famous for their geometricsymmetry and particular behavior and are frequently used as one of the most important coverage systems. The load bearing resistance of these structures is very high and exhibit good behavior against lateral loads. This system has been considered by architects and enjoys a lot of beauty and harmony. Brick and concrete are old materials in the construction of the domes. The present study examined the dome space structures that are among the skeletal space structures. In this paper a certain type of double-layer braced domes is built and studied to find the optimized height to span and thickness to span ratios. To this end four models with the spans of 20, 30, 50 and 80 meters have been proposed and for optimum design of the structure the repeated analysis-design method is applied in which the structural analysis, design and control is done in Ansys software. Inthis regard, the results of linear and nonlinear structural analysis are compared and the changes in the structural deflection due to changing each of the parameters are examined. The applied linear analysis is geometric and large deformation .caused by it is intended

کلمات کلیدی:

Space structure, double-layer dome, nonlinear analysis, Ansys