

Introducing and studying spacecraft structures

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Abstract

The spacecraft structure is a three-dimensional truss system with openings extending in two directions, and its members are only under the influence of tension and pressure. These structures consist of identical and repeating modules with parallel layers up and down (similar to the upper and lower bars of the truss). The spacecraft structure refers to a set of similar structures that include networks, arches, towers, cable networks, shell and membrane systems, scaffolding structures and cesspool compounds. This definition is a morphological definition of work space structures. With the industrialization and development of the modern world, the demand for the use of large-scale structures has increased; space structures, due to their diversification and flexibility, are valuable tools for obtaining new forms by architects and engineers. Space structures provide freedom to act on the placement of the columns and allow the design to be designed in a wide area without a column.

Key words: spacecraft structure, structural behavior, beauty and observance.

1. Introduction

These structures for small spaces are decorative, in medium spaces are a combination of beauty and observance of all design rules safe with a high coefficient and for large spaces not only is an inevitable necessity for the construction of the building, but also with the beauty of durability, strength, and provides sustainability against earthquakes. Structural systems that enable designers to cover large openings have always been considered in history, and various types of structures, such as arches, domes, and so on, in order to cover the openings and always in between. The dome is a convenient and economical solution for covering large spaces [1]. A large number of domes and domes were considered as one of the most attractive options for designers, due to the beautifully readable architecture of the old Persian. The most stable and stable forms of structures that have been designed for a long time before being used and a special example of structures. Next, the use of 3D and 3D instruments in ancient Rome and Persia, as well as Iran in the Safavi period, is a manifestation of the construction of gathering halls, amphitheaters, palaces, Islamic mosques, mosques, etc.