

Unloaded prestressed shell formed from a closed surface unattached to any supports

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Abstract

In this paper we attempt to begin to answer the question, ‘under what conditions can an unloaded shell formed of a closed surface unattached to any supports contain a state of membrane stress which can be induced by prestressing?’. We show that a sphere cannot be prestressed, but a torus can be.

Keywords: Unloaded prestressed shell, torus, force surface, moment surface.