FURTHER DEFORMATIONS OF THE AXIALLY-SYMMETRIC NON-BENDING SURFACES

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Abstract. We consider a special class of symmetrically loaded thin shells of revolution, which in the presence of certain disturbances of the equilibrium deform without bending. The whole family of such surfaces can be regarded as complementary set to the four classes of equilibrium states of non-bending surfaces that we have studied in some depth recently. The new surfaces (with a few exceptions) have not a closed form description in elementary functions. Here we present their explicit parameterizations in terms of elliptic integrals.

MSC: 74K25, 74A10, 53A04, 53A05, 33E05

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1. Non-Bending Surfaces Under Additional Stress Resultants

The present paper is a continuation of our previous works [19, 20] on the explicit parameterizations of *non-bending surfaces of revolution*. Non-bending surfaces are most commonly described in the framework of the theory of thin walled shells which deform without bending, meaning that the normal at any point of the shell under the action of external load preserves its direction. Relying on the membrane