

Axisymmetric Nonlinear Analysis of Point Supported Shallow Spherical Shells

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Abstract : Geometrically nonlinear axisymmetric bending of a shallow spherical shell with a point support at the apex under linearly varying axisymmetric load was investigated numerically. The edge of the shell was assumed to be simply supported or clamped. The solution was obtained by the finite difference and the Newton-Raphson methods. The thickness of the shell was considered to be uniform and the material was assumed to be homogeneous and isotropic. Sensitivity analysis was made for two geometrical parameters. The accuracy of the algorithm was checked by comparing the deflection with the solution of point supported circular plates and good agreement was obtained.

Keywords : Bending, Nonlinear, Plate, Point support, Shell.

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