MODEL OF CANTILIVER CYLINDRICAL SHELLS VIBRATION WITH GEOMETRICAL NONLINEARTITY

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The model of cantilever cylindrical shell vibrations is treated. The eigenmodes of linear vibrations are obtained by Rayleigh- Ritz method. This is the first step for analysis of nonlinear problem. The expression of the potential shell energy is obtained by using the nonlinear strain-displacement relationship. In the nonlinear analysis the full expression for potential energy contains the terms up to the fourth order. The nonlinear dynamical system is obtained by using the Lagrange equation. For reduction the number of degrees of freedom the longitudinal and circumference displacements is considered quasi statically.

The harmonic balance method is used to analyze the system free vibrations.
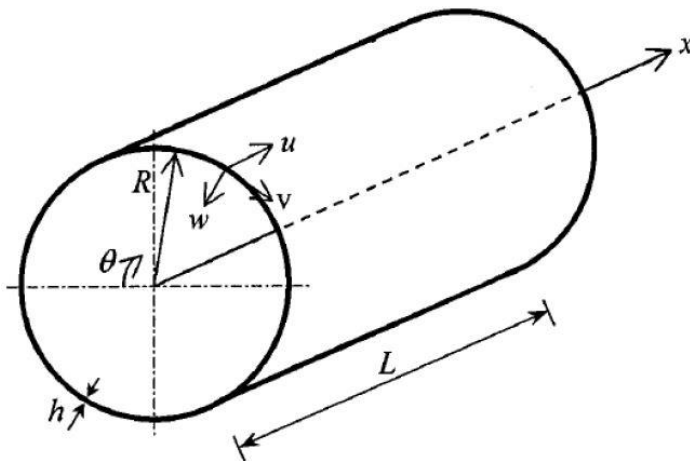
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