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# Numerical Determination of Natural Frequencies and Modes of Closed Corrugated Cylindrical Shells

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The natural frequencies and modes of cantilever isotropic thin closed corrugated circular cylindrical shells with arbitrary number of corrugations are determined using the finite-element method. Two test problems for longitudinally corrugated open circular cylindrical shells are solved. The frequencies determined with our method and with the spline-collocation method in combination with the method of discrete orthogonalization are in good agreement (the difference is no greater than 5.5%). The natural frequencies of corrugated shells with different number of corrugations are compared. The dependence of the natural frequency of corrugated shells on the number of corrugations and vibration modes is established. The symmetric and antisymmetric modes of vibrations including those of tensile, shear, flexural, and torsional vibrations for all the corrugated shells considered are found.

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