

**AN ABSTRACT OF THESIS**

**LAGRANGIAN FINITE ELEMENTS FOR THIN-WALLED  
STRUCTURES**

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A study of thin walled cylinders was carried out using the finite element analysis method. The Galerkin method was used to derive the finite element model for the dynamic equations of elasticity in cylindrical coordinates. The Lagrangian polynomial was used to derive four different Lagrangian finite elements that are classified as four-node, six-node, eight-node and nine-node. The mass matrix for the first three models was formulated using two methods of integration, exact and numerical. The results for frequency were presented in tabular form and compared with existing results in the literature.