

CERTIFICATE OF APPROVAL OF THESIS
THE VIBRATION OF SPHERICAL CAPS
AN ABSTRACT OF A THESIS
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THE VIBRATION OF SPHERICAL CAPS

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A Thesis

Master of Science in Civil Engineering

the Faculty of the Graduate School

A study of the vibration of thick, isotropic spherical caps was undertaken using a nine-node Lagrangian finite element that was developed using the Galerkin method for the governing equations of elasticity derived in the spherical coordinate system. The finite element method was verified by comparison with existing results from the literature, and models were created to analyze a variety of different geometric configurations and boundary conditions. Results for frequency and mode shape were presented in graphical form for spheroidal modes, and results for frequency were presented in tabular form for all modes calculated. A discussion of results was given noting trends involving the effect of geometry and boundary condition on frequency and mode shape.

In Partial Fulfillment
Approval by the Faculty
of the Requirements for the Degree

MASTER OF SCIENCE

Civil Engineering

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