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**Buckling analysis of shear deformable shallow shells by the boundary element method.**

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Summary: In this work a boundary element (BE) formulation for buckling problem of shear deformable shallow shells is presented. A set of five boundary integral equations are obtained by coupling two-dimensional plane stress elasticity with shear deformable plate bending (Reissner). The domain integrals appearing in the formulation (due to the curvature and due to the domain load) are transferred into equivalent boundary integrals. The BE formulation is presented as an eigenvalue problem, to provide direct evaluation of critical load factors and buckling modes. Several examples are presented. The BE results for a cylindrical shallow shell with different curvatures are compared with other numerical solutions and good agreements are obtained.

**MSC:**

[74S15](#) Boundary element methods applied to problems in solid mechanics

[74G60](#) Bifurcation and buckling

[74K25](#) Shells

Cited in **3** Documents

**Keywords:**

shallow shell; curved plate; eigenvalue; buckling coefficients; shear deformable theory

**Software:**

LAPACK

**Full Text:** [DOI](#)

**References:**

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