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COMPUTATION OF STRESSES IN INTERNAL POINTS OF THIN PLATE COMPOSITE MATERIALS UNDER DYNAMIC LOADS USING THE BOUNDARY ELEMENT METHOD

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Abstract. This work presents a dynamic formulation of the boundary element method for the computation of stresses in internal points of anisotropic thin plates. The formulations uses elastostatic fundamental solutions and inertia terms are treated as body forces. Domain integrals that come from body forces are transformed into boundary integrals using the radial integration method (RIM). In the RIM, the augmented thin plate spline is used as the approximation function. The time integration is carried out using the Houbolt method. In order to compute stresses, integral equations for the second derivatives of deflection are developed and all derivatives of fundamental solutions are computed analytically. Only the boundary is discretized in the formulation. Numerical results show good agreement with results available in literature.