

## STATIONARY DYNAMIC ANALYSIS OF 3D VISCOELASTIC DOMAINS BY AN INDIRECT VERSION OF THE BOUNDARY ELEMENT METHOD BASED ON A NON-SINGULAR AUXILIARY STATE

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### ABSTRACT

The article describes the formulation and implementation of an Indirect Version of the Boundary Element Method (IBEM) to analyse the stationary dynamic behavior of 3-dimensional viscoelastic domains. The IBEM is constructed based on a non-singular viscoelastic auxiliary state, which has been synthesized with the aid of the Radon and Fourier integral transforms [1]. Viscoelastic effects are included in the analysis by means of the elastic-viscoelastic correspondence principle.

The first part of the article describes the synthesis of displacement and stress kernels of the auxiliary state based on integral transforms. The auxiliary states are determined numerically. The second part of the article describes the formulation of the IBEM for the analysis of 3D viscoelastic bounded and unbounded domains [2]. The article will also address the direct and iterative formulation of the IBEM for multi-domain analysis. The inclusion of rigid structures or domains in the indirect version of the BEM is also addressed [3]. Validation and applications reported in the article are related to the stationary dynamic response of bounded and unbounded viscoelastic domains.

### REFERENCES

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