ENERGETIC BOUNDARY ELEMENT METHOD FOR 3D ELASTODYNAMICS

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We consider a boundary integral reformulation of 3D time-domain elastodynamic (vector) wave problems, defined in unbounded domains external to an open polyhedral screen, endowed with a Dirichlet type boundary and null initial conditions. For the resolution of the corresponding Boundary Integral Equation, we use the space-time energetic Galerkin Boundary Element Method (introduced for the first time in [1]) with double analytical integration in time variable. The resulting weakly singular double integrals in space variables are then evaluated by inner analytical and outer numerical integrations [2]. In the presented numerical examples, graded meshes are used to recover the quasi-optimal approximation convergence rates known for screens and for polygonal domains in 3D [3] and the singular behaviour of the solutions from corners and edges.

References

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