SOME RECENT ADVANCES IN BEM SOLUTION OF TIME-DEPENDENT PROBLEMS WITH MOVING BOUNDARIES

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Abstract For the numerical modelling of complicated nonlinear problems, BEM model shows to be superior to the domain solution methods. Especially, for time-dependent problem (for which a time-marching scheme is needed) and for moving boundary (which means changeable solution domain and boundary where the regeneration of network is needed), BEM could reduce the storage requirement and CPU time considerably. In this paper, some principal difficulties, such as the linearization of the differential operator, the treatment of time-dependence and moving boundary are discussed including some novel ideas in literature. The main purpose is to establish an efficient and stable numerical model for time marching and nonlinear iteration suitable to a variety of differential equations.

Keywords nonlinear BEM, linearization of differential equations, transient moving boundaries, analytical treatment of volume integral

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