A TIME-ADAPTIVE FAST MULTIPOLE BOUNDARY ELEMENT METHOD FOR THE HEAT EQUATION

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ABSTRACT

We consider a space-time boundary element method for the solution of initial boundary value problems of the heat equation in three spatial dimensions. In particular we deal with tensor product meshes with adaptive decompostions of the considered time interval. We present a related new time-adaptive version of the fast mutipole method and apply shared and distributed memory parallelization with respect to space and time. This combination enables fast computations of the space-time method. Finally, we present numerical experiments that demonstrate the benefits of the new method.

References

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