

ALGORITHM FOR FAST SIMULATIONS OF SPACE–TIME FINITE ELEMENT METHOD

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Abstract. *In this paper we consider element partition trees for multi–frontal solver algorithms utilized in space–time finite element method. The element partition trees are utilized for generating the ordering for the multi–frontal solver algorithm. In particular, we consider three or four dimensional finite element method grids where two or three dimensions represent space and one additional dimension represents time. Additionally, we consider computational grids resulting from h–adaptive algorithms, namely grids refined towards point, edge, face or hyperface singularity. We perform numerical experiments and compare our method with alternative state of the art ordering algorithms available through MUMPS interface.*

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