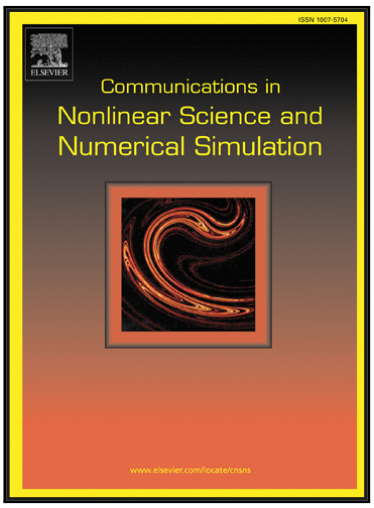

Domain decomposition finite element/finite difference method for the conductivity reconstruction in a hyperbolic equation

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Highlights

- The domain decomposition FEM/FDM method for the hyperbolic equation with two coefficients is presented.
- Energy estimate is derived for the hyperbolic equation with absorbing boundary conditions in the case of the domain decomposition FEM/FDM method.
- Two different inverse problems are formulated and the Lagrangian approach to solve these problems is also presented. Optimality conditions are derived.
- Conjugate gradient algorithm for the reconstruction of the conductivity function via the domain decomposition method is formulated. Explicit schemes for the solution of the forward and adjoint problems are presented.
- Numerically the domain decomposition FEM/FDM method is applied for the recon struction of the conductivity function in the hyperbolic equation in three dimensions in the range of frequencies $\omega\varepsilon[20,60]$.