

# A posteriori error estimates for space–time domain decomposition methods with Robin transmission conditions

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This work contributes to the developpement of a posteriori error estimates for the domain decomposition (DD) method with Robin transmission conditions on the interface between subdomains. We are interested in the steady diffusion equation using the mixed finite element method and the unsteady diffusion equation using the mixed finite element method in space and the backward Euler scheme in time. The multidomain formulation can be rewritten as an interface problem which is solved iteratively. Here at each iteration, local subdomain problems are solved, and information is then transferred to the neighboring subdomains. We estimate separately the error of the DD method as well as that of the discretization in space [3] for the steady equation and, in addition, the time error for the unsteady equation [2]. Consequently, an effective criterion to stop the DD iterations is developed as well as space–time adaptive refinement strategies. Our a posteriori estimates are based on the reconstruction techniques for pressures and fluxes following [1, 2].

## Références

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