

Convergence analysis of a double sweep domain decomposition method for solving the Helmholtz equation

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ABSTRACT

Abstract: In this talk we will discuss a double sweep domain decomposition method for solving the Helmholtz equation in waveguides. The double sweep preconditioner is defined in terms of transmission conditions based on high order absorbing boundary conditions such as PML (perfectly matched layer) or CRBC (complete radiation boundary condition). It seeks for an approximate solution in H^1 of local subdomains which is discontinuous across interfaces of nonoverlapped subdomains. We show the convergence of approximate solutions to the problem in both continuous level and discontinuous level.