Domain decomposition preconditioning for elliptic problems with jumps in coefficients

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In this talk, we propose an effective iterative preconditioning method to solve elliptic problems with jumps in coefficients. The algorithm is based on the additive Schwarz method (ASM). First, we consider a domain decomposition method without cross points on interfaces between subdomains and the second is the cross points case. In both cases the main computational cost is an implementation of preconditioners for the Laplace operator in whole domain and in subdomains. Iterative convergence is independent of jumps in coefficients and mesh size.

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