

Chniti, Chokri; Nataf, Frédéric; Nier, Francis

Improved interface conditions for a non-overlapping domain decomposition of a nonconvex polygonal domain. (English) [Zbl 1096.65124](#)

C. R., Math., Acad. Sci. Paris 342, No. 11, 883-886 (2006).

Summary: We propose a local improvement of domain decomposition methods which fits with the singularities occurring in the solutions of elliptic equations in polygonal domains. This short presentation focuses on a model elliptic problem with the decomposition of a nonconvex polygonal domain into convex polygonal subdomains. After explaining the strategy and the theoretical design of adapted interface conditions at the corner, we present numerical experiments which show that these new interface conditions satisfy some optimality properties.

MSC:

- [65N55](#) Multigrid methods; domain decomposition for boundary value problems involving PDEs
- [35J05](#) Laplace operator, Helmholtz equation (reduced wave equation), Poisson equation
- [65N30](#) Finite element, Rayleigh-Ritz and Galerkin methods for boundary value problems involving PDEs

Cited in **3** Documents

Keywords:

[Dirichlet problem](#); [Poisson equation](#); [variational method](#); [domain decomposition](#); [elliptic equations](#); [numerical experiments](#)

Full Text: [DOI](#)

References:

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