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Strongly stable generalized finite element method: Application to interface problems

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Highlights

- A detailed and complete mathematical analysis of the GFEM for 2D interface problems is presented.
- Element based sufficient conditions on the enrichment space have been established that will guarantee the well-conditioning of a GFEM.
- It was shown that the enrichment space for the 2D interface problems satisfies these sufficient conditions ensuring the well-conditioning of the GFEM.
- The notion of Strongly Stable GFEM has been introduced, opening the way for designing efficient iterative solvers.
- A proof of optimal convergence of GFEM, applied to 2D interface problems, has been provided.