

Tearing and interconnecting methods for non-elliptic operators

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Tearing and interconnecting methods are commonly used domain decomposition methods, which provide the coupling of different approximation schemes, eg. finite and boundary element methods. In addition, effective preconditioners exist for various types of partial differential equations, e.g. for the Laplace equation and for the linear elasticity system. Unfortunately, the commonly used theory works only for elliptic operators. In this talk, I want to present basic ideas of some versions of the FETI/BETI method. In addition I will discuss first ideas how to change the theory, such that the method can be applied to some non-elliptic partial differential equations, especially the Helmholtz and the electromagnetic scattering equation.