Dedicated to Professor Lazăr DRAGOŞ on his 75th birthday

Boundary Element Tearing and Interconnecting Dual–Primal Method for Two Dimensional Domains

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Abstract - The aim of this paper is to introduce the *dual primal boundary element tearing and interconnecting* (BETI-DP) method with Dirichlet and hypersingular boundary integral operator preconditioners. In previous articles BETI and coupled FETI/BETI methods were introduced. As a natural continuation we present here the BETI-DP method and discuss few general choices of the dual spaces for the three dimensional case. We show that the condition number of the system matrix equipped with the Dirichlet and with the hypersingular boundary integral operator preconditioner behaves in the same manner as the condition number of the system matrix equipped with the Dirichlet preconditioner in the FETI-DP method.
Key words and phrases : FETI-DP, BETI-DP, Steklov-Poincaré operator, Schur complement, preconditioners, hypersingular boundary integral operator
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