Permon Toolbox

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Abstract

PERMON is a set of tools which make use of theoretical results in quadratic programming (QP) algorithms and domain decomposition methods (DDM). Permon is based on PETSc library and uses its coding style. The most essential modules are PermonQP and PermonFLLOP. PermonQP provides a base for solution of QP problems including data structures, transformations, algorithms and supporting functions. PermonQP allows solving unconstrained QP problems, equality or inequality constrained ones. PermonFLLOP is an extension of PermonQP, implementing the FETI non-overlapping DDM. PermonFLLOP assembles FETI-specific objects and performs the algebraic part of FETI methods as a special QP transform combining some QP transforms from the PermonQP. Newly emerging interface with Elmer FEM software will enable solution of real problems of mechanics and other physical problems

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