# The DVS algorithms: Their broad applicability and required interfaces

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## Abstract

Besides their outstanding parallelization efficiencies, the DVS-algorithms possess remarkable applicability. After the PDE has been discretized, DVS-algorithms were developed using an axiomatic approach; i.e., some assumptions (or axioms) about the properties of the matrix occurring in the discrete-problem were adopted, which are fulfilled for many discretization methods. Except for the linearity of the problem and such axioms, the problem may be any albeit up to now the DVS-implementation has been fully developed for symmetric and positive definite matrices only. Therefore, a basic code has been developed that possesses remarkable generality and can be applied independently of the problem considered. However, in order to use it in specific problems and with different types of meshes and discretizations suitable interfaces need to be developed. This talk is devoted to explain such topics in detail.

**Key Words:** Parallel Software for PDEs, DVS-software, High Performance Computing, HPC, Parallel Computing, Domain Decomposition Methods (DDM)

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