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PETSc Vector Interface

An abstract PETSc vector interface is provided to couple a vector kernel and operations with the PETSc solver library. The templated interface class supports double or float. Since PETSc also supports vectors with complex entries, a complex vector interface class may be provided in the future if such a need arises. A vector kernel derived from this interface that may be used with the SAMRAI framework is provided in the SAMRAI Algorithm package. However, the interface provided here is entirely independent of SAMRAI. The vector interface conforms to PETSc version [2.3.3](#).

The interfaces to the PETSC nonlinear solver SNES is provided through the wrapper class SAMRAI::solv::SNES::SAMRAIContextX. This class allows you to use SNES with the natively supported SAMRAI::solv::PETScAbstractVectorReal class. The nonlinear solver requires certain user-provided operations that must be provided through inheriting the interface class SAMRAI::solv::SNESAbstractFunctions.

PETSc was developed in the Mathematics and Computer Science Division at Argonne National Laboratory (ANL). For more information about PETSc, see <http://www-unix.mcs.anl.gov/petsc/petsc-as/>.

SAMRAI::solv::PETScAbstractVectorReal

SAMRAI::solv::SNESAbstractFunctions

SAMRAI::solv::SNES_SAMRAIContext