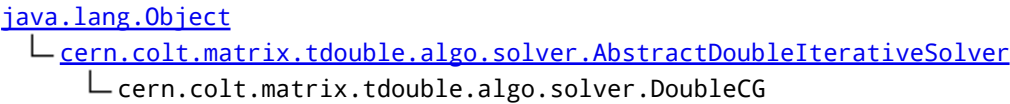


cern.colt.matrix.tdouble.algo.solver

Class DoubleCG



All Implemented Interfaces:  
[DoubleIterativeSolver](#)

```
public class DoubleCG
extends AbstractDoubleIterativeSolver
```

Conjugate Gradients solver. CG solves the symmetric positive definite linear system  $Ax=b$  using the Conjugate Gradient method.

Author:  
Templates

Constructor Summary

[DoubleCG](#)([DoubleMatrix1D](#) template)  
Constructor for CG.

Method Summary

<a href="#">DoubleMatrix1D</a>	<a href="#">solve</a> ( <a href="#">DoubleMatrix2D</a> A, <a href="#">DoubleMatrix1D</a> b, <a href="#">DoubleMatrix1D</a> x) Solves the given problem, writing result into the vector.
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Methods inherited from class cern.colt.matrix.tdouble.algo.solver.[AbstractDoubleIterativeSolver](#)

[getIterationMonitor](#), [getPreconditioner](#), [setIterationMonitor](#), [setPreconditioner](#)

Methods inherited from class java.lang.[Object](#)

[equals](#), [getClass](#), [hashCode](#), [notify](#), [notifyAll](#), [toString](#), [wait](#), [wait](#), [wait](#)

## Constructor Detail

### DoubleCG

```
public DoubleCG(DoubleMatrix1D template)
```

Constructor for CG. Uses the given vector as template for creating scratch vectors. Typically, the solution or the right hand side vector can be passed, and the template is not modified

**Parameters:**

template - Vector to use as template for the work vectors needed in the solution process

## Method Detail

### solve

```
public DoubleMatrix1D solve(DoubleMatrix2D A,  
                           DoubleMatrix1D b,  
                           DoubleMatrix1D x)  
    throws IterativeSolverDoubleNotConvergedException
```

**Description copied from interface:** [DoubleIterativeSolver](#)

Solves the given problem, writing result into the vector.

**Parameters:**

A - Matrix of the problem

b - Right hand side

x - Solution is stored here. Also used as initial guess

**Returns:**

The solution vector x

**Throws:**

[IterativeSolverDoubleNotConvergedException](#)

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