

NAME

sor - successive over-relaxation method

CALLING SEQUENCE

[x,err,iter,flag,res] = sor(A,b,x0,w,maxi,tol)

PARAMETERS

A : matrix of size n-by-n or function returning $A*x$
 b : right hand side vector
 x0 : initial guess vector (default: zeros(n,1))
 w : relaxation scalar (default: 0.4)
 maxi : maximum number of iterations (default: n)
 tol : error tolerance (default: 1000*%eps)
 x : solution vector
 err : final residual norm
 iter : number of iterations performed
 flag : 0 = **sor** converged to the desired tolerance within **maxi** iterations
 1 = no convergence given **maxi**
 res : residual vector

DESCRIPTION

Solves the linear system $Ax=b$ using the Successive Over-Relaxation Method (Gauss-Seidel method when $w = 1$).

EXAMPLE

```
A=makefish(4); b=rand(16,1);x0=zeros(16,1);
[x,err,iter,flag,res] = sor(A,b,x0)
w=0.8; max_it=16; tol=1000*%eps;
[x,err,iter,flag,res] = sor(A,b,x0,w,max_it,tol)

deff("y=matvec(x)","y=(A+eye(size(A,1),size(A,1)))*x");

[x,err,iter,flag,res] = sor(matvec,b,x0,w,max_it,tol)
[x,err,iter,flag,res] = sor(matvec,b,x0)
```

AUTHOR

Adaptation by Aladin Group of the corresponding code of netlib/mltemplatesdev (Univ. of Tennessee and Oak Ridge National Laboratory) - 20 March 2001.

SEE ALSO

jacobi