TFY4235/FYS8904

Problemset 4 Spring 2015

NTNU

Institutt for fysikk

Problem 1.
This problem is a continuation of Problem 1 in Problem set 3. Assume 1000 resistors with conductances that are distributed randomly between zero and one, are coupled in series. A potential drop equal to unity is set up between the ends of the resistor chain. Write a program that determines the potential drop over each resistor based on the conjugate gradient algorithm.

For the industrious:

- Try some of the more advanced iterative methods — like BiCGStab and GMRES — to the problem. Compare the number of iterations that you obtain using these methods to what was obtained above and the previous exercise using SOR *et al.*
- Also here evaluate some preconditioners in order to see if it may improve the rate of convergence.