Institute of Information and Communication Technologies – BAS

Seminar
„Parallel Algorithms and Scientific Computations"

On 26 March 2013 in room 218 at the Institute of Information and Communication Technologies, BAS, Acad. G. Bonchev St., Block 25 A, **Prof. Owe Axelsson, Uppsala University, Sweden; KAU, Saudi Arabia; Academy of Sciences, Czech Republic,** will give a presentation on the following topic:

A comparison of iterative methods to solve complex valued linear algebraic systems

Abstract

Complex valued linear algebraic systems arise in many important applications. We present analytical and extensive numerical comparisons of some available numerical solution methods. It is advocated, in particular for large scale ill-conditioned problems, to rewrite the complex-valued system in real valued form leading to a two-by-two block system of particular form, for which it is shown that a very efficient and robust preconditioned iterative solution methods can be constructed. Alternatively, in many cases it turns out that a simple preconditioner in the form of the sum of the real and the imaginary part of the matrix also works well but involves complex arithmetics.