Annotation of programs

Persistent URL: http://dml.cz/dmlcz/104455

ANNOTATION OF PROGRAMS

Annotation: SPOPT

Name: SPOPT

Author: Miroslav Tůma, ÚIVT ČSAV, Pod vodárenskou věží 2, 182 07, Praha 8 - Libeň.

Key words: mathematical programming, large sparse optimization, quadratic programming.

Short Description: The program SPOPT is a set of subroutines for solving large sparse instances of quadratic programming. Mathematical problem of quadratic programming is solved using reduced gradient method combined with the simplex method of linear programming. Inner iterations, where systems of linear equations are to be solved are processed with the aid of truncated-Newton environment of the preconditioned conjugate gradients method.

Among the special program features we can express stable and sparse LU factors handling, automatic scaling of variables, input using Fortran subroutines. Initial solution, if not provided by the user, is found using the simplex method of LP.

This program system can be applied in many contexts. It can help to solve optimization problems in engineering, economics, agriculture, geophysics, etc.

Programming Language: FORTRAN 77

Source text: Available.

Operating System: OS/MVT.

Main Storage Needs: Depends on problem size. For problems of moderate size: 500 kB— 1 MB.

Implemented on computers: EC 1045 in ÚIVT ČSAV. Can be used on any computer with full ANSI 77 norm of programming language.

Annotation: STOCHTOL

Name: STOCHTOL

Author: Pavel Růžička, ÚIVT ČSAV, Pod vodárenskou věží 2, 182 07, Praha 8 - Libeň.

Key words: optimal design, worst case design, design centering, tolerancing, stochastic programming, stochastic gradient methods

Short description: Stochtol is the package of programs and subprograms for optimal design of the general complex system parameters and their tolerances (i. e. maximal allowed parameter deviations).

It renders possible to solve the problems of the production yield maximization, the design centering and the production cost minimization through the most convenient system parameters location and their tolerances determination. In the package are included methods for the optimal design with respect of the large parameters changes sensitivity minimization. Stochtol offers also

method for simple approximation of the region of acceptability (i. e. the set of the system parameters saving correct work of the system).

The package can be utilized in the area of the computer aided design of the general systems.

Programming language: FORTRAN 77

Source text: available

Operating system: does not depend on the OS

Main Storage Needs: are greater then 240 KB and depend on the problem size

Implemented on computers: EC 1045 in ÚIVT ČSAV. Can be used on computers with full ANSI norm Fortran 77 programming language.