

DO&IT Seminar Series

Speaker: Hans Kellerer, Professor
Department of Statistics and Operations Research
University of Graz, Austria

Date: Friday, October 16, 2009

Time: 2-3:30 pm

Location: VMH 1335

Title: Symmetric quadratic knapsacks, scheduling problems and convex quadratic programming

Abstract: We consider a special knapsack problem for minimizing a symmetric quadratic function. This knapsack problem is related to several single machine scheduling problems, e. g. the problem of minimizing the total weighted earliness and tardiness with respect to a common due date. It is shown how to construct a fully polynomial time approximation scheme (FPTAS) with strongly polynomial running time.

To guarantee that the running time of an FPTAS is strongly polynomial, a procedure for constructing reasonable upper bounds is useful. To this end, fast solution methods for the continuous relaxation of the problem can be helpful.

In the second part of the talk we present ongoing research on convex quadratic programming problems in n variables with a linear constraint and n box constraints. Extensions to a constant number of constraints are also considered.

Bio: Hans Kellerer, Dipl.Ing. in mathematics and physics at the Technical University of Munich, Ph.D. in mathematics at Graz Institute of Technology, since 1993 professor at the University of Graz