

Proposal of a session

at 23rd IFIP Conference on Modelling and Optimization

Title: **Stability, sensitivity and error analysis for optimal control problems.**

Organizers: **K. Malanowski** (Systems Research Institute, Warsaw),
F. Tröltzsch (Technical University, Berlin).

Number of participants: about **15**.

Motivation

The exact values of the data, for real life optimal problems, usually are not known. Moreover, these values are subject to perturbations in the process of control. Therefore, it is important to know if small changes of the data do not lead to big deviations from the optimality. From the mathematical viewpoint, this problem is the subject of stability and sensitivity analysis, where the local properties of the solutions to optimization problems, treated as functions of parameter, are investigated. An important subclass of these problems is constituted by problems of convergence of approximation, where the original problem is intentionally approximated by a simpler model, and the resulting error of optimality should be estimated. Problems of error estimates are crucial in numerical solving of optimal control problems for continuous systems.

We are going to invite, to participate in the session, both the leading professor and younger scientists, working on the above class of problems and on the related topics. The presented results will concern optimal control problems described for systems described by ODEs and PDEs.