EDITORIAL

As a component part of the activities conducted by the Stefan Banach International Mathematical Center in Warsaw an extended workshop (a "minisemester") was organized on Parameter and Shape Optimization. The minisemester took place at the Center in Warsaw between March 8th and April 9th of 1993. It was the first one in the series of the extended workshops devoted to control and optimization theory, initiated by Professor Czesław Olech.

The second part of the minisemester (March 25th to April 9th) was involved with presentation and discussion of different aspects of shape optimization and optimal design of structures as well as related topics in modelling, control and sensitivity analysis of distributed parameter systems.

Within it a Tempus Course on Optimal Design and Control of Structures under Statical and Vibration Response was organized in collaboration with Professor Zenon Mróz and Dr. Tomasz Lekszycki beetwen April 5th and April 9th. Lecture notes were prepared for participants of the course coming from twelve countries.

During the second part of the minisemester lectures were delivered by 48 invited speakers coming from Czech Republic, Denmark, France, Germany, Japan, Latvia, Poland, Portugal, Russia, Slovakia, Spain, Sweden, Tunisia, Ukraine and USA. They presented both the new results and the state-of-the-art reviews concerned with the following topics:

- the existence and uniqueness of solutions to shape optimization problems,
- homogenisation methods in optimal topology design,
- design sensitivity and optimal design of plates, shells, frames, ...
- applications of shape optimization to equations of mathematical physics (e.g. elasticity, thermoelasticity, electromagnetics, fluid dynamics, free boundary problems, contact problems, ...),
- numerical methods (finite element methods, finite volume methods, integral equations, ...),
- nonlinear programming and global optimization for nonconvex problems,
- sensitivity analysis of optimization problems,
- optimal control of distributed parameter systems,
- modelling and identification techniques for partial differential equations.

The previous and the present special issues of *Control and Cybernetics* contain selection of papers based on some of the presented lectures. The first was on the *Optimal Design and Shape Optimization* and the present is on the *Modelling,*

Identification, Sensitivity Analysis and Control. They consist of the papers by invited speakers and of few technical notes by young scientists.

It is hoped that the Readers will find this volume interesting and that it will also constitute a tangible contribution to the domain.

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