EDITORIAL

Within the framework of the activities conducted by the Stefan Banach International Mathematical Center in Warsaw, the second part of the first French-Polish summer school on **Shape Optimization and Scientific Computing** was organized with the aid of Tempus Grant S_JEP-07228-94 and the French Programme CNRS/GDR in Shape Optimization. This part of the summer school was held at the Center in Warsaw between July 10th and 14th. The first part of the summer school took place at the Systems Research Institute of the Polish Academy of Sciences between July 3rd and 7th and was devoted to computer training.

The summer school involved the presentation and discussion of different aspects of shape optimization and the optimal design of structures as well as related topics in scientific computing.

The lectures were published in a special issue of the journal of Control and Cybernetics. Participants of the summer school presented research papers at the session on *Shape Optimization* during the IFIP Conference on *Modelling and Optimization of Distributed Parameter Systems with Applications to Engineering*, which took place in Warsaw between July 17th and 21st. The conference was organized by the Systems Research Institute of the Polish Academy of Sciences within the activities of the IFIP Working Group WG 7.2.

The papers include new results concerned with the following topics:

- the existence of solutions to shape optimization problems,

- design sensitivity and the optimal design of arches, frames, ...

- applications of shape optimization to equations of mathematical physics,

- numerical methods,

- 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 present special issue of Applied Mathematics and Computer Sciences contains a selection of papers based on some of the presented lectures by invited speakers and a few technical notes by young scientists from the session at IFIP Conference. We hope that the Readers will find this volume to their interest and that it will also constitute a tangible contribution to the domain.

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