Preface

This Journal Issue contains some of papers presented at the First International Conference on COMPUTATIONAL MECHANICS CM'04 - In Memory of Professor dr Mladen Berković, held in Belgrade, Serbia and Montenegro, November 15-17, 2004.

The scientific discipline behind this conference was Theoretical and Applied Mechanics (TAM) and its one of the sub-discipline Computational Mechanics (CM). TAM is concerned with the study of mechanical phenomena: the behavior of solids and fluids under the actions of forces. It has an enormous influence on the industrialized world, enabling technological developments in virtually every area that affects our lives, security, and well being.

On the other hand, Computational Mechanics is concerned with the use of computational methods implemented on the personal and mainframe computers, to study events governed by the principles of mechanics. According to the physical focus of attention it has three main areas of application. Namely, Nano and Micromechanics (molecular, atomic, crystallographic and granular levels of matter, design and fabrication of materials and microdevices), Continuum Mechanics - Fluids, Solids and Structures, and Multi-physics (civil and/or mechanical engineering, applied mechanics and mathematics), as well as Systems (airplanes, building, bridges, engines, microchips, robots; biological, ecological and cosmological entities).

The Computational Mechanics has had and will have a pervasive impact on manufacturing, transportation, medicine, defense and many other areas of great importance to modern civilization. A recent study run by the Integrated Manufacturing Technology Roadmapping Project: Modeling and Simulation, sponsored by the United States Government concluded that enterprise-wide "... Modeling and simulation are emerging as key technologies to support manufacturing in the 21st century, and no other technology offers more potential than

modeling and simulation for improving products, perfecting processes, reducing design-to-manufacturing cycle time, and reducing product realization costs..."

The aim of this conference for Computational Mechanics was to put together individuals, institutes and countries, interested in cooperative actions for further development and implementation of numerical methods in structural analysis and optimization of large-scale structural systems.

Lectures presented on this conference considered computation methods in various stages as: Computation Solid and Fluid Mechanics, Computation Structural Mechanics, Fracture and Damage Mechanics, Structural Optimization, Continuum, Nano and Micro Mechanics, Approximation Techniques in Mechanics.

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On Behalf of Organization Committee of CM'04

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