

Preface

The first international conference *Shell and Membrane Theories in Mechanics and Biology: From Macro- to Nanoscale Structures* (SMT in MB—2013) has taken place at the Belarusian State University (Minsk, Belarus) from 16 to 20 September 2013. This book is a collection of papers presented on the conference or close to the topics of the conference. It contains 17 revised and extended research articles written by experienced researchers participating in the conference. The book will offer the state-of-the-art in mechanical, materials, and civil engineering, ranging from composite materials up to characterization of nanostructures. Examples taken from novel trends in biomechanics. Well-known international experts present their research on materials modeling and evaluation up to recent printing and visualization for advanced analyzes and evaluation. The conference was organized by Belarusian State University (BSU, Belarus) together with the Joint Institute of Mechanical Engineering of the National Academy of Sciences of Belarus under support of the Belarusian Republican Foundation for Fundamental Research.

The main purpose of the conference was to bring together mechanical engineers, mathematicians, physicists, and other specialists carrying out researches in such areas like theories of shells, plates, and membranes in order to discuss important results and new ideas support and promote interdisciplinary research activity in these broad but allied fields. The new trends in application in mechanical, civil, and aerospace engineering, as well as in new branches like medicine and biology demand the improvements of the theoretical foundations of these theories. The forum was addressed to the broad spectrum of scientists from different fields of mechanics, biomechanics, mathematics, physics, medicine, biology, etc. Although all papers related to the shell-like structures, membranes and films or to adjacent fields in mechanics, physics, etc., were welcomed, the focus was paid on presentations which relate to new theories, approaches, methods, and applications describing nonclassical effects (e.g., the small-size effects at the micro- and nano-scale level, etc.). Applied studies in industry, medicine, biology, and nanotechnology were also presented.

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