

Preface

The presented special issue is devoted to materials and modern technologies.

The strength of materials and modern tribology research, the technique of structurally inhomogeneous materials modelling and material surface treatment are topics of the first three chapters.

The separate chapter includes research results on the properties and synthesis techniques of low-dimensional quantum structures such as quantum dots and quantum wells that can be used in sensors, optoelectronics, etc.

The photocatalytic technologies and devices for thermoelectric generation of power use sun irradiation and take important positions in the area of sustainable development of modern industry and environmental protection. These topics are reflected in the fifth chapter of the special edition.

The last chapter contains some research results and engineering solutions related to problems of defect identification in materials and structures. The welding defect definition based on weld image processing and method of visual inspection and infrared thermography of installed photovoltaic modules are presented in this section.

This special edition will be helpful to a wide range of engineers and researchers from materials science, processing technologies, machinery and opto- and microelectronics.