

# Preface

This special edition is devoted to materials science and modern technologies of materials processing and synthesis.

The analysis of microstructure and mechanical properties of structural metals, analysis of the machinability of some types of steel and alloys and investigation technologies of friction stir welding, incremental forming, drilling and additive manufacturing are presented in the first chapter.

The separate chapter includes research results on corrosion behaviour, cavitation erosion and corrosion protection of some structural metals.

Two chapters are devoted to the analysis of the synthesis methods and properties of polymeric materials and chemical technologies of biochar production and modelling processes in the pulverised coal boiler.

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

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