

Preface

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

Additive technologies such as direct laser deposition and selective laser melting are investigated for the case of application in alloy synthesis in the first chapter. The properties of obtained samples were also analysed.

The book's next chapter includes research articles exploring the results analysis of the application of modern technological processes for materials treatment. Here are examined the constructional steel ultrasonic impact treatment at negative air temperatures, the process of forming briquettes from iron and plastic waste and the welding of structural steel at low temperatures.

The surface modification of nickel oxide thin films obtained by gas-phase deposition and the crystallisation conditions on the as-cast structure of a shape memory alloy are explored in the third chapter.

The next four chapters are devoted to biomedical research, the investigation of aggregate replacement materials in concrete production and actual engineering issues in structural engineering, structural mechanics and geotechnics.

This special publication will interest materials science, machinery, biomedical engineering and construction specialists.