

Preface

This special edition is devoted to an analysis of the results of developing modern technologies and materials for many branches of the industrial sphere.

The first two chapters present to readers research in physical metallurgy and modern composite materials. The thermomechanical processes in some types of steel and alloys, theoretical calculations of the electronic structure for the Heusler alloy, and mechanical properties of epoxy-based and magnetorheological composites are considered here.

The third part presents results on the synthesis of multifunctional nanoparticles.

The fourth chapter analyses the electrical properties, electron emission rate and other characteristics of semiconductor devices for power electronics.

The fifth part of the collection is devoted to the investigation of rare earth materials recovery technologies. The Dysprosium, Neodymium and Cesium separation processes are studied here.

The last chapter presents research results on the development and properties analysis of modern building materials for 3D printing in construction.

This special issue will be useful to a wide range of specialists from the industrial sector.