

Preface

The current edition presents to readers the results of scientific research and engineering design in the area of engineering materials and technologies of their processing, including also technologies for water treatment and green building materials.

The application of modern steel, structural alloys, superalloys, and metal matrix composites that are the main structural materials needs to develop new effective processing technologies. The tandem of material and suitable processing technology is the cornerstone in the development of modern mechanical engineering. The two sections in this book are related to this problem.

The conception of sustainable development of the energy sector includes the requirement for the creation of effective energy storage and energy conversion devices. The synthesis of novel cathode material for battery and experimental and numerical analysis of low-temperature proton exchange membrane fuel cells are topics of the corresponding section in this book.

The other section represents to readers the results of the analysis of technologies of absorption in water desalination and synthesis of polymer membrane for membrane water filtration technology.

The special part is dedicated to the analysis of properties and production technologies in the field of green building materials.

This book will be helpful to specialists and researchers in materials science in various manufacturing activities.