Preface

This special edition brings together results from a diverse range of studies in materials science and modern technologies. The collection highlights both fundamental principles and recent innovations that are shaping contemporary engineering and scientific research.

Chapter 1: Materials for Biomedical Engineering introduces advanced materials designed for localised metronidazole delivery and bioactive glasses applied in scaffolds.

Chapter 2: 3D Printing explores additive manufacturing as a transformative approach in modern production. It presents principles of process parameter optimisation and analyses the properties of materials used, along with technological features driving the integration of 3D printing into industrial, biomedical, and research applications.

Chapter 3: Machine Learning Approaches in Materials Research examines the growing synergy between artificial intelligence and materials science. It discusses how machine learning algorithms accelerate material development, predict properties, and optimise processes, ultimately contributing to faster innovation in this field.

Chapter 4: Water Treatment addresses materials and methods for efficient purification and recycling of water resources. It covers specialised materials, reagents, and related technologies.

Chapter 5: Green Concrete focuses on environmentally friendly construction materials, emphasising binders and recycled aggregates derived from solid waste and natural sources, which help reduce the environmental burden from the construction industry.

The presented articles reflect the dynamic and interdisciplinary nature of modern research in materials and technologies, which ensures innovations, sustainability, and technological progress. We hope this special edition serves as a valuable reference for researchers, engineers, and students engaged in the development of advanced materials and technologies.