Preface

This special edition presents a collection of research results highlighting recent advances in materials science and technologies. The selected articles reflect the breadth of contemporary materials research, encompassing modern alloys, composite materials, materials and technologies for energy conversion, functional materials, and advanced wastewater treatment solutions.

The first chapter, Processing Techniques and Properties of Alloys, focuses on the development of advanced alloys, their property investigation, effective processing methods, and microstructural control. The contributions emphasise the relationships between composition, processing conditions, and resulting mechanical and functional properties.

The second chapter, Design, Fabrication, and Performance of Advanced Composites, addresses innovative composite materials with multifunctional characteristics and includes material design, manufacturing technologies, and performance evaluation, along with variants of application.

The third chapter, Materials for Catalysis and Energy Conversion, explores materials that play important roles in catalytic processes and energy conversion technologies. Contributions examine materials and technologies used in solid oxide fuel cells and biomass conversion.

The fourth chapter, Functional Materials, presents studies on materials engineered to exhibit specific functional properties. These materials underpin a wide range of advanced applications in modern engineering solutions.

The fifth and final chapter, Advanced Materials for Wastewater Treatment, focuses on innovative materials and technologies for removing radioactive contaminants. The chapter also highlights photocatalytic degradation of synthetic dyes.

The special edition is intended to serve as a valuable reference for researchers and engineers seeking to advance knowledge in modern materials science and technological innovation.