

# Preface

Advancements in materials science and materials processing technologies are pivotal in developing innovative solutions across industries. The rapid evolution of processing techniques, coupled with the demand for enhanced material performance, has created a fertile ground for wide explorations and engineering refinements in this sphere.

This special edition comprises four carefully curated chapters, each dedicated to an important area of study.

The first chapter delves into the applied research on structural steel and alloy materials. It explores their mechanical, thermal, and chemical properties, along with advanced processing techniques to optimise performance for diverse applications.

The next chapter, "Additive Manufacturing", represents a transformative approach to manufacturing, highlighting cutting-edge advancements in 3D printing technologies. The articles emphasise material innovations, process optimisation, and the challenges of integrating additive manufacturing into industrial applications.

Focusing on unconventional technological processes, the third chapter showcases innovative solutions that challenge the boundaries of conventional manufacturing. Topics include advanced machining and hybrid technologies that redefine the efficiency and precision of materials treatment.

The last chapter addresses the design and investigation of wire and wire-based products. The research is focused on the analysis of mechanical properties in static and dynamic operation regimes.

We hope this special edition will inspire further innovation and exploration in the fascinating and ever-evolving fields of applied materials science and materials processing technologies.