Preface

This special edition presents a comprehensive review of four areas of materials science development that define its current landscape.

Chapter 1, "Mechanical Properties of Structural Steels," provides an in-depth examination of the fundamental characteristics that make steel indispensable in construction, infrastructure, and heavy industry, emphasising the relationship between microstructure, processing parameters, and performance under various loading conditions and environmental backgrounds.

Chapter 2, "Additive Manufacturing," explores the transformative technologies reshaping production paradigms, offering insights into layer-by-layer fabrication methods that enable unprecedented design freedom, material efficiency, and customisation across multiple sectors.

Chapter 3, "Functional Materials," focuses on materials engineered for specific functions beyond traditional structural roles, highlighting innovative ideas in this area.

Chapter 4, "Materials and Nano Approaches in Electronics," examines the critical role of advanced semiconductor materials in enabling next-generation electronic devices for micro- and power electronics.

The presented investigations bridge traditional metallurgy with cutting-edge nanoscience and additive manufacturing, providing readers with essential engineering information. This special edition is intended for researchers, engineers, educators, and students seeking authoritative guidance in the rapidly evolving field of materials science.