

# Preface

Relating macroscopic phenomena to microscopic properties is a base of materials science. Knowledge of the relationships between structure, properties, functions, and materials' behaviour is essential for prospective safe applications of them in human activity. Therefore, a vital and challenging goal of material scientists is to design, synthesise, and manufacture materials with superior mechanical and(or) physicochemical properties. In this connection, the materials characterisation based on each scale's physical and microstructural analysis techniques plays a vital role in developing novel materials.

This book entitled "Current Trends in Materials Research: Material Properties, Microscopic and Morphological Characterization" presents a contemporary overview of the latest achievements in synthesising nanomaterials and composites additive manufacturing and nonferrous metals. Here are collected relevant contributions related to the design and production of novel structural materials based on the study of their properties by innovative characterisation techniques.