

## Preface

In an era marked by rapid technological advancement, material science continues to drive innovation across diverse fields.

This special edition presents a curated selection of current developments in materials research and technologies, offering insights into how these results and advancements ensure the sustainable development of modern production.

The first chapter explores materials and processing techniques designed to enhance the performance, durability, and efficiency of energy storage devices critical to a stable energy supply.

The following chapter delves into welding processes, examining how recent advancements in welding techniques and material properties contribute to stronger, more reliable connections in construction, automotive manufacturing, and related industries.

The third chapter investigates innovations in developing materials for pharmaceutical and biomedical applications that are improving drug delivery, ensuring antimicrobial protection, can be used in tissue engineering, etc.

The final part addresses the results of a comparative study of raw and water-rinsed bituminous coal structures from the East Kalimantan region.

We hope this special edition will serve as an inspiring resource for researchers, engineers, and students eager to contribute to the advancement of materials science and modern technologies.