

Preface

This special edition presents advances in polymers, composites, and ceramic-based materials, with a focus on processing technique–structure–property relationships across diverse material classes. The collection addresses epoxy resins, thermoset polymers, and polymer composites, emphasising curing behaviour, morphology, microstructure, and mechanical properties. Metallic-ceramic systems are explored through metal matrix composites, cemented carbides, and ceramic-reinforced materials, which are produced via various techniques, including powder metallurgy, mechanical alloying, semi-solid processing, thermomechanical processing, and spark plasma sintering. In addition, the edition covers bioactive and borosilicate glasses, as well as emerging manufacturing technologies such as laser-directed energy deposition.

The edition presents an integrated perspective on modern processing strategies for polymers, composites, and ceramic materials, with a focus on structural, functional, and biologically related applications.