Preface

This special edition offers a focused examination of three significant domains in contemporary materials science and engineering.

Chapter 1, "Composites and Ceramics," explores the structure, properties, and diverse applications of some types of these advanced material classes, highlighting their exceptional performance characteristics and growing significance across aerospace, automotive, biomedical, and structural engineering sectors.

Chapter 2, "Fire-Extinguishing and Fire-Resistant Materials," is devoted to critical fire safety challenges by presenting the latest developments in materials designed to suppress combustion and withstand extreme thermal conditions, thereby protecting lives, infrastructure, and the environment.

Chapter 3, "Advanced Methods of Materials Investigation and Detection," introduces cutting-edge analytical and diagnostic techniques that enable precise characterisation, quality control, and innovation in materials development.

The compiled articles provide readers with a comprehensive foundation for understanding both the practical applications and scientific methodologies that drive progress in modern materials technology. This special collection is designed to serve researchers, engineers, and students seeking authoritative knowledge in the rapidly advancing fields mentioned.

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