

Preface

This special edition brings together cutting-edge research results and insights in two areas of materials science: luminescence materials and technologies and materials for fire protection and fire resistance.

The first chapter explores some luminescent materials, which have widespread applications in fields ranging from optoelectronics and energy-efficient lighting to bioimaging and sensing technologies. The articles in this chapter delve into the analysis of luminescence properties, innovative synthesis methods, and the latest advancements in enhancing the efficiency and stability of luminophores. These investigations provide a foundation for developing next-generation materials with high photonic performance.

The second chapter focuses on one of the most pressing challenges in machinery and construction today - enhancing the safety and resistance of buildings, vehicles, and industrial equipment against fire hazards. The articles in this chapter offer a comprehensive look at new fire-retardant materials, coatings, and techniques designed to prevent or delay the spread of fire, thus saving lives and reducing property damage. By addressing both the scientific principles behind these materials and the practical applications of emerging fire protection technologies, this chapter provides a valuable resource for engineers, architects, and safety professionals committed to advancing fire-resistant design and technology.

The special edition presents a detailed examination of two fields in materials science that, while distinct, share a common goal: the development of advanced materials and technologies. This special publication bridges fundamental research and real-world applications, offering insights to researchers and industry professionals.