



SURFACES, COATINGS AND ADVANCED MATERIALS

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Surfaces, Coatings and Advanced Materials

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Prof. Akihiko Fujiwara

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Special topic volume with invited peer-reviewed papers only

Edited by

Prof. Dr. Yuri Otrosch and Prof. Akihiko Fujiwara

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Preface

The field of materials science and technologies continues to revolutionize industries by providing innovative solutions to complex global challenges. This special edition brings together research results in nanomaterial synthesis, surface treatment and coatings of machine parts, and chemical and radiation safety technologies, offering a concise yet comprehensive overview of achievements in these critical areas.

The first chapter explores the cutting-edge developments in nanotechnology, focusing on how the unique properties of nanomaterials are being harnessed for a wide range of applications. This chapter highlights both the synthesis techniques and the practical application methods of these materials, demonstrating their potential in diverse industries.

The next chapter delves into advanced surface engineering techniques that are improving the durability, functionality, and wear resistance of materials for various machine parts. These treatments and coatings of working surfaces are crucial for enhancing machines and equipment performance in harsh environments, making them indispensable in sectors like aerospace, automotive, construction, etc.

Finally, the last chapter examines the latest materials and technologies designed to shield humans and the environment from radiation and chemical hazards, offering insights into how material innovations are enhancing safety standards in the industry.

This special edition aims to provide researchers, engineers, and industry professionals with valuable insights about the latest innovations in materials science and technologies.

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CHAPTER 1:

Synthesis and Applications of Nanomaterials