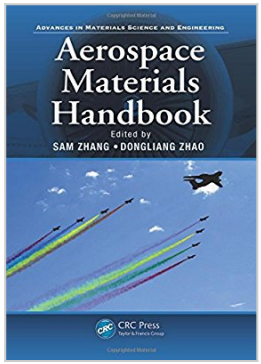

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The chapters address developments in bulk materials, coatings, traditional materials, and new materials. Beginning with an overview of superalloys, including nickel-, nickel–iron-, and cobalt-based superalloys, the text covers machining, laser cladding and alloying, corrosion performance, high-temperature oxidation, thermal spraying, and nanostructured coatings. It also includes four categories of composites used in aerospace: metal matrix, polymer, carbon nanotube-reinforced polymer, and self-healing composites. The text describes preparation, processing, and fatigue of lightweight magnesium alloys, as well as an exciting new class of materials?aerogels.

This book brings readers to the cutting edge of research in materials for aerospace and aeronautics. It provides an entry point into this field and presents details to stimulate future research. This unique, up-to-date resource offers knowledge to enable practitioners to develop faster, more efficient, and more reliable air- and spacecraft.

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Editorial Review

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Professor Sam Zhang Shanyong, better known as Sam Zhang, is a tenured full professor at the School of Mechanical and Aerospace Engineering, Nanyang Technological University, Singapore. Professor Zhang serves as editor-in-chief for *Nanoscience and Nanotechnology Letters (USA)* and principal editor for the *Journal of Materials Research (USA)*. He has worked on processing and characterization of nanocomposite thin films and coatings for 20 years and has authored/co-authored more than 260 peer-reviewed international journal papers with an average of more than 12 citations per paper, 7 books, 20 book chapters, and guest-edited more than 20 journal volumes. His book on *Materials Characterization Techniques* has been adopted as a textbook by one European and eight American universities. The book was also translated into Chinese, published by China Scientific Press, and was used as textbook in many Chinese universities.

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