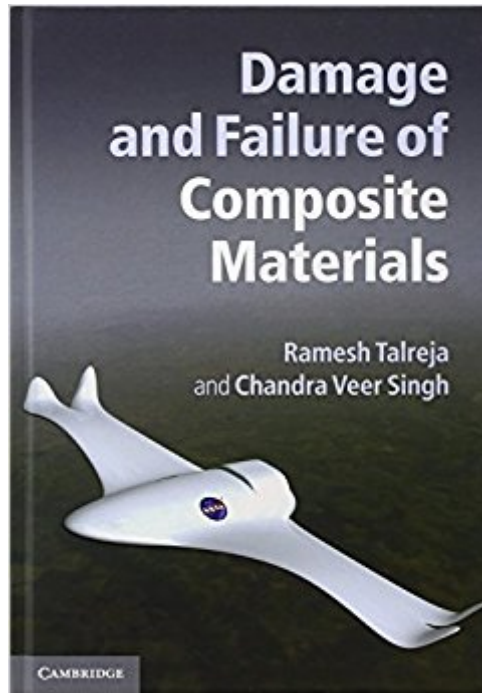




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Damage And Failure Of Composite Materials



Synopsis

Understanding damage and failure of composite materials is critical for reliable and cost-effective engineering design. Bringing together materials mechanics and modeling, this book provides a complete guide to damage, fatigue and failure of composite materials. Early chapters focus on the underlying principles governing composite damage, reviewing basic equations and mechanics theory, before describing mechanisms of damage such as cracking, breakage and buckling. In subsequent chapters, the physical mechanisms underlying the formation and progression of damage under mechanical loads are described with ample experimental data, and micro- and macro-level damage models are combined. Finally, fatigue of composite materials is discussed using fatigue-life diagrams. While there is a special emphasis on polymer matrix composites, metal and ceramic matrix composites are also described. Outlining methods for more reliable design of composite structures, this is a valuable resource for engineers and materials scientists in industry and academia.

Book Information

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Customer Reviews

"... a welcome addition to the literature. Numerous books treat separately the mechanics of composites and failure of materials: very few combine them together and in such a coherent and comprehensive manner." Ettore Barbieri, The Aeronautical Journal

Damage and failure of materials is a topic of concern in many engineering applications, particularly where reliable and cost-effective design is important. This book provides a complete treatment of damage mechanics of composite materials, presenting a balanced experimental and computational approach for engineers and materials scientists in industry and academia.

The book was designed for the academia. It contains many mathematical models and parameters. I believe the academia would appreciate this, but the practicing engineer/designer would find the contents of the book less than useful. The book has not impacted me in any way. I have the same knowledge and outlook about the ageing of composites that I had before reading this book.

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