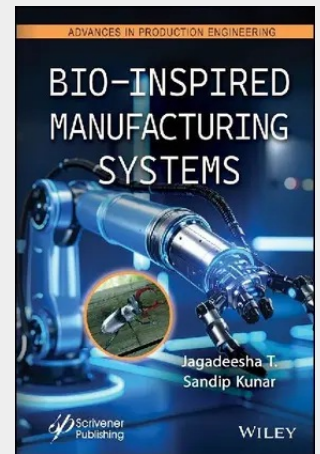


## Bio-Inspired Manufacturing Systems

Master the next generation of bio-inspired manufacturing by learning to harness the self-assembly and hierarchical power of structural proteins to create adaptive, high-performance materials. Over the past few decades, significant attention has been devoted to the self-assembly of structural proteins, which form intricate hierarchical materials combining exceptional mechanical, chemical, and transport properties. This highly regulated process spans both nano- and macroscales, making these materials especially attractive for the development of integrated, adaptive systems in bio-inspired manufacturing. Parallel advances in materials development and their application in bio-inspired devices have further accelerated progress in this field. This book explores the revolutionary potential of biomimicry in the manufacturing industry. By drawing inspiration from nature's time-tested designs, this book presents innovative approaches that enhance production efficiency, sustainability, and adaptability. It showcases how biological principles can be applied to optimize manufacturing processes, reduce waste, minimize energy consumption, and create resilient systems capable of adjusting to dynamic environments. Through real-world examples and case studies, it demonstrates the transformative power of bio-inspired solutions in industries ranging from automotive and aerospace to consumer goods and renewable energy. Designed for engineers, researchers, and industry leaders, this book serves as a comprehensive guide to understanding and implementing bio-inspired techniques within modern manufacturing systems. It bridges the gap between cutting-edge research and practical applications, providing actionable insights that can be integrated into existing production environments. Readers will find the volume: - Introduces the power of nature to drive sustainable and efficient manufacturing processes; - Explores how bio-inspired systems can reduce waste, energy consumption, and operational costs; - Discusses innovative design principles that foster adaptability and resilience in manufacturing; - Provides insights into cutting-edge technologies inspired by biological processes to enhance production. Audience Bio-Inspired Manufacturing Systems will appeal to engineers, manufacturers, industrial designers, sustainability experts, and researchers in both academia and industry. It is particularly relevant for professionals in fields like mechanical engineering, materials science, and environmental engineering, as well as those working in manufacturing operations, supply chain management, and innovation. The book targets individuals and organizations committed to integrating sustainable, efficient, and adaptable systems into their manufacturing processes.

Master the next generation of bio-inspired manufacturing by learning to harness the self-assembly and hierarchical power of structural proteins to create adaptive, high-performance materials. Over the past few decades, significant attention has been devoted to the self-assembly of structural proteins, which form intricate hierarchical materials combining exceptional mechanical, chemical, and transport properties. This highly regulated process spans both nano- and macroscales, making these materials especially attractive for the development of integrated, adaptive systems in bio-inspired manufacturing. Parallel advances in materials development and their application in bio-inspired devices have further accelerated progress in this field. This book explores the revolutionary potential of biomimicry in the manufacturing industry. By drawing inspiration from nature's time-tested designs, this book presents innovative approaches that enhance production efficiency, sustainability, and adaptability. It showcases how biological principles can be applied to optimize manufacturing processes, reduce waste, minimize energy consumption, and create resilient systems capable of adjusting to dynamic environments. Through real-world examples and case studies, it demonstrates the transformative power of bio-inspired solutions in industries ranging from automotive and aerospace to consumer goods and renewable energy. Designed for engineers, researchers, and industry leaders, this book serves as a comprehensive guide to understanding and implementing bio-inspired techniques within modern manufacturing systems. It bridges the gap between cutting-edge research and practical applications,



**182,50 €**

182,50 € (zzgl. MwSt.)

vorbestellbar, Erscheinungstermin ca.  
August 2026

**Artikelnummer:** 9781394408337

**Medium:** Buch

**ISBN:** 978-1-394-40833-7

**Verlag:** John Wiley & Sons Inc

**Erscheinungstermin:** 31.08.2026

**Sprache(n):** Englisch

**Auflage:** 1. Auflage 2026

**Produktform:** Gebunden

**Seiten:** 304

