

1. Record Nr.	UNINA9910337935803321
Titolo	Architected Materials in Nature and Engineering : Archimats / / edited by Yuri Estrin, Yves Bréchet, John Dunlop, Peter Fratzl
Pubbl/distr/stampa	Cham : , : Springer International Publishing : , : Imprint : Springer, , 2019
ISBN	3-030-11942-4
Edizione	[1st ed. 2019.]
Descrizione fisica	1 online resource (457 pages)
Collana	Springer Series in Materials Science, , 0933-033X ; ; 282
Disciplina	691
Soggetti	Materials de construcció Ciència dels materials Building materials Semiconductors Biomedical engineering Structural Materials Building Materials Biomedical Engineering and Bioengineering Llibres electrònics
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	Introduction -- Archetypes of Archimats -- Design and Manufacture of Architected Materials -- Optimization of Architected Materials -- Examples of Applications -- Architected Materials in Nature; Toward Biomimetic Approaches.
Sommario/riassunto	This book deals with a group of architected materials. These are hybrid materials in which the constituents (even strongly dissimilar ones) are combined in a given topology and geometry to provide otherwise conflicting properties. The hybridization presented in the book occurs at various levels - from the molecular to the macroscopic (say, sub-centimeter) ones. This monograph represents a collection of programmatic chapters, defining archimats and summarizing the results obtained by using the geometry-inspired materials design. The area of architected or geometry-inspired materials has reached a certain level of maturity and visibility for a comprehensive presentation

in book form. It is written by a group of authors who are active researchers working on various aspects of architected materials. Through its 14 chapters, the book provides definitions and descriptions of the archetypes of architected materials and addresses the various techniques in which they can be designed, optimized, and manufactured. It covers a broad realm of archimats, from the ones occurring in nature to those that have been engineered, and discusses a range of their possible applications. The book provides inspiring and scientifically profound, yet entertaining, reading for the materials science community and beyond.
