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| Titolo | Adaptive, tolerant and efficient composite structures / / Martin Wiedemann, Michael Sinapius, editors |
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| Collana | Research topics in aerospace, , 2194-8240 |
| Altri autori (Persone) | SinapiusMichael<br>WiedemannMartin |
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| Soggetti | Composite materials<br>Smart materials |
| Lingua di pubblicazione | Inglese |
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| Livello bibliografico | Monografia |
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| Nota di contenuto | Multifunctional Materials -- Structural Mechanics -- Composite Design -- Composite Technology -- Adaptronics. |
| Sommario/riassunto | Polymer composites offer the possibility for functional integration since the material is produced simultaneously with the product. The efficiency of composite structures raises through functional integration. The specific production processes of composites offer the possibility to improve and to integrate more functions thus making the structure more valuable. Passive functions can be improved by combination of different materials from nano to macro scale, i.e. strength, toughness, bearing strength, compression after impact properties or production tolerances. Active functions can be realized by smart materials, i.e. morphing, active vibration control, active structure acoustic control or structure health monitoring. The basis is a comprehensive understanding of materials, simulation, design methods, production technologies and adaptronics. These disciplines together deliver advanced lightweight solutions for applications ranging from mechanical engineering to vehicles, airframe and space structures along the complete process chain. The book provides basics as well as inspiring ideas for engineers working in the field of adaptive, tolerant |

and robust composite structures.