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Nota di contenuto	Intro -- The Authors -- Dr.-Ing. Hauke Lengsfeld -- Dr.-Ing. Hendrik Mainka -- Prof.Dr.-Ing. Volker Altstadt -- Preface -- Acknowledgements -- Abbreviations -- Contents -- 1 Introduction -- 2 Carbon and Its Properties -- 2.1 Structure of the Carbon Atom and Atomic Model of Carbon -- 2.1.1 Rutherford's and Bohr's Atomic Models -- 2.1.2 Atomic Orbitals and Hybridization -- 2.2 Modifications of Carbon -- 2.3 Structural Forms of Carbon -- 2.3.1 Diamond - The Diamond Structure (sp3) -- 2.3.2 Graphite - The Graphite Structure (sp2) -- 2.3.3 Triple Bonding (sp1) -- 2.3.4 Other Forms of Carbon -- 2.3.4.1 Fullerenes -- 2.3.4.2 Carbon Nanotubes -- 2.3.4.3 Carbon Black -- 2.3.4.4 Activated Carbon -- 2.3.4.5 Carbon Fibers -- 3 Carbon Fibers -- 3.1 Precursor Manufacturing -- 3.1.1 Wet Spinning -- 3.1.2 Melt Spinning -- 3.1.3 Precursors -- 3.1.3.1 Polyacrylonitrile (PAN) -- 3.1.3.2 Mesophase Pitch -- 3.1.3.3 Further Precursors -- 3.2 Production of Carbon Fibers -- 3.2.1 Precursor Stabilization/Stabilization Process -- 3.2.2 Carbonization and

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Sommario/riassunto

Provides a hands-on approach to making carbon fibers and their
 composites for those who need to use these materials. The book gives
 an excellent overview of the chemical and physical properties of carbon
 fibers and their composites. In addition, common test and analysis
 methods for demonstrating these properties are presented.