FIBERS AND COMPOSITES

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CVD/CVI processes

PART III
Properties of matrices and composites

INTRODUCTION TO THE SERIES

The *World of Carbon* book series aims to propose different approaches to carbon materials which summarize the essential information regarding advances and results accumulated in basic and applied research during the last century. Indeed, carbon associated with other atoms is a key element in nature and life. The focus of these books is, however, elemental carbon in a condensed phase, that is, mainly related to materials science.

Besides the natural forms of carbon found in earth and in extraterrestrial media, the artificial ones have led to manifold technical applications. They cover areas such as industrial chemistry and metallurgy, terrestrial transports as well as aircraft and aeronautics or environmental protection. These examples are related to the numerous old and new forms of carbon that we have partly presented in the first book of the series.

The field of research of carbon materials is a beautiful example of the strong interactions between science and technology, where back and forth activity has worked together for a long time. As with other scientific events, a historical approach shows that advances are step-by-step rather than linear with strong breakthroughs; different strata of knowledge are accumulated but sometimes with a loss of memory of the previous one. It is crucial for scientific knowledge, as a part of human activity, that a basic synthesis is realized, which summarized the numerous annual publications. The aim of this series is thus to provide short tutorial articles containing a comprehensive summary of the different topics related to the science of carbon materials. They will be addressed to engineers, scientists and students who are seeking fundamental points whithout "reinventing the wheel".

World of Carbon series will be devoted to specific subjects, which cover all forms of carbons: the old ones like graphites or diamonds, but also the applied ones as fibers and composites. Each volume will cover fundamental research in chemistry and physics, as well as current applications and future developments. Such is the case of the second volume, which is devoted to the different forms of fibers, their precursors and their uses. This is one part of the most important industrial applications of graphitic carbons as also carbon blacks, foams and aerogels, insertion and reactivity products. Other polymorphic forms will not be neglected in the future, as carbynes or the new molecular curved forms, fullerenes and nanotubes, which are opening new avenues in nanotechnology.

Finally, we expect to present a collection of articles at a level and a style accessible to a large audience that will cover almost all aspects of carbon materials.

Pierre Delhaès
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