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# Preface

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Nowadays, nanoscience and nanotechnology have been widely deported out of the enclosures of the research laboratories. They are frequently the topics of large comments of news on the progress in science and particularly at the events generated by a discovery. Their impact becomes more concretely evident for the public at the large exhibitions of industrial novelties for which “*fabrication*” is the key word of such circumstances.

In actual fact, fabrication always appears as the executive part of a practical idea generally associated to a technical innovation. It is actually carried out in order to create either a simple tool of our routinely needs and daily concerns or engender a sophisticate instrument aims to satisfy our natural curiosity for better understanding our close and spatial environments. In the NANOWORLD, a fabrication keeps the same common role but its achievement is closely linked to the tremendous effects of *nano-material* properties. In that framework, “*Nano-fabrication*” as proposed in the title of the present book may have two meanings. It can be interpreted as a project of building a particular system wherein the nano-material plays a determining role. This is clearly the main objective of chapters 1, 2 and 3. It could be also considered in terms of a technical procedure elaborated for the preparation or the synthesis of a nano-material. This is the case of chapters 4, 5, 6 and 7.

Although that title seems very general, there is no pretention here to propose a state of the art on the global properties of nano-materials. Besides, there is no exhaustive presentation of the numerous concerned applications which are mostly classified in the current high technology category. Much more work would be necessary for covering all the different items to be considered for that purpose. Each of the selected chapters proposed provides a broad idea of a particular topic. Together, they depict the diversity of the research areas impacted by the “nano” effects. That diversity is firstly reflected by the variety of the fields considered in the book which goes from the bio-chemical topics of chapters 1 and 2 to the mechanical treatment of chapter 3 without forgetting the practical problem of functionality of chapter 5 and the industrial concern of chapter 4. The diversity is also displayed by the variety of the nano-objects used in the different studies. The specific *nano-fibres* of chapter 1 precisely named “*chitin nano-fibrils*” cannot be easily compared to those of chapter 2 obtained by means of a template apart from their global shape. The conductive characteristic of the *nanowires* of chapter 3 puts them in another nano-rods category. It should be also mentioned the presence of nano-materials of chapters 4 and 6 which do not belong to the nano-objects group. The reader of this book can also observe the diversity in the chemical origin of the investigated compounds. Organic and inorganic ones are both concerned. Of course, those investigated here represent a very limited number compared to all the natural and artificial nano-materials already proposed in the market.

All these sufficiently show how most of the human traditional activities could be more and more concerned by the expanding role of the nano-science and nano-technology. After going through this book content, we hope that the reader will be excited to know more about the resulting novelties of the next coming years. The changes expected from that “revolution” should be quietly analysed and considered as a chance for each one of us to accept some necessary adaptations in our daily life.

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