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## Preface to the French Edition

Nanotoxicology studies the toxicity of nanomaterials, nanoparticles, and more generally, any naturally occurring or man-made objects with dimensions in the range 1–100 nanometers. Such small dimensions induce specific properties, making these objects much more reactive, for example, than larger ones, and in particular, they allow them to pass through certain natural biological barriers. The potentially harmful effects that may result thus constitute one of the quite legitimate reasons for the concern they inspire.

A key objective of this book is to set out some up-to-date scientific studies of nanotoxicity, and exemplify the preventive measures taken during fabrication or manipulation of nano-objects. Another is to describe the way the public is informed about these new scientific discoveries, and also the legal arrangements currently under preparation for regulating their use.

Considering the controversy to which the nanosciences have given rise – as witnessed for all forms of scientific innovation – it seems important to expose the ethical considerations taken into account in the context of nanotechnology. Indeed, scientists have been questioned, sometimes forcefully, about the social consequences of their research, and it seems opportune to set up a responsible debate between the so-called hard sciences and the social sciences from the very beginning of any scientific project with wide-ranging industrial and social impacts. Such attempts to raise public awareness are of course relevant both on the national and international level.

The book is divided into five main parts. The first two concern nanotoxicology, and are purely scientific, providing specific examples of the potential or proven impacts of nanoparticles on humans and on the environment. The last three concern nanoethics. After a brief introduction to the basic ethical issues, there is a fairly exhaustive discussion of the implications for national and international authorities regarding the way the public demand for information is being treated, and also regarding the degree of transparency with which current developments in nanotechnology are being presented, as well as the need for rigour, responsibility, and caution in their use.

The reader will thus find one of the first books to combine both scientific and societal aspects of an emerging field, containing many references for each of its disciplines.

## Acknowledgements

We would like to thank all members of the French nanoscience community who gave a very favourable welcome to the writing of these four pedagogical introductions to nanotechnology and nanophysics, nanomaterials and nanochemistry, nanobiotechnology and nanobiology, and nanotoxicology and nanoethics, without whom they would have been impossible. Special thanks go, of course, to all those who contributed to these books.

Given the current debate over the nanosciences, it seemed important to mention in the context of a scientific textbook that research scientists do indeed take into account the potential risks involved in their innovations, and give considerable thought to all the necessary precautions before they are industrialised.

From the ethical standpoint, it is more and more important to inform the general public, and the book discusses the various authorities concerned with the citizen's demand for information when new technologies with suggested or proven risks are launched on the market. This part of the book was put together by Françoise Roure, president of the information technology department of the French Ministry for Trade and Industry. Her contribution played a key role in harmonising with the prior scientific chapters.

The latter were coordinated by Francelyne Marano, co-editor of the book, for the first part and by Jean-Yves Bottero for the second. We would like to express our most sincere gratitude for his scientific actions and for organising the working groups at the CEREGE.

We are particularly grateful to the late Professor Hubert Curien, who supported this undertaking from the start, and to Jean-Marie Lehn, Axel Kahn, and Alain Grinfeld, who have also given it their backing.

We warmly acknowledge the material and financial support of the French Ministry of Research, the French national science research organisation (CNRS), and the French atomic energy authority (CEA), and especially Jean Therme, Director of the CEA, Grenoble, who supported this project from the beginning.

The editors of the nanobooks would like to express their gratitude to Stephen N. Lyle for his excellent translation of the four nanovolumes of this Nanoscience series: *Nanotechnologies and Nanophysics*, *Nanomaterials and Nanochemistry*, *Nanobiotechnology and Nanobiology*, and *Nanotoxicology and Nanoethics*.

Marcel Lahmani  
Francelyne Marano  
Philippe Houdy



<http://www.springer.com/978-3-642-20176-9>

Nanoethics and Nanotoxicology

Houdy, P.; Lahmani, M.; Marano, F. (Eds.)

2011, XLIII, 620 p., Hardcover

ISBN: 978-3-642-20176-9