INTRODUCTION TO
**nanoscience and
nanomaterials**

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INTRODUCTION TO **NANOSCIENCE** and **NANOMATERIALS**

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Preface

This book is meant as a textbook for the senior undergraduate and the first year graduate students from different science and engineering departments. Researchers in the area will also find the book useful as a reference material for topics which are outside their expertise. The text assumes only a basic level of competency in physics, chemistry and mathematics.

Apart from the first few chapters, which deal with the topics of surfaces and some relevant topics in physics, the rest of the book is mostly organized according to the dimensionality of the nanomaterials, *i.e.* zero, one and two dimensional nanomaterials followed by bulk nanocrystalline metals and the nanocomposites. The last two chapters are devoted to the topics on the molecules for nanotechnology and the self assembly. A significant amount of space is devoted to “soft matter” which is becoming increasingly important in the fields of nanomaterials and nanotechnology. The focus is on the basics rather than on providing a large volume of information. Sufficient number of solved examples and end of the chapter problems have been included.

Students in a course on nanoscience and nanomaterials are expected to have diverse backgrounds; it is therefore necessary to provide some amount of introductory matter in each chapter. It may be assigned for self study by the instructor if thought fit.

It is hoped that after going through a course based on the book, the student will have a good understanding of the field and will also be able to comprehend the current research literature.

Despite the author’s best efforts, there are likely to be some errors. The readers’ comments and suggestions to improve the book will be greatly appreciated.

Dinesh C Agrawal

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